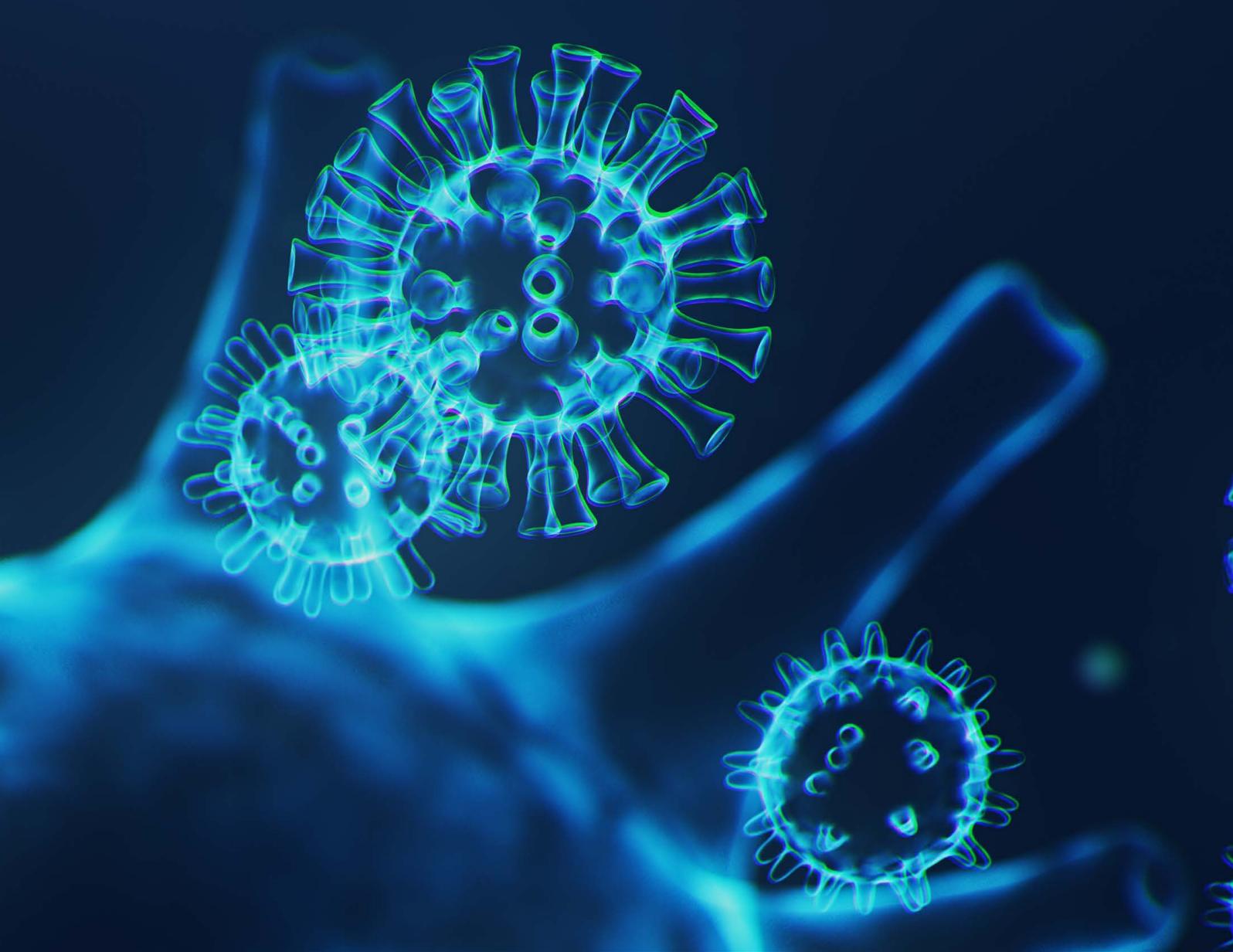




**The NHS Wales
COVID-19 Innovation and
Transformation Study Report**



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Foreword

Thank you for your interest in this important report.

Throughout the COVID-19 pandemic our health and social care systems have faced the biggest challenge of our lifetimes. Colleagues across NHS Wales have adapted to new ways of working to respond quickly to the need to continue to deliver essential services in a safe environment.

During a crisis people often do new and innovative things that they have never done before. We look at issues differently and take instinctive action that challenges the status quo. In doing so we can break down barriers and accelerate change in how services are delivered. I've seen many such examples of innovative practice during the COVID-19 pandemic response, and it's essential to capture this and ensure we take the opportunity to learn the valuable lessons arising as a result.

