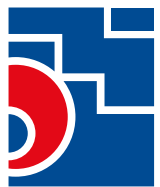


A photograph of a male scientist in a white lab coat and blue sweater, wearing a white surgical mask and a clear face shield with a red headband. He is in a laboratory setting, reaching for a vial on a shelf with his right hand while holding a white paper in his left. The background shows shelves with various bottles and equipment.

UNIVERSITIES IN WALES'
**CIVIC RESPONSE
TO COVID-19**



Universities
Wales
Prifysgolion
Cymru

INTRODUCTION

Universities in Wales have long been fixed and rooted in their communities, with a long history of working with people and public services. From the onset of the coronavirus pandemic, universities identified how they could use their assets, resources and expertise to support the national effort and help, wherever possible, the National Health Service, key workers and people affected by the pandemic.

This report documents universities in Wales' civic responses to the Coronavirus pandemic and demonstrates with clear, tangible examples how institutions, their staff and students, have had a positive impact on the people in their local communities.

As Chair of the newly formed Civic Mission Network, I have had the pleasure of working with civic mission leads from across Wales who have been sharing knowledge and experience in order to collaborate and support the national response during the Covid-19 crisis. As well as immediate responses, longer term plans are now being put in place to support our local communities in much needed areas to help create a more resilient Wales.

The following case studies showcase how, in an extremely challenging environment, universities have prioritised the health and well-being of, not only their students and staff, but also the people in their local communities and across the world. By seeking collaborative opportunities with local partners, public service boards, charities, and schools and colleges, as well as national organisations and government, institutions have utilised their knowledge, expertise and experience to manufacture essential medical equipment, provide much needed facilities, lead ground-breaking research and support their local communities.

Staff and students have made a hugely valuable contribution to the national effort and this report documents just some of the 250 examples collected since the lockdown began in March 2020.



As we publish this report, it is clear that Covid-19 will be with us for some time and will continue to impact our daily lives. This report is not a full stop on universities' contribution but instead captures the activities of a moment in time in the period that immediately followed the start of the pandemic.

As we look ahead, Welsh universities will continue to perform their historic civic role. In light of the impact coronavirus has had, much of the work our universities do will be more important than ever before. From research and innovation activity in areas such as health, behavioural science, and education, to the social and cultural opportunities that our universities will continue to offer communities. From the education and skills delivery that can be a lifeline to those whose livelihoods have been upturned by the pandemic to the important economic contribution universities make across Wales.

Lynnette Thomas
Chair, Civic Mission Network



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HIGHLIGHTS

MEDICAL EQUIPMENT



Thousands of items of essential PPE (Personal Protective Equipment) have been designed, manufactured and donated to frontline staff, local businesses, charities and schools.

Cardiff University joined forces with global defence equipment manufacturer Hard Shell to produce up to one million fluid-resistant masks a day. With assistance from the Welsh Government, specialist machinery was brought from overseas to assist in the development and production of masks at a Cardiff factory. The masks were produced for health, social care and other key workers in Wales and the rest of the UK.

FACILITIES



Bangor University's sports and leisure facilities were converted into a temporary hospital to provide beds for patients with Covid-19 symptoms. Around 250 additional beds were made available to the NHS at Canolfan Brailsford as part of the partnership between the University and Betsi Cadwaladr University Health Board. Training videos have been filmed in the **University of South Wales'** Clinical Simulation Centre to demonstrate how to use ventilators and CPAP (Continuous Positive Airway Pressure). These videos have been used to train frontline staff.

RESOURCES

With communities and groups needing additional support during lockdown, universities used their wealth of knowledge and technology to create accessible resources.

The Open University in Wales

has been working with the Welsh Government and Careers Wales through Working Wales to make a wide range of free learning available to workers who have been placed on furlough during the lockdown period. The Open University has over 1,000 free short courses, videos, tutorials and other resources on its free online learning platform, OpenLearn, which help workers improve their skills, learn new skills, and maintain their personal well-being while not working.



HIGHLIGHTS

TRAINING



Universities have delivered critical care training to frontline staff as well as offering their state-of-the-art facilities for local health boards and partner organisations to use as a training base.

Wrexham Glyndŵr University and **Bangor University** teamed up to create a three-day course to train 200 extra intensive care staff to support the Covid-19 response. The reinforcements completed a fast-track course to start working on the frontline across the Betsi Cadwaladr University Health Board's three hospitals.

RESEARCH



With Welsh institutions in the top 5 universities in the UK for research excellence and research facilities, academics and students have developed cutting edge analysis to provide critical decision-making data. Researchers from **Aberystwyth University** have been working on a technique to improve testing for the Coronavirus in low income countries.



