Canolfan Ymchwil Canser Cymru
Wales Cancer Research Centre

Ymchwil Iechyd a Gofal Cymru
Health and Care Research Wales

Ariennir gan Lywodraeth Cymru
Funded by Welsh Government

2015-16
Annual Report

CONTENTS

FOREWORD

There have been remarkable improvements in our understanding and treatment of cancer, over the last few decades. More cancer patients are being cured than ever before, as a result of laboratory studies, cancer screening programmes and clinical trials of new treatment approaches. One in every two people diagnosed with cancer in the UK now survives more than 10 years.

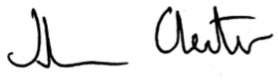
Despite this wonderful progress, there is much more to be done. Because our population is ageing, and because most cancers occur in older people, cancer is actually a growing problem, in Wales and elsewhere. Based on current trends, one in every two of us can expect to be diagnosed with cancer at some point in our lives.

Sadly, new cases of cancer in Wales are increasing - up 12 per cent since 2004 - just as resources for the NHS are under their greatest pressure. Right now, around 120,000 people are living with cancer in Wales, and this figure is set to nearly double by 2030. The rate of cancer diagnosis in Wales is 20% higher than in England, in part due to our more economically deprived population, as reflected in wide differences in cancer incidence and survival rates between regions within Wales.

The Wales Cancer Research Centre (WCRC) seeks to bring partners together to improve cancer care. It is Wales' contribution to a global effort to reverse this increasing trend in numbers of newly diagnosed cancers. WCRC is particularly concerned with the problems of cancer patients in Wales, but also aims to help cancer patients beyond Wales by performing cancer research of world class, in alignment with Welsh Government policy.

As well as having its own particular cancer problems, Wales also has a unique set of attributes which make it an ideal place for cancer research. We are a relatively small country, both in terms of our compact geography and small population size. Our population is relatively static: people who live in Wales, on the whole, stay in Wales, making it easier for us to assess changes in the population's health. Our small size allows greater collaboration between our academic institutions and NHS Wales, without the hurdle of large distances. In addition, Wales is blessed with some wonderfully talented cancer researchers, in our hospitals and universities.

The Wales Cancer Research Centre is the latest addition to Wales' fight against cancer. It was formally launched in October 2015, bringing hope to cancer patients across Wales, and beyond.



Prof John Chester, Director of the Wales Cancer Research Centre

INTRODUCTION

The Wales Cancer Research Centre is funded by the Welsh Government and is a key part of Health and Care Research Wales' infrastructure.

By working together we are making life-changing differences to the people of Wales. Patients and the public are key partners - their participation, engagement and involvement is central to all that we do.

Other research partners include NHS Wales, Welsh universities, cancer charities, and the pharmaceutical industry.

Ultimately, we perform and support cancer research of the highest quality, which builds on Wales' international research reputation, with a clear focus on collaboration, innovation and improved patient outcomes.

Our vision is to work with cancer patients and other partners to develop and deliver research excellence which benefits the health and welfare of people in Wales and beyond.

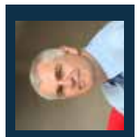
Whilst Cardiff University is the lead and grant holding institution, our other partners include: Bangor University, Swansea University, Aneurin Bevan University Health Board, Cardiff and Vale University Health Board, Abertawe Bro Morgannwg University Health Board and Velindre NHS Trust.

"We will perform and support cancer research of the highest quality, across the translational spectrum, focussing on important areas of clinical need, for the short- and long-term benefit of patients and the public."

We work with many organisations beyond our partners and continually seek new collaborations to bring the cancer research community closer together.

An External Advisory Board guides the Centre in its work and includes 12 UK experts from across the cancer research spectrum. This board is chaired by senior opinion leader, Peter Selby (Professor of Cancer Medicine at the Leeds Institute of Cancer and Pathology).

The Centre will receive £4.5 million of Welsh Government funding over three years (2015-2018). This investment employs 31 whole time equivelent posts, performing and supporting cancer research across Wales, in nine work packages, within our four broad research themes - Pre-clinical, Translational, Clinical and Community.



DIRECTOR
Prof John Chester

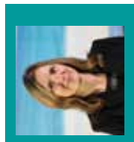
WALES CANCER RESEARCH CENTRE LEADERSHIP TEAM

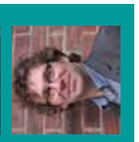
COMMUNITY

THEME LEAD
Dr Anthony Byrne

Integration & Informatics
Prof David Ford

Palliative & Supportive Care
Dr Annmarie Nelson
& Prof Simon Noble





Screening, Prevention & Early Diagnosis
Dr Kate Brain
Dr Richard Neal

CLINICAL

THEME LEAD
Prof Peter Barrett-Lee

WORK PACKAGE LEADS

Randomised Clinical Trials
Dr John Strffurth

Phase I Trials
Dr Robert Jones &
Dr Steve Knapper

TRANSLATIONAL

THEME LEAD
Prof Malcolm Mason

Stratified Medicine
Dr Richard Adams

PRE-CLINICAL

THEME LEAD
Prof Julian Sampson

Cancer Genetics & Genomic Instability
Prof Duncan Baird

Cancer Immunology
Prof Awen Gallimore

Signalling & Stem Cells
Dr Richard Clarkson

Drug Development & Model Systems
Dr Andrew Westwell

WORK PACKAGES

PRE-CLINICAL

Cancer Genetics and Genome Instability
Cancer arises from mutations within the DNA that constitute the chromosomes in human cells.

