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Introduction

The National Centre for Population Health and Wellbeing Research (NCPHWR) is funded by the Welsh Government through Health and Care Research Wales.

Bringing together expertise from across academia, public health and the third sector, the NCPHWR undertakes research to generate an evidence base to help inform population health and social care policies, services and interventions.

Our research covers across the life course and is divided into two work packages:

- Healthy Development
- Healthy Ageing

Working across these work packages, we have two cross-cutting themes:

- Social Care
- Knowledge Exchange

Within healthy development, our research covers maternal health and wellbeing, early years and primary and secondary school ages.

Within healthy ageing, our research covers health and social care challenges faced by adults ranging from health conditions and medications to patient care.

About Us

The mission of NCPHWR is to undertake research to help inform policy, practice and provision that can improve the health and wellbeing of the population of Wales. We bring together academia, the NHS, third sector, policy makers and practitioners to achieve this.

NCPHWR is a collaboration of expertise from across academia with Swansea, Cardiff and Bangor Universities working, alongside Public Health Wales and our third sector partner Children in Wales.

Executive Board

Centre Director
Professor Ronan Lyons

Deputy Director
Professor Sinead Brophy

Deputy Director
Professor Simon Murphy

Deputy Director
Professor Shantini Paranjothy

Deputy Director
Professor Jane Noyes

Knowledge Transfer Lead
Dr Alisha Davies

Centre Staff

Centre Manager
Sam Dredge

Centre Administrator
Elizabeth Irvine

Communications Officer
Sarah Toomey

Who we work with

Research Centres
- ADR Wales (Administrative Data Research Wales)
- DECIPHer (Centre for Development and Evaluation of Complex Interventions for Public Health Improvement)
- Health Data Research UK (HDRUK)

SAIL Databank
HealthWise Wales
Foreword

Welcome to the latest Annual Report for the National Centre for Population Health and Wellbeing Research (NCPHWR), highlighting the work being undertaken within our research areas of Healthy Development and Healthy Ageing.

We have again been very successful in achieving external funding, attracting over £8 million into population health research in Wales, resulting in capacity building and increased funding for future population health and social care research.

The Health & Attainment of Pupils in a Primary School Educations Network (HAPPEN) and the School Health Research Network (SHRN) continue to grow with over 100,000 children and young people providing views on their health and wellbeing. These views have again helped inform health and wellbeing policy and practice at local, national and international levels.

Dissemination continues to be important to us. Research published through various academic publications have demonstrated our expertise in population health research. Notably research showcased through The Conversation online journal has resulted in international exposure for a number of our studies.

This report will highlight case studies and research undertaken in our work packages and our extended activities across the Centre between April 2018 and March 2019.

Thank you for taking the time to read it, we hope you enjoy.

The NCPHWR Executive Board

Key Achievements 2018-19

This year, the NCPHWR has continued to achieve significant external funding demonstrating the expertise Wales has in population health and social care research. This success has come as a result of our collaboration across academia and with policy makers and practitioners. In disseminating our research, the NCPHWR continues to inform policy and practice and provision.

**Investment**

Over £8 million in external funding achieved in population health and social care research providing an evidence base for population health policies services and interventions. As a result research was undertaken to inform policy and practice to improve the health and wellbeing of the Welsh population.

**Disseminating our research**

Over 90 academic papers published, disseminated internationally demonstrating Wales expertise in population health and wellbeing research.

**Knowledge Exchange**

Over 100,000 children and young people’s views on their health and wellbeing provided through the HAPPEN and SHRN school networks, leading to findings shared with schools, local authorities, Public Health Wales and Welsh Government.
NCPHWR research is undertaken to deliver and evaluate interventions that support pre-birth, early year’s and primary & secondary school development. This work also aims to provide an understanding of how data-linkage and interventions help prevent issues within the first 1000 days of a child’s development.

**Research Roundup**

- Research undertaken into burden and patterns in mortality and hospitals admissions in children with Down’s Syndrome.
- Research undertaken using Data to identify alcohol related hospital admissions in children and young people.
- Research undertaken to identify The impact of Adverse Childhood Experiences on educational attainment outcomes.

**Case Study:**

**Hospital admissions in children who had a kidney abnormality (renal pelvis dilatation) identified during pregnancy**

**Challenge**

Early diagnosis and treatment of kidney disease is important because it can reduce long-term kidney damage. Mild renal pelvis dilatation, seen in the foetus at the 18-20 week ultrasound scan, might be an early sign of kidney problems that can be used to identify which children need follow-up during childhood.