Research by Welsh universities has also played a key role in tackling and controlling the virus here in Wales. In under two weeks, **Swansea University** students devised and developed a new rapid-release gas treatment for ambulances to reduce the current turnaround time to deep clean a vehicle. The treatment can remove Covid-19 contamination from surfaces and the air in under twenty minutes, removing human cleaning intervention.

HIGHLIGHTS

EXPERTISE



Academics have played a critical role in the sharing of expert knowledge and experience to support the national and global response to the pandemic.

University of Wales Trinity Saint David's innovative research and design centres, The Assistive Technologies Innovation Centre (ATiC) and The Centre for Advanced Batch Manufacture (CBM) Wales have provided intensive support for a newly established consortium – SWARM (The South Wales Additive and Rapid Manufacturing Consortium) in its mission to support NHS Wales' Covid-19 response. SWARM was set up to coordinate available industry, manufacturing and design capacity, in South Wales, to support the NHS supply chain.

COMMUNITY SUPPORT

Staff and students have been volunteering in their local communities to support the national response. Universities have fast-tracked final year medical and healthcare students, from nurses, to midwives and paramedics, who have bravely volunteered for the NHS.

Bangor University, the University of South Wales, Cardiff University and Swansea University have provided over 2000 students nurses, midwives and paramedics to help on the frontline of the pandemic. Staff and students have also been fundraising to support charities and vulnerable groups in serious financial need. **Cardiff Metropolitan University** staff walked the distance from Cardiff to Baku (some 3000 miles)



where the first Wales Football Euro would have taken place if not for the outbreak, raising funds for the Wallich, a charity supporting the homeless in Cardiff.

1. COMMUNITY SUPPORT

Staff and students across the country have volunteered their time to support their local communities, from creating online support networks for people suffering in isolation, to raising money for the NHS through running, baking and cycling. Thousands of medical students and staff have volunteered for the NHS to help during the pandemic, from supporting their local care homes, to working in the hospitals, they have demonstrated their capacity to help those in need.




Graduate Entry Medicine students from **Swansea University** offered emergency childcare for NHS staff to allow them to continue to offer frontline care. A team of eight students ran the scheme alongside more than 90 student volunteers who have offered their time so far. **Cardiff Metropolitan University** PhD Student, Owen Griffiths, supported the NHS 111 on weekends - directly advising people on Covid 19 symptoms.




Swansea University College of Arts and Humanities lecturer Sian Brooks, and her husband transformed their gin company to produce approved hand sanitiser for the NHS. Their product has been supplied to their local village, police stations, schools supporting key worker children, midwives, care homes, district nurses, doctors' surgeries, hospitals, first responders, air ambulance crews and delivery staff.

There have been many food donations to NHS staff, care homes and police stations, including from engineering students from **Wrexham Glyndŵr University** who donated food to Wrexham's NHS Community Mental Health Team. **Cardiff Metropolitan University** Accounting student Floyd Haughton planned to start a pop-up catering business in the summer, but throughout lockdown he donated Jamaican inspired meals to key workers across Cardiff, so far having cooked and delivered more than 200 meals. Also at **Cardiff Metropolitan University**, the Environment and Estates team, as well as the Security team, supported the local Cardiff and Vale University Health Board staff by donating water and snacks



Cardiff University has developed an e-voucher scheme for vulnerable groups. Academics at Cardiff University have been collaborating with Asda, Tesco and M&S to provide food and essential items through a unique e-voucher scheme for vulnerable social groups including women, BAME communities, and refugees in Cardiff.



Swansea University donated the money it would have spent on its centenary celebration events to fighting Covid-19 and to champion innovation. All centenary events had been postponed due to the lockdown, and £200,000 of funding has been set aside to support talented academics, students and staff by providing grants for Covid-19 research and boosting the student hardship fund to help students directly affected by the pandemic.

The Open University

in Wales has been working with Race Council Cymru and Race Equality First Networks to provide webinars to its service users across Cardiff, Swansea and Newport. In addition, webinars have been delivered for colleagues and service users at other organisations including Addysg Oedolion Cymru | Adult Learning Wales and Remploy. This work forms part of The Open University in Wales' social mission to open up education to everyone in Wales, which will be even more crucial as the country seeks to rebuild society and its economy after the crisis.



Morgan Dafydd, a PhD student from **Bangor University** has launched a new website to open the door to Welsh literature for youngsters during the coronavirus crisis. The

Sôn am Lyfra (Talk About Books) website offers bilingual reviews of Welsh children's books to help them develop a passion for reading in Welsh.