Some types of cancer occur because of mutations that are inherited within families, but more commonly cancer occurs because of sporadic mutations arising during life. Once formed, cancer cells can mutate their DNA still further, causing them to change and evolve into more aggressive types. The ability of cancer cells to evolve in this way also allows them to become resistant to treatment, leading to relapse.

This work package aims to investigate cancer-causing mutations and to apply this understanding for patient benefit. We identify mutations that lead to inherited forms of cancer and this may provide new genetic tests for families with these conditions. We will provide a more detailed understanding of the consequences of genetic mutations for the origins and evolution of tumours and their responses/ resistance to therapy. By understanding how DNA is mutated in cancer we will develop better diagnostic, prognostic and predictive tests.

Cancer Immunology
Immune therapy is an exciting new area of cancer research, which is producing dramatic benefits for patients. This work package aims to harness the activity of the immune system to kill cancers, in much the same way as your body might fight a cold or infection.

This strand of work builds upon existing immune therapies such as anti-cancer vaccines, antibody and white cell therapies. In addition, the work will expand the Cancer Immunology community in Wales, bringing together a multi-disciplinary network of cancer and non-cancer immunology researchers.

Signalling and Stem Cells
Not all of the cells in a tumour can renew themselves. Those that are able to divide, look and behave like stem cells and act as the tumour's 'driving population'. We are conducting research which gives us an insight into these cancer stem cells, which must be eliminated to achieve a cure.

Cancer stem cells share two key properties with normal stem cells; both are immortal and both are able to self renew. These properties are the main factors in the growth and movement of tumours around the body.

Molecular pathways in a cell determine whether it will act like a stem cell and it is possible to turn these molecular pathways on or off. This work package is developing new drugs that can do just that, in order to provide better-targeted treatments.

Drug Development and Model Systems
This part of our work involves the discovery and early development of new drug

molecules from laboratories in Wales. We will take molecules which show potential into pre-clinical development, and use cancer model systems to generate data to support bringing new drugs to patients, via clinical trials.

We have a particular interest in developing drugs to treat the process known as metastasis - the spread of tumours to vital organs such as the liver, brain and lungs, and which is the chief reason why people die from cancer.

TRANSLATIONAL

Stratified Medicine

Stratified medicine divides patients into groups based on their risk of developing cancer or their response to certain therapies. Stratification is used to identify a group of patients with shared biological characteristics in order to apply a more precisely tailored and effective treatment plan.

This work package will support and facilitate the discovery of stratifying "biomarkers" to identify these groups. This will then lead to a rapid translation of these discoveries into clinical trials and routine practice for patient benefit.

The work of this team will be facilitated by the Wales Cancer Bank (WCB) and other organisations, including the Institute of Medical Genetics (IMG) and the All Wales Medical Genetics Service (AWMGS).

Early Phase Clinical Trials (Phase I)

This work package aims to improve access for patients in Wales who have solid tumours or blood cancers to the latest treatment options, via high-quality early phase studies.

Our research will build on collaborations between cancer teams in Wales, leading to new early phase studies. These studies will incorporate translational and reverse-translational research. Translational research is the process of bringing newly developed treatments from the lab bench to the patient's bedside. This work package will utilise the full cycle, taking research from bench to beside and back again, allowing researchers to understand the full impact of their work on patients.

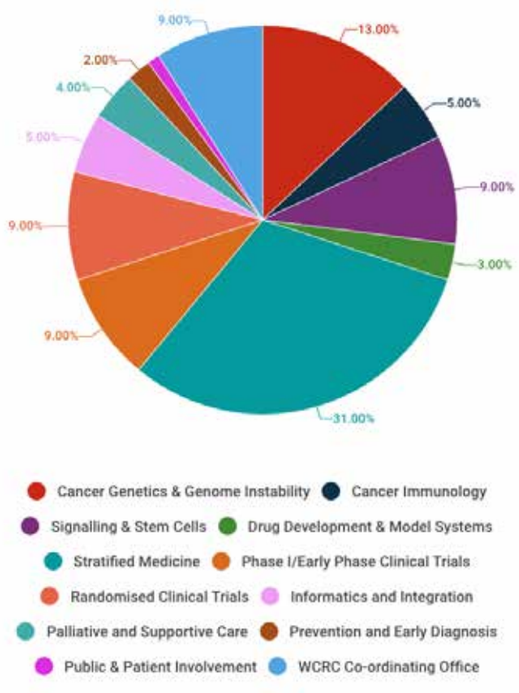
CLINICAL

Randomised Clinical Trials

Randomised clinical trials are trials where the people being studied are randomly allocated to one or other of the different treatments under investigation. They are the gold standard trial design, allowing us to compare the effectiveness and/or side effects of different treatments

We bring together key research partners, (including clinicians and representatives of patients and the public) to improve access

Funding by Work Package



for patients in Wales to the latest treatments, through the design and conduct of trials involving drug, radiotherapy, hormone, immune and cellular therapies, separately and in combinations.