**Research**

A study of ultrasound data linked with hospital admission records.

**Findings**

In this cohort study of more than 20,000 children in Wales, children with renal pelvis dilatation at the 18-20 week scan had higher rates of hospital admissions only when the dilatation persisted in later pregnancy or post-partum.

**Impact**

Persistent renal pelvis dilatation is an important finding because it identifies children who need follow-up during childhood. These results have been used by Antenatal Screening Wales to develop new leaflets for prospective parents, and new guidelines for the sonographers who conduct ultrasound scans during pregnancy.

**Dr Lisa Hurt**

**Case Study:**

**Predictors of objectively measured physical activity in 12-month-old infants**

**Challenge**

The risk factors for many chronic diseases develop during the early years of life, including during pregnancy. Therefore, childhood is one of the most important times for developing future health behaviours. In particular, physical activity plays an important role in developing and maintaining good health-related behaviours in children.

**Research**

A study of linked birth cohort data with electronic health records.

**Findings**

We found that more active babies were of good weight and born full term. As well as this, larger babies were also more active. Diet is also important to activity. Children who were breastfed and those who ate more vegetables were more active. Active babies also slept better and were more likely to be boys.

**Impact**

These findings can help inform interventions to promote healthier lives for infants and to understand the determinants of their activity levels.

**Dr Shangming Zhou**

**Case Study:**

**Are school holiday experiences the same for all young people?**

**Challenge**

The school holidays can create extra financial pressures for low income families. Additional money is often needed to cover the absence of free school meals, childcare costs and the cost of activities on offer to young people.

**Research**

Using data collected from secondary school students aged 11-16 when undertaking the SHRN student health and wellbeing survey to analyse family, influences, experiences during the summer holidays, (hunger, loneliness, time with friends and physical activity and mental wellbeing).

**Findings**

During the summer holidays, children from poorer families were more likely to report; loneliness, hunger, less time spent with friends and lower physical activities. These summer holiday experiences were related to poorer mental health and wellbeing upon return to school.

**Impact**

Programmes during the school holidays may have a role to play in reducing socioeconomic inequalities in mental health and wellbeing. This work formed part of a BBC World Service Health Check Programme.

**Dr Kelly Morgan**
Research Roundup

- Research undertaken into selective migration and inequalities in mortality in Wales.
- Package of research undertaken around the effect of alcohol linking to social inequalities and hospital admissions in Wales.
- Research undertaken looking into the impact of Antibiotic use and deprivation in Wales.

The Centre undertakes research into a variety of different health challenges faced by adults through the life course. These challenges range from chronic health conditions, medication use and patient care.

These challenges are identified using linked data records (general practice and hospital records) to look at long-term health information collected through HealthWise Wales and the SAIL Databank.

Case Study:
Proton pump inhibitors and dementia risk: evidence from linked routinely collected national health data

Challenge
Studies suggest that the medicines used to control stomach acid can cause dementia while others say the opposite. This is very confusing and can cause worry for those who are taking the medicine.

Research
Using routine health data collected from doctors and hospital appointments we set out to find out if taking certain medicines used for stomach acid problems, known as ‘proton pump inhibitors’, may be linked to developing dementia, a condition that affects the memory and ability to do usual everyday activities.

Findings
We found that proton pump inhibitors were not related to getting dementia. In fact, we found that those medicines were linked to a 30% less chance of getting the condition.

Impact
Like other studies before us, we did not find that medicine used to treat stomach acid conditions were linked to dementia. Our study using linked, large datasets helps strengthen our findings. Our results suggest that doctors should not be worried about people taking this medicine getting dementia and that those taking the medicine can feel reassured about the risk.

Findings
Of the 30,342 people, only 25% (7,614) had a record in their GP notes that they had ever been given a health check. The death rate for those who did not have a health check was higher than those who did have health checks.

Impact
This work shows that a health check can reduce mortality for people with learning disabilities, especially if started young and especially for people with autism and those with epilepsy. We hope this work can help encourage GPs, families and carers of those with learning disabilities to ensure they have a regular health check.

Case Study:
Identifying the impact of parental depression on children

Challenge
Having a parent with depression is known to be a major risk factor in the development of depression in a young person. However, how much of that risk comes from the child living with a parent who is depressed? And is there still a risk for children whose mum or dad had a previous history of depression before they were born?