Cardiff Metropolitan University and Sport Cardiff are supporting services in the community such as Ty Canna, the organisation working with people in the community with acute mental health illness. The university has moved its 'Mind the Gap' project online during lockdown which has allowed Ty Canna's service users, adults with mental health conditions, to remain active and engaged and has had a positive impact on users' health and wellbeing.



An app that allows companies to optimise social distancing measures on public transport has been created by a group of **Cardiff University** students. The app, created by three mathematics PhD students, can be used by public transport companies to implement seating plans or by passengers to select a safe seat in which to sit.

First year nurses at **Wrexham Glyndŵr University** walked

and ran more than 100 miles over the month of July to raise money, whilst on-site security staff at **Aberystwyth University** raised over £130 to purchase meal vouchers for the local frontline NHS staff.

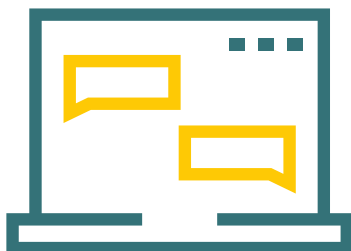
Cardiff Metropolitan University staff walked the distance from Cardiff to Baku (some 3,000 miles), where the first Wales Football Euro would have taken place if not for the outbreak, raising funds for the Wallich, a charity supporting the homeless in Cardiff.



Policing students at **Wrexham Glyndŵr University** helped officers on the frontline during the coronavirus pandemic. Holly Williams and Kyle Smith served as special officers with North Wales Police, helping to maintain lockdown regulations in addition to other duties.

During the lockdown, young people were a focus of support for many universities, with students having to adjust to a completely different lifestyle.

A **Cardiff University** student, Naomi Lea, set up 'Project Hope' to help and support young people suffering with loneliness during lockdown. She set up the project with other young people and Youth Cymru, and now organises online gatherings for people aged 13-25 three times a week.



Swansea University's Reaching Wider initiative has created a Covid-19 time capsule which allows young people who have experienced being in care and who live in south west Wales to become part of a living social history, documenting how they lived through the lockdown period.



Hannah Taylor, a nursing student from the **University of South Wales**, became one of 10 winners of the Cardiff Covid-19 Heroes competition. Hannah had her portrait painted by Nathan Wyburn and put up in the city for going above and beyond during the pandemic. Hannah has recently completed her adult nursing course and opted-in to help during the pandemic. She was placed in the University Hospital Wales where she cared for stroke patients.

2. MEDICAL EQUIPMENT, FACILITIES AND RESOURCES

MEDICAL EQUIPMENT

Staff and students across Wales have designed, manufactured and delivered essential personal protective equipment (PPE) to frontline NHS staff, schools, local businesses, pharmacies and police stations. Whether using their own sewing machine or 3D printer at home, or with socially distanced access to university labs, an army of volunteers have donated thousands of scrubs, aprons, goggles, masks, hand sanitiser and face shields.



Senior lecturers at the **University of Wales Trinity Saint David** (UWTSD), are making scrubs for healthcare staff at Swansea Bay University Health Board as part of the “For the Love of Scrubs” project.

Gaynor Thomas and Beverley Holland from the University’s Wales Institute of Science and Art who both teach computing at UWTSD’s SA1 Swansea Waterfront campus, decided to act to support healthcare workers at local hospitals and care homes after seeing a Facebook support group online. The pair, working independently from their own homes, used their Easter break to make scrubs tops, trousers, caps, laundry bags and masks, which have been donated to Morriston and Singleton Hospitals and they have received pictures from grateful staff wearing the items.



Universities have utilised their long-standing relationships with local businesses to collaborate and identify efficient and effective ways to manufacture PPE.

Aberystwyth University has been working with a group in Machynlleth to produce more PPE to protect health and social care workers from Covid-19. As a result of the partnership with local group Dyfi PPE, academics and staff at the University are laser cutting materials into a specified shape. The parts from the University will be assembled by a Welsh firm into visors. This collaboration has been developed as part of the European Regional Development Funding (ERDF) Project Centre for Photonics Expertise project, in which Aberystwyth is a partner.



Face shields designed and 3D printed by a **Swansea University** team have been awarded the CE safety mark, which means they can now be manufactured at larger scale for hospitals.

Staff and students in Swansea University's College of Engineering, set up and manufactured an open-source Prusa design in the College of Engineering, with the addition of neoprene foam and a wide elastic strap for increased comfort. The design was then improved to increase eye coverage and in preparation for mass production.