Through continuing development of innovative trials methodologies, we transition existing clinical trials to the next stages and on into routine practice. In this way, we aim to improve cure rates, minimise long-term side effects of treatment and address the economics of healthcare delivery.

COMMUNITY

Informatics and Integration

This work package provides information systems to underpin the activities of the Centre, including data management for clinical trials research and clinical applications.

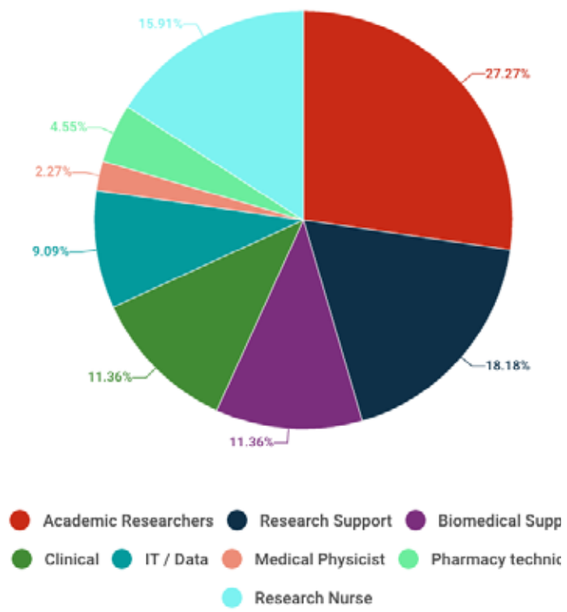
We will develop the interaction between key databases, increase the use of patient data in order to improve care, and work towards developing information systems that bring together socio-demographic, clinical and tissue biology data. This work will lay the foundations for cancer intelligence across the patient pathway, from screening and prevention, through diagnosis and treatment, and into supportive and palliative care.

Palliative and Supportive Care

Our Supportive and Palliative Care work is committed to developing and undertaking well designed research which will directly improve the care and experience of patients, and their carers, in the advanced stages of their illness.

This work package varies from others as it focuses on patient and carer rather than disease related outcomes. The multidisciplinary team researches across

Staffing Areas



all care settings, and are establishing a repository of existing research evidence. This work package will engage with clinical teams and policy makers to speed findings straight in to practice, and continue to develop high-quality public and patient engagement.

Screening, Prevention & Early Diagnosis

Preventing cancers from occurring, or detecting them sooner, is known to reduce the number of deaths from cancer. Achieving the changes needed to reach these straight-forward goals is not simple, however, and is a vital area of research. Working closely with our sister centre in the Health and Care Research Wales infrastructure, the PRIME Centre, we aim to improve understanding of the motivations and behaviours which result in inequalities in uptake of screening programmes, particularly in high-risk, harder-to-reach groups. Through this research we aim to improve screening outcomes and expedite diagnosis, as soon as symptoms occur.

WE SAID	WE DID
We will involve patients and the public fully in all aspects of the design, conduct and dissemination of clinical and laboratory cancer research	Public engagement activities brought research to over 1,100 people at over 10 events. Lay people are recruiting patients to donate tissue samples, using iConsent mobile electronic system. Lay and research academic leaders and seven lay partners appointed, guided by a Patient and Public Involvement (PPI) Advisory Board. PPI implementation plan written, and impact tool
We will ensure the flow of health and quality of life and economic benefits from research to patients and the public of Wales	£5.4million additional grant funding secured in our first year of operation. 33 additional whole time equivalent posts created. Better access to Phase I trials in South Wales has saved patients from having to travel to other parts of the UK. Various trials approved by NICE: EAGLE, CHHiP2, approval of abiraterone hormone therapy for men with prostate cancer. Availability in Wales of Radium 223 therapy for patients with prostate cancer which has spread to the bones. STAMPEDE trial recommends docetaxel use in some prostate cancer patients. Input to the Welsh Government's Statement of Intent for Genomics and Precision Medicine.
We will identify and bridge the current gaps between preclinical and clinical cancer research. NHS and social care in line with national policy, guidelines and best practice	New group created to help researchers obtain funding with which to take their laboratory research through to clinical trials. Additional mentorship opportunities for researchers. Close working with Health and Care Research Wales' Support Centre and the PRIME Centre. New post to perform research into social care for cancer patients. Closer engagement of the Wales Cancer Bank with researchers to enable easier access to their samples. Over 2,000 samples have been provided to researchers this year. Better linkage of NHS data via the SAIL databank for more effective research access and added value to WCB samples. Integrated work of NHS' All Wales Medical Genetics Service, with the FAKTION trial, led by academic clinician and WCRC work package co-lead, Dr Rob Jones. Several drugs tested by the haematological cancers team at Cardiff University have progressed pipeline into later phase trials.
We will bring together cancer research expertise from NHS and HEIs across Wales	WCRC website commissioned and launched. WCRC communications strategy drafted via consultation at over 10 engagement events. WCRC newsletter developed with a 300+ mailing list. Nearly 400 followers on social media. Regularly meetings of Theme and Work Package leads to share knowledge, information and identify research opportunities where we can work together. Wales Cancer Partnership created to facilitate interactions between all elements of the cancer research community. Working with other parts of the Health & Care Research Wales infrastructure, including the PRIME Centre, the Wales Gene Park and the Support Centre.
Focus on areas of acknowledged research strength in both solid tumours and haematological cancers where Wales can be excellent	Additional funding for the NHS acquired within our Clinical Theme for 4 additional WTE posts, with a monetary value of £419k. Brought together clinicians interested in developing early phase drugs and radiotherapy trials. Recruitment to early phase clinical trials at Velindre Cancer Centre is 40% above pre-set targets. Growth of the portfolio of early phase trials in haematological cancers has grown. WCRC work package co-lead, Dr Knapper, is Chief Investigator on the MONOCLE trial. Supporting closer working with Health Boards and Velindre Cancer Centre, enabling sharing practices around radiotherapy research. Discussions underway to optimise joint working between the Clinical Research Facility at University Hospital Wales and the Clinical Research Trials Unit at Velindre Cancer Centre. Collaboration with the newly launched CUBRIC brain imaging facilities to study stereotactic radiosurgery for patients with brain tumours. Closer working with the PET Imaging Centre (PETIC), enabling a new trial (REASSURE) to open.
Work closely with commercial and third sector partners	Working with 15 Third Sector organisations • Cancer Research UK project grant of £1.3m for cancer immunology • Cancer Research Wales grant of £800k for cancer immunology Working with 19 commercial partners • Including with Tziana Life Sciences on CarBON study • UHW now a Novartis-accredited centre for Phase I trials • Creating a spinout company for prognostic tools in leukaemia