Research
Our research involves studying data from over 260,000 mums and 100,000 dads and over 500,000 children.

Findings
Investing in early family intervention, where depression is present in either parent may contribute largely to the prevention agenda, improving an array of child outcomes.

Importantly, our results can be used to inform interventions and services to help improve outcomes for both families and children.

Findings
Over 250,000 mums and 100,000 dads and over 500,000 children.

Findings
Investing in early family intervention, where depression is present in either parent may contribute largely to the prevention agenda, improving an array of child outcomes.

A more holistic approach to addressing mental health among families is needed.

Impact
Helping parents with depression could have lasting benefits for the child. Importantly, our results can be used to inform interventions and services to help improve outcomes for both families and children.

Charlotte Todd
Social Care continues to form a cross-cutting theme in the centre. Collaboration with local authorities and Public Services boards continue to be built on to disseminate findings from the Centre to inform local authority action plans.

**Research Roundup**
- Working in collaboration with ENRICH Cymru to improve research capability with the aim of improving health and wellbeing outcomes in care homes.

**Case Study:**
**Analysis of Local Authority Area Plans - produced by Local Authorities as part of their response to the Social Services and Well-being Act (Wales)**

**Challenge**
To analyse the seven reports in order to identify common pan-Wales priorities for social service needs. This may then inform research gaps of relevance to the NCPHWR.

**Findings**
The general language of the plans focused on the desire to improve, integrate, review and reconfigure services to enable children, young people and adults to be happier, healthier and more resilient through access to either direct interventions, family-based support or community-based assets.

**Impact**
Identifying gaps, and areas where more research or investigation is required, is essential to improving social care provision in Wales. Lack of information in these areas limits NHS and local government’s ability to understand the effectiveness of social services and to make informed decisions about how to shape and allocate resources for care and support.

**Case Study:**
**A review of what patients and family-caregivers value from hospice care**

**Challenge**
With the growing demand for end of life care due to the increasing complexity of chronic illnesses together with limited financial resources, hospices are under significant pressure to continually redesign services. For this reason, it is important to continuously identify patient and family preferences regarding what they value most about care received.

**Findings**
The review identified shared priorities of what patients and families thought valuable. For example, there are key features associated with a ‘good death’ regardless of the setting. The concept, however, can be complex and highly individual therefore highlighting the importance of a system which offers continuous holistic all-round assessments in response to the changing needs of both the patient and their family.

**Impact**
This is the first review to explore what patients and carers value from hospice care. Review findings strengthen the existing evidence base and highlight the underpinning elements of hospice care most valued by patients and their families.

**Case Study:**
**A review of what patients and family-caregivers value from hospice care**
Led by WCVA and PRIME with NCPHWR involvement in Steering Group. Initially funded by WSSCR.

**Challenge**
Bringing people together across Wales to collaboratively agree on key research priorities around Social Prescribing.

**Findings**
There is a huge appetite for joint working on the subject of Social Prescribing. Some areas have highly successful schemes and other areas are beginning to develop schemes, but there is no consensus on what exactly Social Prescribing is, how it is best evaluated and measured, and what is required for success.

**Impact**
The Network brings together academics from all Wales’ Universities along with practitioners, commissioners and community and third sector organisations. Based on the initial year, an application for a HCRW infrastructure Institute has been submitted, clearly showing the appetite for continued working in this area.

**Work Packages | Social Care**

Soo Vinnicombe

Professor Jane Noyes
The NCPHWR has continued to engage with practitioners, policy makers and third sector groups sharing the findings of our research, helping increase the impact of our work.

**ACTIVE Project**

In July, Researchers from the NCPHWR delivered a workshop to disseminate the findings from the ACTIVE project. Stakeholders involved in the project such as pupils, teachers, and staff from Sport Wales and Local Authorities were invited to take part to discuss these.

Roundtable discussions were also undertaken to ask those involved how they felt the findings could be used to improve the engagement of young people in physical activity.

These opinions then formed the objectives and type of delivery of the project going forward.

**5 main suggestions teenagers felt could help them become more active**

1. Lower cost
2. Make activities local
3. Improve the standard of facilities
4. Make activities more specific
5. Give teenagers a choice and want

**School Health Research Network**

Throughout the year, researchers from the School Health Research Network (SHRN) have undertaken a number of activities to disseminate data from its biennial Student Health and Wellbeing Survey.