Child-friendly face visors made by a **University of Wales Trinity Saint David (UWTSD)** Swansea College of Art team were delivered to schools across Swansea in readiness for pupils' return in June. The child-friendly visors were delivered to Dunvant, Cila, Waunarlwydd and Bishopston primaries, as well as Bishop Gore and Pentrehafof Comprehensives and feature artwork by former UWTSD Graphic Design student Brogan Evans.

The UWTSD team, led by Dr Ross Head, have been using the facilities at Swansea College of Art to



After being quarantined for 72 hours, the visors were sent out to local hospitals for testing and feedback, which the team used to improve the design further. The CE mark gives the team the green light to produce the masks using 3D printing. In future it is hoped the masks can be mass produced using injection moulding rather than 3D printing, thanks to local industrial partners FSG Tool, Die Ltd and Knight Plastics.

produce the visors and have already supplied many to businesses and care homes across the region. They have been working long hours laser cutting and assembling these vital face visors to help address any gaps in the supply of PPE.



Mark Saltmarsh, a Technician Demonstrator at **Cardiff Metropolitan University** (Cardiff Met) has been manufacturing face masks to donate to doctors' surgeries, care homes and pharmacies in the Aberdare area. Mark borrowed 3D printers from Cardiff Met's workshops and set them up at his home running them day and night. So far, 95 visors and 345 face mask supports have been produced. **Cardiff Metropolitan University** has also loaned two Thermo Fisher 7500 ABI Fast platform machines to a new UK testing centre in Milton Keynes to support enhanced testing of Covid-19.



The Glyndwr Innovations team at the **Wrexham Glyndŵr University's** Optic Centre have also been producing face visors for frontline health workers as part of the coordinated North Wales effort.



A rapid test for detecting Covid-19 has been developed by scientists at the **University of South Wales** (USW). The team has created a portable device which can produce an accurate result in 20-30 minutes without having to return a sample to the laboratory. The test, which is low cost and quick, uses a different method and chemicals to the current accredited tests, avoiding

any supply bottlenecks for the components. USW researchers, led by Dr Jeroen Nieuwland and Dr Emma Hayhurst, adapted a technique that they have been developing since 2016 for the diagnosis of urinary tract infections. The new test is being evaluated in collaboration with Cwm Taf Morgannwg University Health Board



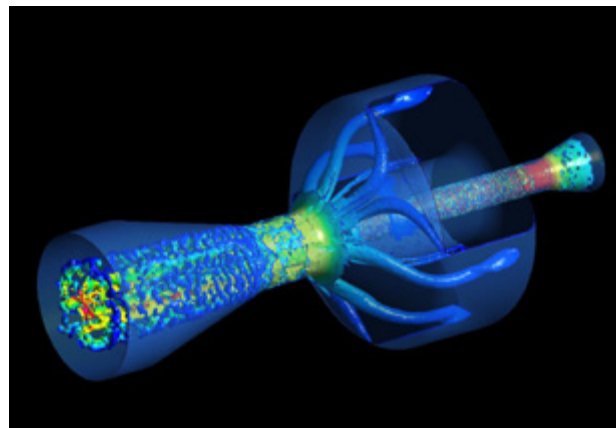
Using a collaborative approach, a team of Swansea doctors and engineers have designed a new ventilator called the CoronaVent-One. In March, the Prime Minister announced an open call for 30,000 ventilators within two weeks to treat expected mass casualties from the Coronavirus pandemic. The team led by Dr John Dingley and Dr Dave Williams, consultant anaesthetists in the NHS with teaching roles at **Swansea University** Medical School, created the CoronaVent to treat complex coronavirus cases whilst still being quick to manufacture.

The team also includes experts from the ASTUTE 2020 team at Swansea University College of Engineering, and from the Assistive Technologies Innovation Centre (ATiC) at the **University of Wales Trinity St David**, and Swansea University's Healthcare Technology Centre, which are both part of Accelerate, a collaboration between three of Wales' universities and the Life Sciences Hub Wales. As well as saving lives, the CoronaVent can help create jobs and boost economic recovery as global demand for ventilators is likely to remain high as the pandemic continues.



Swansea University's Healthcare Technology Centre has played a key role in developing an award-winning communication aid for frontline health staff forced to wear face masks during the pandemic. The Centre was part of the Welsh-based team behind MaskComms, a microphone designed to be small enough to fit inside a face mask and transmit voice through wireless to a wearable loudspeaker. The project has just won an £8,000 grant at this year's prestigious Welsh Health Hack which aims to stimulate innovation and encourage collaboration between NHS Wales, industry and academia.