KEY ACHIEVEMENTS

In this section we highlight some of the ways we have developed research capacity and capability, during our first year.

Research Impact

Changing Clinical Practice

The WCRC team has been central to two recently publicised trials in prostate cancer which are having a major role in changing practice, across the UK and internationally. The STAMPEDE trial is featured on page 17. In addition, CHHiP is a phase III, randomised controlled trial to improve outcomes for prostate cancer patients. The trial has demonstrated that altered radiotherapy fractionation can achieve both improved tumour control, without additional toxicity, and also reduced strain on health care resources. These benefits of research for improved care are now being implemented across Wales.

A WCRC-led study with anticipated impact, the EAGLE trial, is developing a service to assess and help men who have bowel side effects from having radiotherapy for their prostate cancer. The trial is investigating whether targeted investigation and treatment will improve control of symptoms and increase quality of life.

Advancing Knowledge - Publications

Over last year researchers linked with the WCRC have generated 74 publications. Of these, 24% have been included in high-impact journals (impact factor of 7 or higher.) The average impact factor of all publications is 6.7

Influencing Policy

As Welsh lead for the public awareness module of the International Cancer Benchmarking Partnership, Dr Kate Brain provides expert advice to Welsh Government and Public Health Wales as part of the Welsh Lung Cancer Initiative and has informed the Welsh lung cancer awareness campaign development, due for roll out in July 2016.

Dr Richard Adams, our Stratified Medicine work package lead, has been part of the task force for the Welsh Government's "Statement of Intent for Genomics and Precision Medicine". This has potential relevance to a number of our initiatives and demonstrates WCRC's broader engagement within Wales at a political level.

Economic Benefits

In our first year of operation we have brought over £5 million worth of investment into Wales through new research funding, including programme grants, matched funding and industry investment. Of this, over £4 million was through partnerships with the Third Sector. We have also contributed to the generation of additional jobs in Wales. 33 additional whole-time equivalent posts, over and above the 31 funded within WCRC, have been secured (including NHS allied health professionals, research fellows, associates and assistants and PhD studentships).

Public and Patient Involvement (PPI)

In every stage of our work we aim to involve public and patient representatives. Ordinary people are not just the subjects of research, but should be involved in working with our researchers to plan, manage, carry out and publicise our work. The inclusion of public and patient representatives in all parts of our governance structures of WCRC will help to ensure that the 'golden thread' of PPI will continue to be woven into our work.

We have appointed (into voluntary positions) a PPI Lead Lay Partner (Dr Jim Fitzgibbon) and a Lead Academic (Dr Annmarie Nelson) and our PPI Advisory Board has developed a PPI strategy and is meeting regularly.

We have also developed an impact tool to measure the impact of PPI which is due to be piloted in the coming months.

Our innovative Implementation Plan has the potential to inform policy and practice beyond WCRC, and may help to guide other organisations as they develop their own PPI strategies.

Seven additional lay partners have been recruited and matched to our work packages in a way that will best suit their skills and experience. In this way we hope to make the best possible use of their advice and support.

To improve the 'patient experience' the Wales Cancer Bank are trialing an electronic patient consent mobile system (iConsent), developed by Swansea University. Approved by both patient groups and ethics committees, and using a hand-held tablet to register consent, this web-based system offers a secure way to consent patients for taking part in studies or donating samples for cancer research. Hence, it delivers advantages both for patients and researchers.

New Clinical Trials
Employing WCRC-funded staff has improved capacity for existing experienced trials teams (in the Clinical Research Facility at the University Hospital Wales and at Velindre Cancer Centre) to undertake early phase trials for patients with blood cancers and solid tumours. An example of this is a new 'first in human' trial for leukaemia, CAMELLIA, being pioneered within Cardiff & Vale University Health Board.

An improved portfolio of early phase trials, including widening the range of tumour types means better access to the latest research treatments for patients who would otherwise have had to travel outside Wales. The portfolio includes trials of several agents that have been tested by the haematology research team at Cardiff University.