These events gave schools the chance to discuss the findings in their reports and hear about how other schools have analysed and acted on their reports. These annual events are key to engaging with schools to achieve impact from the reports.

**Key findings from the report**

Mental wellbeing – decreased slightly as students got older

Physical activity – Nearly 1 in 4 males (23%) were active daily, compared to only 14% of females

**HAPPEN Network**

Sourced through the HAPPEN network, Children aged 8 - 11 were asked their views on what they would change to improve their health and wellbeing.

This information has then been disseminated in conferences regarding play, to government ministers, and to local authority play assessment teams, to find answers as to why and what would could be done to make children healthier and happier.

**4 main suggestions children felt would improve their Health and Wellbeing:**

1. Give us more places to play,
2. Create local facilities where we can be active,
3. Clean up the streets
4. Make roads safer
Reaching out to a global audience
During 2018, NCPHWR researchers published several articles in The Conversation which enabled the Centre and its research to have a global reach. The Conversation is an independent trusted source of news and views, sourced from the academic and research community and delivered direct to the public.

NCPHWR’s social media and online highlights and achievements from 2018-19

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<td>45.5% increase in visitors over the year</td>
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<tr>
<td>Twitter</td>
<td>175% increase in followers</td>
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<td>Facebook</td>
<td>Highest reaching post achieved over 1.3k views</td>
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<td>YouTube</td>
<td>7 new films featured on Centre's channel</td>
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Global Reach 38.2 Million Readers A Month

- 6 articles published focusing on our research
- Over 60,000 reads
- 6,700+ shares on Facebook
- Over 300 Retweets

Research findings read across the globe

Coverage in the UK tabloids
Research, led by Bristol University in collaboration with NCPHWR, provided the first UK estimates of foetal alcohol syndrome—a condition, caused by drinking in pregnancy that can result in mental and physical problems in the baby. The findings featured in several leading UK tabloids, including: The Independent, The Daily Telegraph, The Daily Mail, The Sun, The Times, The Guardian and The Daily Mirror.

World Economic Forum (WEF) created a short film ‘Nature + learning = happiness’, which focused on research led by Emily Marchant on the benefits of outdoor learning. WEF has a global following on LinkedIn of 1,667,181 people, with the article achieving to date 79,152 views and 186 comments.

BBC World Service reaches a weekly audience of 279 million. Dr Kelly Morgan was interviewed for the BBC World Services ‘Health Check’ programme. Health Check covers health issues and medical breakthroughs from around the world and the interview featured research informed by the SHRN school network on how ‘Poorer children’s summer holiday experiences linked with worse mental well-being?’

Strengthening awareness in the local community
Bay TV broadcasts two live shows every weekday, along with news in English and Welsh, providing BBC Wales with news stories every weekday. In April 2018, Bay TV ran a key feature on The HAPPEN Conference and an interview with Emily Marchant, Coordinator of the HAPPEN Project.

Communicating to a Wider Audience | Media Activity
Communicating to a Wider Audience | Public Engagement and Involvement

Public Events

This year the NCPHWR has continued to undertake public engagement events with the aim of bringing the public closer to our research.

Science festival
The NCPHWR once again attended the Swansea Science Festival, held in November 2018. Researchers from the Centre delivered activities to children and young people around how our bodies work, as well as creating paper plates asking them to describe what makes them happy. Attendees were also encouraged to undertake fun fitness tests and to describe what physical activity meant to them.

Over the whole weekend, 3,000 people attended making it one of the best attended Science Festivals in Wales.

Eisteddfod 2018
Researchers from the Active Project, funded by the British Heart Foundation and supported by the NCPHWR were invited to be part of the 2018 Annual Eisteddfod held in Cardiff.

Researchers encouraged members of the public to take part in fun activities to learn about their health and wellbeing. Although we think the researchers enjoyed it themselves just as much.

Public Involvement

As identified in last year’s annual report the Centre has begun its commitment to undertaking the national standards for public involvement.

In collaboration with the Centre’s lay member, we have started to implement these across all aspects of NCPHWR research.

As part of this process we aimed to engage with those members of the public that are directly impacted by the research we undertake.

SAIL Consumer Panel
Over the past year the NCPHWR has continued to access the SAIL Databank Consumer panel.

Accessing this platform has allowed researchers to receive feedback on methodology and appropriateness of their research as well as inform the methods and structure of any future undertakings.