Computer Science and Electronic Engineering students from **Bangor University** developed a cuddly toy that tracks a patient's vital signs. The students are being led by Dr Christian Subbe, Consultant in Acute Medicine at Betsi Cadwaladr University Health Board.



Engineers at **University of Wales Trinity Saint David** have been involved in the rapid development of a highly efficient 3D printed jet Venturi based respiratory support system. The project team came together following calls by Welsh Government and industry to develop rapidly manufactured CPAP solutions to aid SARS-CoV-2 patients with breathing difficulties.

FACILITIES

Universities in Wales have a wide range of state-of-the-art facilities on their multiple campuses across the country. With the lockdown in place and many staff and students working and studying from home, there was an opportunity to make university facilities, ranging from accommodation to science labs, available for people who needed them to support the national response to the pandemic.

Swansea University's on-campus clinical skills training suite and clinical skills lab at Morriston Hospital were both freed up for NHS use.

Aberystwyth University and **Cardiff University** provided building space to local health boards in order to increase their emergency case handling capacity. **Cardiff University** also converted one of its buildings into a training facility for NHS staff. **The University of South Wales** provided facilities and staff for an external company to film educational videos about how to use CPAP (Continuous Positive Airway Pressure), which is used to help keep the airways open. This has since been used to train frontline staff.



Aberystwyth University has provided full use of their former nursery building to provide increased capacity at Bronglais General Hospital, which is adjacent to the campus. NHS staff have been given accommodation at **Wrexham Glyndŵr** and **Aberystwyth** Universities in halls of residence which would normally be used by visitors and conferences. Part of the **Aberystwyth** University building has also been converted into a key worker screening centre and clinical space for local GP use.



A solar tech lab at **Swansea University** temporarily switched to producing 5000 litres of hand sanitiser a week, to help the NHS fight the Covid-19 outbreak. The sanitiser, which meets the standard set by the World Health Organization, is already in use in the local NHS.

Bangor University's sports and leisure facilities were converted into a temporary hospital to provide beds for patients with COVID-19 symptoms. Around 250 additional beds were made available to the NHS at Canolfan Brailsford as part of the partnership between the University and Betsi Cadwaladr University Health Board.

Cardiff Metropolitan University established a Blood Centre at its Llandaff campus in partnership with the Welsh Blood Service following a 20% reduction in donors since the lockdown. **Bangor University** also created a blood donation centre on campus which eased the pressure at hospitals and gave more people confidence to give blood in a safe environment.



RESOURCES

The lockdown has provided many people with the unexpected opportunity to learn a new skill or take up a new hobby. Universities have used their resources and online technology to offer free courses, webinars and podcasts which offer support and development opportunities to the people in their communities. With schoolteachers having to make the sudden move to teaching online, and furloughed workers wanting to upskill, universities in Wales have been able to share their knowledge and experience to help those in need.



The Open University in Wales has been working with the Welsh Government and Careers Wales through Working Wales to make a wide range of free learning available to workers who have been placed on furlough during the lockdown period. The Open University has over 1,000 free short courses, videos, tutorials and other resources on its free online learning platform, OpenLearn, which help workers improve their skills, learn new skills, and maintain their personal well-being while not working. With school and college students from across the country missing their last term of school, **Wrexham Glyndŵr University** created a free online module called 'The Confident Learner' to help students prepare for life at university. The course includes topics such as study skills, well-being and essay-writing skills.

The Open University in Wales has also been working with Cardiff Council Schools Service to support teachers in the city to make the switch to online teaching by identifying resources that can help to support young learners at home. The Open University in Wales hopes to develop this work into a larger, peer-to-peer support resource for teachers to support them with online teaching and learning.

The Open University also shared its range of helpful resources for online teaching pedagogy with universities, First Campus steering group members, Business in the Community and Academi Wales.



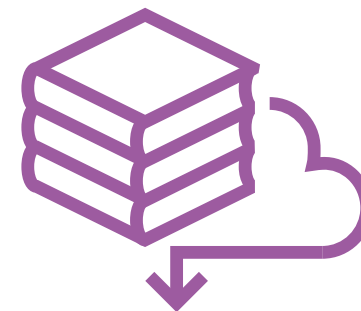
Physical and mental wellbeing have been even more of a priority for universities during the lockdown period. Heather Fish, Wellbeing and Mindfulness Lecturer at **University of Wales Trinity Saint David**, has been bringing mindfulness practices to people's living rooms with Mindfulness in Action. The free online mindfulness sessions include a led meditation practice and the opportunity to share experiences.