With the help of WCRC staff, eight early phase blood cancer trials are currently active at the University Hospital of Wales, including a mix of investigator-led and trials with major commercial sponsors, such as Bayer and Novartis.

The MONOCLE study, which aims to improve prognosis in chronic myelomonocytic leukemia will open in July 2016, with Dr Steve Knapper, Co-Lead of our Early Phase Trials Work, as Chief Investigator.

At Velindre Cancer Centre, patient recruitment to trials in 2015/16 was 40% greater than pre-set targets.

STAMPEDE

The WCRC team has played a major role in a clinical trial known as STAMPEDE, which has shown practice-changing results in prostate cancer treatment. The study has led to some patients on the trial having up to two years' additional life. Professor Malcolm Mason, who leads our translational research, is vice-Chair of the study and was one of the original designers of the trial.

Most men with prostate cancer are given hormone therapy and this is often only effective for a short time in stopping tumour growth. In most patients, over time the tumour will start to grow again. The aim of the STAMPEDE trial is to prevent tumour re-growth by adding other treatments to the hormone therapy.

In one aspect of the STAMPEDE trial, 592 men who received standard-of-care treatment plus Docetaxel were compared to 1,184 men who received standard-of-care alone. The study showed that those who received the drug in addition to standard treatment lived, on average, for an additional 10 months.

More patients were recruited from Wales for this trial than from any other region, making it a big success for NHS Wales.

NHS Collaboration
We are working to strengthen links across Wales, between Higher Education Institutions and NHS organisations and within institutions. We regularly bring our Theme and Work Package leads together, who work at institutions and NHS boards across Wales. This has enabled knowledge transfer and collaborative work across areas of research that would not naturally come into contact with one another. For example, within the field of radiotherapy, we have helped to link staff from ABMU Health Board and Velindre Cancer Centre in order to promote closer working practices.

As part of our integration and informatics work, we are working with the NHS Wales Information Service to link clinical and research information in a 'data warehouse, using the national SAIL Databank. This will add research value to tissue and blood samples donated by patients.

Working with samples from the Wales Cancer Bank, the NHS All Wales Medical Genetics Service (AWMGS) has been developing a novel lung cancer testing method, which helps doctors predict which drugs are most likely to work for an individual patient. For example, a newly developed DNA biomarker from a simple blood sample can avoid the use of a drug that is likely to be ineffective and guide use of an alternative drug, instead, which has a better chance of working. The AWMGS are also the technical hub for the CRUK Lung Cancer Matrix trial, which has recently accepted its first patient for stratified treatment.

"There is good synergy with use of research infrastructure through Wales Gene Park and the NHS All Wales Genetic Service"

- Prof Julian Sampson

Building Social Care
We are appointing a researcher within our Community theme, to develop the social care aspect of WCRC's programme. Working within the community theme this role will collate the social care focused research already being undertaken within WCRC (particularly palliative care and SPED). It will also establish links with the new School for Social Care Research and the Centre for Ageing and Dementia Research, and identify early projects of promise.

Improved access for researchers to Tissue Samples
During our WCRC's first year, the Wales Cancer Bank (WCB) has re-focussed its strategy. Its sample collection is now predominantly in the four commonest tumour types (lung, breast, colorectal and prostate). We are also targeting patients with more advanced disease and taking samples at multiple times - before, during and after treatment - in order to provide better information for researchers.

A new emphasis on engaging more researchers and providing them with easier access to more samples has resulted in 2,236 samples being provided to researchers during the year.

Another example of WCB's increased emphasis on incorporating researchers into its strategy has been their inclusion in WCB's new Multi-Disciplinary Research Groups (MDRGs) – one each for breast,

lung, colorectal and prostate cancer research. All four groups have now met, and the leadership agreed. The groups are now tasked with developing their tissue collection strategy, developing the accompanying clinical protocols and developing the core molecular analyses which they would wish to undertake.

Development of Prognostics Tools
Our work within the Signalling and Stem Cells work package on the two variants of a gene known as LYN offers the hope of improved prognostic testing and better therapies for breast cancer patients.

Researchers in our Cancer Genetics and Genomic Instability work package are in early discussions to set up a spin-out company to provide improved prognostic information for patients with leukaemia, based on telomeres - the end parts of a chromosome. Each time a cell divides, the telomeres lose a small amount of DNA and become shorter. Over time, the presence of short telomeres can cause the chromosomes to become damaged and this can lead to more aggressive cancer. Measuring the length of telomeres using a sensitive technique developed in Cardiff can give a more accurate prognosis for cancer patients.

Our Cancer Genetics and Genomic Instability work package lead, Prof. Duncan Baird, working in collaboration with Prof. Eric Hendrickson from the University of Minnesota, USA, has won a prestigious RO1 programme grant from the US National Institute of Health. The labs will combine their expertise to investigate how an enzyme known as ligase III regulates cell survival and chromosome damage induced by gradual telomere shortening.

Building Research
We have been offering mentoring sessions to researchers in both NHS and academic settings from two of our senior posts. Dr John Staffurth offers support to those in radiotherapy-related research and Dr Richard Adams gives advice in the field of stratified medicine and optimal use of translational samples in clinical trials.