Research and me workshop
In March, over 100 pupils and 12 teachers from St Joseph’s Primary School in Swansea attended the first ‘Research and me’ workshop.

This was organised to give pupils the chance to tell us about the type of activities they would like to have included in the new health and wellbeing lesson plans to be used in the HAPPEN Project. Going forward, further ‘Research and me’ workshops will be delivered to increase the involvement the public have in the production of our research.

Foetal Heart Anomalies
NCPHWR researchers from Cardiff University in collaboration with Cardiff University Hospital Clinicians established a PPI group comprised of families of children with congenital heart anomalies.

In January, 5 families attended the inaugural meeting with the expectation of supporting and informing future studies.
In October, Emily Marchant from the HAPPEN Network presented at the World Health Organisation Healthy Cities Conference 2018. The conference organised every 5 years was attended by politicians and key decision makers from cities as well as technical experts. The conference aimed to bring about change and achieve improved health, wellbeing and equitable and sustainable development in cites regionally and globally.

HAPPEN was chosen to present due to its success in identifying ways that schools can improve the health and wellbeing of their pupils as well as identifying ways that young people would like to improve the environment they live in.

In September, NCPHWR researcher Dr Ulugbek Nurmatov was invited to present at the XXII international Congress on Children Abuse and Neglect (ISPCAN 2018) in Prague. The Conference was attended by delegates from over 80 countries. The objectives of the symposium was to deliver long term impact to health care professionals, social workers, policy makers and law authorities.

In October, we supported the Children in Wales 2018 Annual conference “The importance of getting it right”. The focus of the conference was to provide opportunities to consider current research and practice that takes a ‘Whole child approach to improving resilience in childhood. Presentations and discussions were undertaken around how to deliver the integration of services and the crucial role that collaboration between the third sector, academia, and public services play in this.

NCPHWR Professor Sinead Brophy, Professor Ann John from the NCMH and Dr Annie Williams from CASCADE delivered presentations on Child Wellbeing, Adolescent mental health and restorative interventions in Social Care. Speakers included Policy makers from Welsh Government and the Welsh Assembly as well as Health and Social care practitioners, education and third sector organisations.

NCPHWR also presented research on:
- Systematic reviews on mother and baby interventions
- The impact of the safe tea campaign
- Tools used to identify child mental health
- Effects on educational attainment of pupils at key Stage 2.

With the aim of this research to provide an evidence base to help inform practice and policy making decisions.

In February, Professor Simon Murphy from the School Health Research Network was invited to present at the Behavioural Science in Health Workshop at the British Embassy in Paris. Invited guests included officials from the French Ministry of Health and other Social Care departments. The presentation demonstrated the process SHRN and the Public Health Improvement Research Network (PHIRN) used to improve population health across Wales.

HAPPEN Conference 2018
In April the HAPPEN network again delivered its annual Conference to over 150 teachers, pupils, educationalists, health practitioners and third sector groups. This year pupils gave their views on what influences their health and wellbeing.

More spaces to play, more local facilities, cleaner streets and safer roads were the main areas they said affected them.
Conclusion

2018 – 19 has been another year of accomplishment for NCPHWR, with us achieving much through our work packages and dissemination activities.

Public involvement
Building on the work already started in implementing the National standards for Public involvement, planning is underway for the next Research and Me Workshops to support the public to help inform our research.

Informing Policy, Practice and Provision
Both our primary school network (HAPPEN) and secondary school network (SHRN) will continue to engage with schools across Wales informing practice and influencing policy, with both networks supporting schools to implement the new health and wellbeing curriculum.

Collaborating with others
Later this year will see us working with our partner Public Health Wales, undertaking Early Years research that support their key priorities outlined in their strategy 2018 – 2030. Alongside this, research development will be undertaken focusing on the impact of Adverse Childhood Experiences.

We are working with our industrial partners to examine the pathways through the NHS for people with arthritis and helping to detect pre-arthritis signs and symptoms in order to improve time to diagnosis and most appropriate therapeutic strategy.

NCPHWR will also be supporting the work of Administrative Data Research Wales in early year’s research helping to inform policy and practice.

Communicating to a wider audience
Disseminating our research across various social media platforms and academic publications will continue to be important in helping to demonstrate our expertise in population health and social care research.

In conclusion, we will continue to deliver research that helps inform policy, practice and provision, with the aim of improving the health and wellbeing of people in Wales.