Bangor University launched a bilingual exercise programme for children called 'Dynamic Dudes', and, at **University of Wales Trinity Saint David**, PhD student, Anna Stevenson worked with physiologist Dr Peter Herbert to create a series of exercise videos for older people that could be done indoors or in the garden during lockdown.

There has been additional support for parents who were expected to become teachers overnight by having to home-school their children - a new experience for a lot of families.

A group of students from **Cardiff Metropolitan University** created a free weekly home-school resource programme for Key Stage 3 pupils which is delivered through Microsoft Teams and OneNote programmes. Thanks to a partnership between **Bangor University** and Welsh Government a software package



to help Welsh language spellchecking & grammar checking has been released as a free download to help with lockdown home schooling and working.

Many of the online resources are directly linked to the Covid-19 pandemic, including a practical Welsh language online guide to living with worry and anxiety during the pandemic, which has been created by students at **Aberystwyth University**. The **Open University in Wales** partnered with the Bevan Foundation on a webinar exploring the effect of Covid-19 on lifelong learning. **Cardiff University** have launched a virtual CPD Summer School programme, with themes including the 'new' work-life balance in the context of Covid-19 and how this can affect the way people work.



A **Swansea University** expert provided online antenatal classes to mums-to-be whose usual antenatal classes had been cancelled due to social distancing guidance and the need for the NHS to focus on essential services. Dr Alys Einion-Waller, Associate Professor of Midwifery and Women's Health, used Zoom to create a live online classroom providing free sessions.

There has been a rapid rise in numbers of people in domestic abuse situations seeking help during the UK lockdown. A research project based at **Aberystwyth University** has offered free online training to frontline practitioners dealing with cases of domestic abuse among older people during the current coronavirus lockdown. The **Open University's** Open Justice team has also collaborated with charity Support Through Court (STC) to develop a free online resource for learners, themed around domestic abuse.



Cardiff University academics working on the Welsh Government initiative The Modern Foreign Language Student Mentoring Project, have created a programme of lectures, seminars and workshops that are being delivered online. The sessions, offered through the medium of English and Welsh, are aimed at language students looking to continue studying languages at university. Lecturers and students from **Aberystwyth University** and **Bangor University** are also involved in the project.



Students on the PGCE (Post-graduate Certificate of Education) and BA Primary Education QTS courses at **University of Wales Trinity Saint David** have been utilising their experience of teaching by transforming their resources into creative and innovative online opportunities that will engage children and young people.

The resources are being collated and uploaded to the University's Athrofa Pinterest board which gives easy access to all.

3. TRAINING, RESEARCH AND EXPERTISE

TRAINING

With the immediate need for more healthcare and medically trained staff to fight the virus, universities used their wealth of knowledge and expertise to offer training for critical and non-critical care staff, including clinical respiratory care.



Staff from the allied health courses at **Wrexham Glyndŵr University** assisted the NHS in areas such as urgent training in clinical respiratory care. **Cardiff University** School of Healthcare Sciences also provided training/skill refresh sessions to staff who were drafted back into the health service. **Swansea University**, **Bangor University** and the **University of South Wales** worked with university health boards to deliver critical care training to non-critical care staff.



The **Swansea University** Medical School and College of Human & Health Sciences handed back the Aneurin Bevan Clinical Skills Suite to Swansea Bay University Health Board. The former Ward 10 at Singleton Hospital had been converted into a state-of-the-art training and simulation area for medical, physician associate and nursing students.

RESEARCH

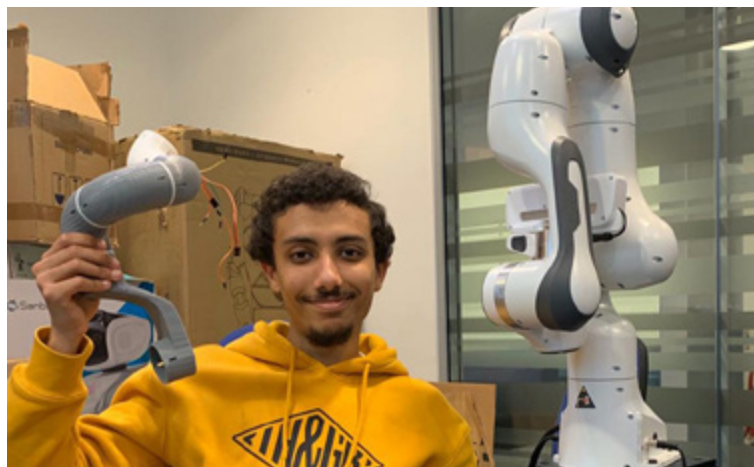
With Welsh institutions in the top 5 universities in the UK for research excellence and research facilities, academics and students have developed cutting edge analysis and techniques to help understand tackle and control Covid-19 both here in Wales and further afield.