We played a big part in setting up the Pre New Agents Committee. The committee comprises a pool of expertise available to the South Wales cancer research community on the 'bench-to-bedside' therapeutic pipeline. Its purpose is to increase the rate of translation of new therapeutic approaches from the lab to phase I trials.

Engagement
We have engaged with over 1,100 members of the public over 10 events in our first year. The most notable of these events was a family activity day in Swansea for Easter weekend. The event drew over 600 participants, with people travelling up to 75 miles to take part.

Our website has received over 3,500 visits since it launched in November, and our social media presence is growing, with nearly 400 followers on Facebook and Twitter.

Wales has a unique opportunity to

"Thanks to the incredible support of the WCRC Team and the commitment of all the many researchers we have met, we have undertaken and reported back on what may be - in the UK - a unique PPI scoping exercise for the organisation. This will enable us to track further progress over the next two years."

- Dr Jim Fitzgibbon,
Lead Lay Research Partner

Add Aspirin

The Wales Cancer Bank (WCB) has secured a key role in the largest clinical trial in the world,at present, the Add-Aspirin trial. WCB will be one of two biobanks in the UK hosting the biosamples donated as part of the trial.

The Add-Aspirin trial is aiming to recruit 11,000 patients to determine whether taking regular aspirin can stop some cancers returning. Over 100 centres in the UK will recruit patients who are having, or have recently had, treatment for early stage breast, bowel, prostate, stomach or esophageal cancer. It will split the patients (randomly) into three groups; one taking a placebo, one taking a low dose of aspirin every day and the other taking a higher daily dose. Patients will take the aspirin for five years. The trial is being funded by Cancer Research UK and the National Institute for Health Research, and run by the Medical Research Council Clinical Trials Unit (MRC CTU).

When patients are recruited into the trial, they will also be asked if they would donate a tissue sample (from their previous surgery) and a blood sample. These samples will be stored in a 'biobank', to be used for research. WCB will ensure the samples are collected from all the recruiting sites, stored and processed in the best way so that exciting future research on these samples is possible.

Two hospitals in Wales (Singleton and the University Hospital of Wales) are ready to start recruiting patients, with others to follow. It's important to note that, unless you are on the trial, it's important not to start taking aspirin, without medical guidance. Aspirin isn't suitable for everyone, and it can have serious side effects. Cancer patients should ask their oncologist whether the Add-Aspirin trial is available at your hospital.

The trial is expected to take up to 12 years and so it will be quite a while before results are known. But the possibilities are exciting - as an inexpensive drug with a potential therapeutic role in several common cancers, aspirin could have a huge impact on the global cancer burden.

extend its ground-breaking legislation on 'presumed consent' for organ donation to sample donation for clinical research, including cancer research. In March we held a public engagement event, at which this issue was debated. It was clear that there was a significant level of interest in opt-out donation.

Working Together

Collaboration is a prime motivation for everything we have done and will do in the WCRC. We welcome links with all who have an interest in cancer research, for the benefit of people in Wales and beyond.

To improve care and research we need to collaborate to share knowledge, skills and experience. We need to work together to obtain the best results for our patients and to ensure sustainability for cancer research in Wales. Researchers themselves need to co-operate closely with their contemporaries across Wales and beyond in order maintain excellence in their work. For this reason, we have sought to bring together cancer research organisations in Wales under one banner: the Wales Cancer Partnership.

Our conviction that we will achieve more by working together than working separately has led WCRC to form the Wales Cancer Partnership. The Partnership is open to all those interested in cancer and will bring together cancer researchers and cancer voices from across the nation, for the benefit of patients. Partners so far include research organisations, higher education institutions, third sector, pharmaceutical companies, patients, the public and the NHS. Hence, a major focus for WCRC in our first year has been to develop improved communications and large-scale engagement opportunities across these organisations.




Palliative Care Evidence Review Service

The importance of basing clinical practice on the best available evidence is well-established and is recognised by health and social care professionals and commissioners alike. However, a significant obstacle is the lack of time to locate and read the relevant literature. In addition, the need to assess its quality and deal with conflicting information can be challenging.

WCRC's researchers have developed a rapid review service (known as PaCERS) to support professionals and other decision-makers working in palliative care.

A Rapid Review is a literature review, conducted within 3-6 weeks of a request being made, using modified systematic review methods with a highly refined research question, search carried out within limited set of databases and other sources and increasing the transparency of the methods used.

Our service is unique in responding to requests for evidence from external clinicians or organisations, rather than review agenda being determined internally.