A study by researchers at **Swansea University** and Manchester University suggests that people are torn over whether they will use the Covid-19 contact tracing smartphone app, which has been released in the UK. The research is being led by Dr Simon Williams, Senior Lecturer in People and Organisation at Swansea University, with collaborations from Dr Kimberly Dienes and Professor Christopher Armitage of Manchester University's Centre for Health Psychology, and Dr Tova Tampe, an independent consultant at the World Health Organization.

Cardiff University has joined other academic institutions to support a new genome sequencing consortium to map the spread of Covid-19. Changes to the virus can be monitored by scientists on a national scale to understand how the virus is spreading and looking at the whole genome in people who have had confirmed cases of Covid-19.



Academics at **Cardiff Metropolitan University's** Eureka Robotics Lab have used three Canbot U03S robots to help GPs on the frontline. By using the latest robotics technology, the robots can identify virus symptoms to treat patients and support people who are shielding. Students at the Eureka Robotics lab have also been able to design and print face shields using 3D printing and modelling technique to help the national effort.



In under two weeks, **Swansea University** students devised and developed a new rapid-release gas treatment for ambulances to reduce the current turnaround time to deep clean a vehicle. The treatment can remove Covid-19 contamination from surfaces and the air in under twenty minutes, removing human cleaning intervention.

Cardiff Metropolitan University, together with colleagues at **Swansea University**, is researching the impact government speeches and announcements are currently having on people's lives.

More than 60 million tweets about Covid-19 have been analysed together with information on the spread of the virus.



Researchers from **Aberystwyth University** have been working on a technique to improve testing for the Coronavirus in low income countries. Tests in the UK are conducted by the RT-PCR method which analyses RNA from the virus. These tests have to be conducted in a laboratory using large and expensive specialist equipment. A team of researchers under the leadership of Dr Arwyn Edwards, Senior Lecturer in Biology at the Institute of Biological, Environmental and Rural Sciences (IBERS) at Aberystwyth University, are experimenting with an alternative testing method.



Researchers at the **University of South Wales** have developed an innovative blood oxygen monitor after supplies of this key device became limited as a result of the Covid-19 pandemic. The team of researchers have worked under the instruction of the Welsh Government's Critical Equipment Requirements Engineering Team (CERET), led by Industry Wales, which was looking for the development of a locally-sourced product.

In collaboration with Welsh Government, Panasonic UK, and clinicians at Hywel Dda University Health Board, the device, known as a pulse oximeter, has been designed to be manufactured in Wales and breaks away from the standard oximeter supply chains, effectively eliminating future sourcing bottlenecks.

Bangor University has been awarded almost half a million pounds to pilot a research project that monitors coronavirus levels in waste-water. This monitoring can offer a signal of the infection rate in the community and provide an early sign that the virus is present. The Welsh Government awarded the funding to a consortium led by Bangor University, working with Cardiff University, Public Health Wales and Dwr Cymru Welsh Water.



Children's experiences of life during the Covid-19 pandemic are being investigated by researchers at **Cardiff University**. The research aims to find out what kinds of activities children and young people have been doing during the pandemic and how they have adjusted to the huge changes brought on by the lockdown.

Swansea University academics have also been studying the effect of the UK Government's lockdown strategy on the population's physical activity levels and well-being during the lockdown. **Cardiff University** has also highlighted the ongoing concerns for nurses and midwives' health, training and mental health throughout the pandemic, as well as the health of their families.



Researchers at **Cardiff University** have launched a UK-wide project to investigate the impact of the Covid-19 pandemic on diagnosis of cancer. The initial message to “stay home, protect the NHS, save lives” and the suspension of cancer screening programmes sent a strong message that “cancer can wait”, said the researchers.

The 18-month research project will look at how these messages have affected people seeking medical help for early signs of cancer or for screening. Working closely with researchers at Cancer Research UK, King’s College London and the University of Surrey, the study will look at public attitudes and behaviours, exploring key issues that could lead to more cancers occurring or being diagnosed at a late stage.

Professor Emmanuel Ogbonna of **Cardiff University** chaired the subgroup from the black, Asian and minority ethnic (BAME) Covid-19 expert advisory group, which was set up by First Minister Mark Drakeford. A major report has revealed the complex and long-standing factors contributing to the disproportionate impact coronavirus is having on Wales’ BAME communities.