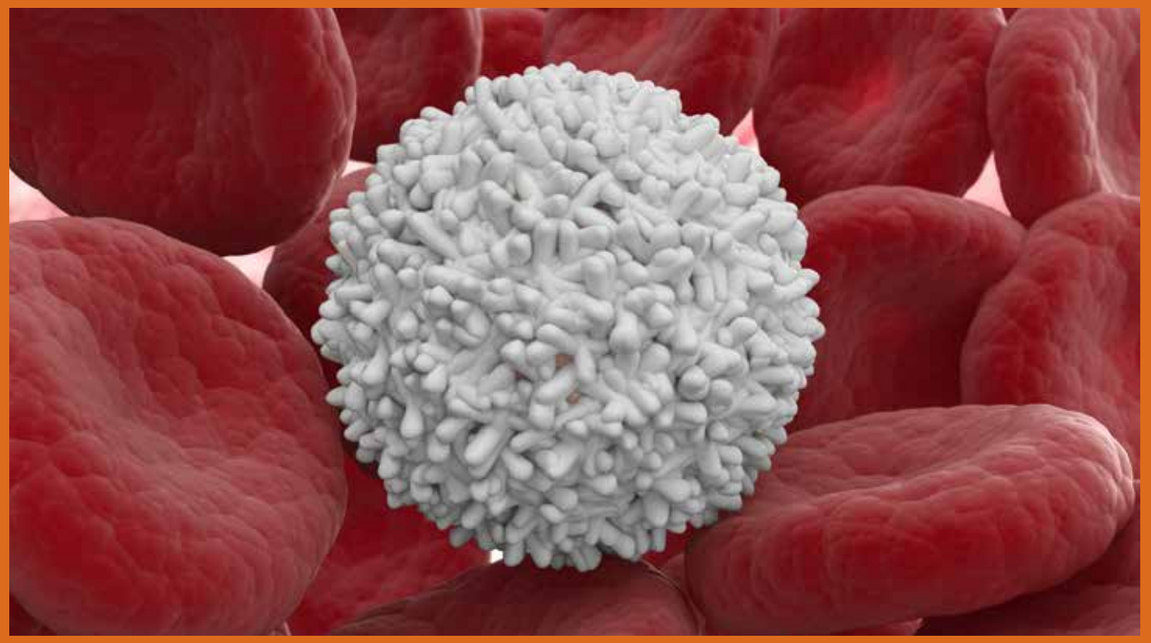
CarBON

More and more people are being diagnosed with cancer each day, and up to 1 in 8 women will be diagnosed with breast cancer. Whilst treatments for breast cancer have advanced over the years there is still an unmet clinical need for patients diagnosed with late stage metastatic cancer (when the cancer has spread to other sites in the body), where approximately only 8% of patients will survive for more than 5 years following diagnosis.

Cancer cells do not behave like normal cells; often reproducing far quicker or not 'self-destructing' when there is something wrong with them. These messages are sent along signaling pathways. Research has shown that some cancers are due to problems in certain 'signalling' pathways within cells which send messages from one part of the cell to another. Correcting these signalling problems has been identified as a way to stop the cancer growing. The Cardiff University research group led by WCRC's Signalling and Stem Cells work package, lead, Dr. Richard Clarkson has identified a protein known as BCL3 as being a key regulator of one of these signaling pathways and therefore a potential target for new drugs. Experiments demonstrated that although BCL3 does not drive tumour growth, it does encourage movement and metastatic spread of cancer cells.

Working with other colleages in Cardiff University, including our Drug Development and Model Systems work package lead, Dr. Andy Westwell, one of the post-holders funded by WCRC, and with the pharmaceuticals industry, Dr. Clarkson's team has started the development of drugs to inhibit BCL3 which could prevent the spread of cancer. Using computer based models of how BCL3 works, and modeling how a molecule could reverse the abnormality in cancer cells, a small molecule (CB-1) was identified.

Preliminary testing of CB-1 in mice has confirmed anti-metastatic activity, but with no evident toxicity of the drug in a difficult-to-treat, 'triple negative' form of breast cancer. Further preclinical testing of CB-1 is currently on-going in other cancer tissue types including colorectal, pancreatic, lung and prostate. Meanwhile, the Cardiff University team, working closely with a commercial company, Tiziana Life Sciences, is preparing CB-1 for a ground-breaking 'first-in-class' Phase I trial, which starts with a small numbers of patients and, if the drug is safe in humans, will progress to trials of usefulness in larger numbers of patients. It is hoped that the first trial of CB-1 will start to be recruit patients in the next 18 months, under the care of clinical teams, including professionals funded by WCRC.



£2.1m programme grants for cancer immunology

Cancer immuno-therapy is viewed as one of the most significant scientific breakthroughs of recent years, due in part to the success of T cell therapy.

WCRC's Cancer Immunoglogy work package lead, Prof Awen Gallimore, has recently been awarded £1.3m funding from Cancer Research UK to further her research into cancer immune-therapy using T cells. These T cells are a type of white blood cell that are key components or our immune systems. They play a central role in helping protect the body from infection and have recently been recruited to help in our fight against cancer.

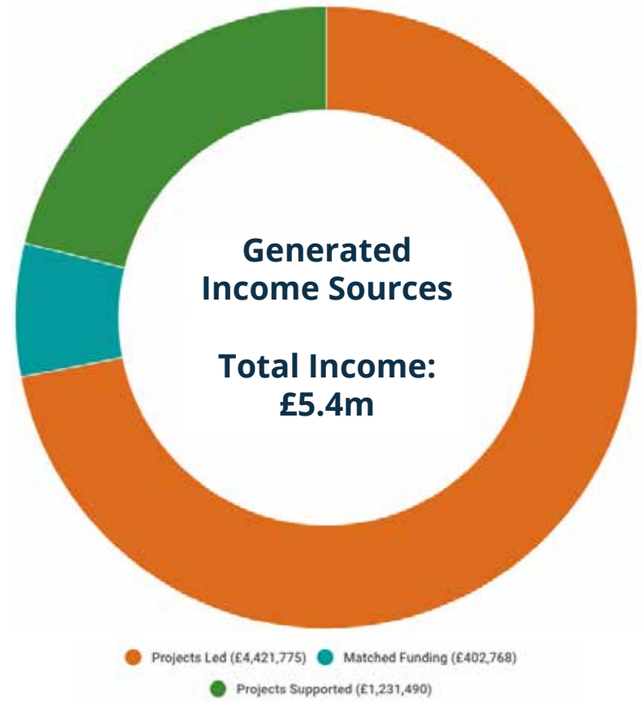
T cell-based immuno-therapies involve activation of specific T cells which attack tumour cells, but not normal cells, driving destruction of previously incurable cancers. However, these therapies currently don't work for every type of cancer. One key reason for this may be the failure of activated T cells to enter tumours effectively.

In her new Programme Grant, Prof Gallimore's team aims to identify mechanisms that could allow T cells to enter the tumour more effectively. It is based on the premise that regulatory T cells (which control the tumour's surroundings) could alter the blood vessels within the tumour, allowing the T cells to use these vessels to penetrate the tumor with a greater efficiency.

This approach will inform the design of new therapies which combine immunotherapy with treatments designed to alter tumour blood vessels and which may be essential to realise the full potential of immuno-therapies.

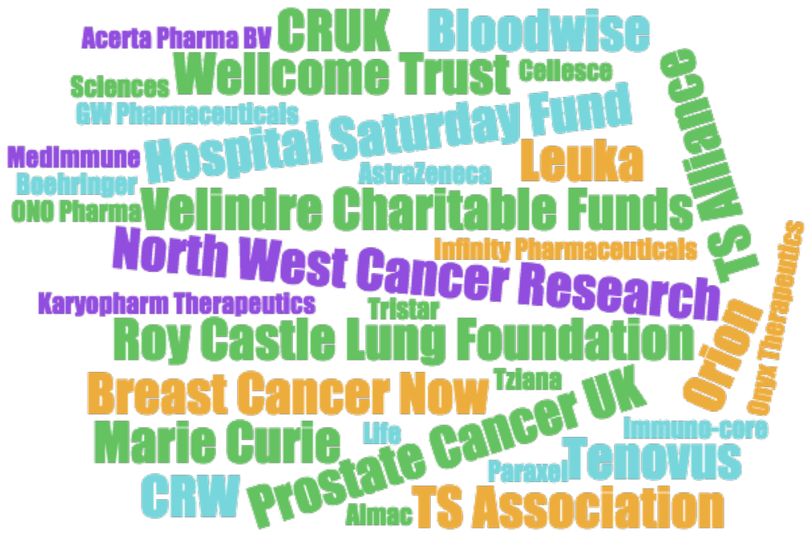
In addition to the £1.3 million, we have also been awarded £800,000 from a Cancer Research Wales programme grant. This money will be used to research immungenecicity of colorectal cancer and its implications for immunotherapy. Prof Andrew Godkin will act as PI with Prof Awen Gallimore as Co Investigator.

PERFORMANCE MANAGEMENT



74 publications. 24% included in high impact journals. Average impact factor 6.7.

Over £4 million secured through working with the following third sector and industry partners...



CONCLUSIONS

The Wales Cancer Research Centre's first year of operation has seen us taking great strides forwards. We have gone from a simple concept to a 44-strong team of highly-professional, expert staff, distributed between seven NHS and Higher Education Institutions, across the nation, making us truly an "all-Wales" centre. We have already seen excellent progress, as collaborations have developed, between and beyond our research teams.

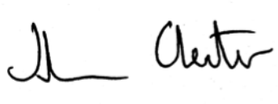
The investment by Health and Care Research Wales of £4.5 million over the next three years has been a great stimulus to cancer research in Wales, across the translational spectrum. It allows us to conduct research at every stage, from understanding the cellular and molecular basis of cancer through to new therapies and trials, by which we hope to improve the health and well-being of individual cancer patients. This, in turn, offers the prospect of benefits for the population and economy of Wales.

We have used the initial stimulus of grant income from Health and Care Research Wales well, bringing in large sums of additional research funding and additional research posts. Whilst it will be difficult to equal this in every year, we will continue to strive to grow cancer research capacity in Wales. Just as importantly, the coming years will see impact from our research, through publication of our research findings, for the benefit of other researchers, and its translation into routine clinical practice, for the benefit of patients and the public.

Our first year has also had some sad times. The cancer community of Wales has lost two hugely successful and much-admired cancer research leaders. We mourn with their families the deaths of Professors Alan Clarke and Chris McGuigan. Both will be sorely missed by all of us. An additional challenge for WCRC will be to build on the research legacies they have left to us and to Wales.

Looking forwards, with optimism based on our successes so far, we will continue to build our partnerships and our trials portfolio, and will continue to align our research with priority needs of patients and families affected by cancer, in Wales and beyond.

It is a great privilege to lead the work of so many talented people within the WCRC and an enormous pleasure to see our new team make such a great start. All my colleagues and I hope that the work of the Wales Cancer Research Centre will continue to rise to the huge challenges posed by cancers and that, together, we will bring victory one step closer.



Prof John Chester, Director of the Wales Cancer Research Centre

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