EXPERTISE

With world leading experts working across the sector in Wales, the lockdown provided an opportunity to offer innovative solutions to the Covid-19 impact on society and collaborate with international partners to support the global response to the pandemic. From sharing experiences with partners in Wuhan hospital to using virtual reality to relieve stress and anxiety, experts in their field have been responding to the emergency in pioneering ways.



University of Wales Trinity Saint David's innovative research and design centres ATiC and CBM Wales have provided intensive support for a newly established consortium – SWARM (The South Wales Additive and Rapid Manufacturing Consortium) – in its mission to support NHS Wales' Covid-19 response. Teams from across **Swansea University** have also come together to support the consortium. SWARM was set up to coordinate available industry, manufacturing and design capacity, in South Wales, to support the NHS supply chain.

A convenient, low-cost blood test for Covid-19 has been developed by scientists in Wales. The antibody test puts a single drop of blood from a skin prick onto specialised filter paper cards which can be sent for laboratory testing. Experts from the University Hospital of Wales, **Cardiff University** (Immunology and Clinical Innovation) and the Welsh Blood Service have now developed dried blood spot (DBS) methods for testing Covid-19 antibodies in adults.



Lecturers from **University of Wales Trinity Saint David** have been sharing their expertise in a series of online business-related events as part of the Focus Camarthen Enterprise Hub. The first session called 'Active Body = Active Business' discussed how to avoid physical and mental health risks from a sedentary lifestyle.

The Wales Institute of Digital Information (WIDI) apprentices have also played a crucial role in supporting the work of the NHS Wales Informatics Service (NWIS) during the Covid-19 pandemic. Ethan Needham from **University of Wales Trinity Saint David**, who started as an NWIS apprentice towards the end of 2019, has been involved in the crucial work of enabling staff remote access to the NHS network safely and securely.

Innovation experts at **Swansea University** are playing a key role in improving the way hospitals use information about patients. Staff from the Healthcare Technology Centre (HTC) have been helping to develop new e-whiteboards which are used to record important health details while a patient is on the ward.

Staff from **Swansea University** Medical School spoke with partners in Wuhan Union Hospital to learn from their experiences during the pandemic, linking them to appropriate local Health Board leads to ensure the sharing of best practice.

A leading **Swansea University** clinician is also among a group of experts calling for the introduction of a risk assessment for frontline health professionals treating coronavirus patients. The study examined the demographics of those who had been hospitalised and ultimately died due to Covid-19 compared to the general population.

The **Open University in Wales** took part in a four-nations webinar for businesses and business owners to help them better understand how flexible learning can help develop the workforce's digital skills. Developing digital professionals in a changing world: a UK-wide approach explored the impact of Covid-19 on digital skills in the workplace, presented the findings of two recent Open University reports and explained the benefits of apprenticeships.



Researchers from **Cardiff University** have been using virtual reality (VR) to help support the mental health and well-being of NHS staff on the front line. Twenty-one staff working in intensive care units at the Royal Glamorgan and Prince Charles hospitals had access to a single-use VR headset for two weeks to evaluate if it was a useful aid to help with stress and anxiety.

Professor Colin McInnes from **Aberystwyth University** delivered a free webinar on 'The International Politics of Covid-19'. This webinar identified the politics of global health – how it developed, what it means and what the problems are with the politics of global health.

CONCLUSION

This report demonstrates the positive civic impact universities have had on their local communities and the nation during the Covid-19 pandemic.

With Civic Mission a priority across the sector and strong community culture, universities have displayed the importance and effectiveness of collaboration with local health boards, businesses, charities, public services and authorities.

With universities currently under financial stress due to these unprecedented times, the staff and students have remained committed to the health and wellbeing of the people and places they serve by using the resources they have available to make a positive change to society.

The development of civic mission projects during Covid-19 has prompted a longer-term drive by universities to improve the health and well-being of

Wales and, as we move forward, much of the work our universities do will be more important than ever before.

Wales' universities will continue to work with government and health services in new and better ways, with an ongoing commitment to contribute to removing health and social care inequalities. They will continue to prioritise civic mission and engage in conversation with leaders across their regions to tackle key societal changes and deliver positive outcomes for their communities. The additional virtual presence of universities will also continue to develop and expand as a digital shift in civic mission evolves.

Universities in Wales recognise that the nation faces a myriad of challenges over the coming years and that their role in equipping the nation to respond to those challenges must be a strategic priority. If the disruption of Covid-19 teaches us anything, it is that universities in Wales have a unique capacity to pull together and deliver real impact across communities in times of need.