We've been able to build on the foundations set out in A Healthier Wales and our response to COVID-19 has accelerated the implementation of our long term plan in some areas. The original vision for A Healthier Wales has been validated and remains relevant for the Wales of today. As we move forward into the challenging times ahead and the stabilisation and reconstruction of our services, we have an opportunity to build on the innovative examples in this report and ensure our new ways of working become firmly embedded in our healthcare system.

I have seen that people want to maintain the progress that we've seen in the system and am particularly pleased to see examples of how colleagues have adapted existing services to protect vulnerable patients whilst ensuring that treatment for urgent conditions could continue.

I would like to take this opportunity to thank all healthcare professionals for their ongoing commitment to the COVID-19 response and for taking the time to contribute to this report which should be used by practitioners and leaders in the system to effect change.



Dr Andrew Goodall

Director General for Health and Social Services,
Chief Executive of the NHS Wales

OUR PARTNERS:



PREPARED BY:



Swansea University
Prifysgol Abertawe

Introduction

by the project commissioning team

The NHS Wales COVID-19 Innovation and Transformation Study has been produced through the efforts of a range of partners. We have worked collaboratively to deliver a report based on a breadth of local, regional and national evidence gathered from across the health and care system in Wales.

This independent study report is designed to be accessible, informative and a tool for learning and change. In its preparation, the project team has aimed to:

- develop a greater understanding of why staff across the system implemented new practices and innovations during the COVID-19 pandemic;
- demonstrate an inherent 'permission' to apply innovation and transformative change;
- evidence practical, real world examples of innovation that support the application of good practices to other areas;
- showcase NHS Wales as a leader in implementing innovation and new ways of working throughout the COVID-19 pandemic.

A broad range of qualitative and quantitative evidence has been

gathered from practitioners at all levels of the healthcare system, who have worked tirelessly to adapt to an unprecedented set of circumstances while still caring for and protecting Welsh citizens.

With this in mind, this report provides recommendations for how decision-makers and practitioners across NHS Wales can sustain the innovative and transformative ways of working that have emerged.

This study report has been delivered through a Team Wales approach, by a dedicated project commissioning group. Leadership and resources have been provided by the group's members, each of whom have brought specific expertise and a bespoke organisational offer. This collaboration demonstrates what is achievable in Wales as a small but highly networked nation with an integrated policy environment for health and social care. This report and its underpinning research was prepared for the project commissioning group by an independent team led by Swansea University's School of Management (membership detailed on page 50).

We hope this study report is useful at all levels to effect positive and meaningful change in practice.

Aneurin Bevan University Health Board

Tom James, Assistant Director – Innovation,
Aneurin Bevan University Health Board (Chair)

Welsh Government

Emma Spear, Deputy Director,
Health & Social Services Group
Ruth Crowder, Chief Allied Health Professions Advisor,
Health & Social Services Group
Deborah Paramore, Head of Strategy,
Health & Social Services Group

Health Education and Improvement Wales

Maria Edwards
Programme Manager for Healthcare Science Cymru

Welsh NHS Confederation

Nesta Lloyd-Jones, Assistant Director
Olivia Baker, Media and Communications Officer

NHS Wales

NHS Wales delivers services through seven Local Health Boards, three NHS Trusts and two Special Health Authorities.

Local Health Boards

The seven Local Health Boards are responsible for planning and securing the delivery of primary, community and secondary care services alongside specialist services for their areas. These services include dental, optical, pharmacy and mental health services. They are also responsible for delivering services in partnership, improving physical and mental health outcomes, promoting well-being and reducing health inequalities across their population.

The seven Local Health Boards are:

1. Aneurin Bevan University Health Board
2. Betsi Cadwaladr University Health Board
3. Cardiff and Vale University Health Board
4. Cwm Taf Morgannwg University Health Board
5. Hywel Dda University Health Board
6. Powys Teaching Health Board
7. Swansea Bay University Health Board



NHS Trusts

There are three NHS Trusts with an all-Wales focus.

- **Public Health Wales NHS Trust** is the national public health agency that works to protect and improve health and well-being and reduce health inequalities for the people of Wales.
- **Velindre University NHS Trust** provides specialist cancer service across South and Mid Wales through Velindre Cancer Centre and a national service through the Welsh Blood Service.
- **Welsh Ambulance Services NHS Trust** provides a range of out-of-hospital, emergency and non-emergency services.

Special Health Authorities

- **Health Education and Improvement Wales** has a leading role in the education, training, development and shaping of the healthcare workforce across Wales.
- **Digital Health and Care Wales** are a new special health authority, established to deliver national digital, data and technology services for health and care in Wales.



The Study report provides recommendations for how decision-makers and practitioners from across NHS Wales can sustain the innovative and transformative ways of working that have emerged.

Executive Summary

Key Objectives

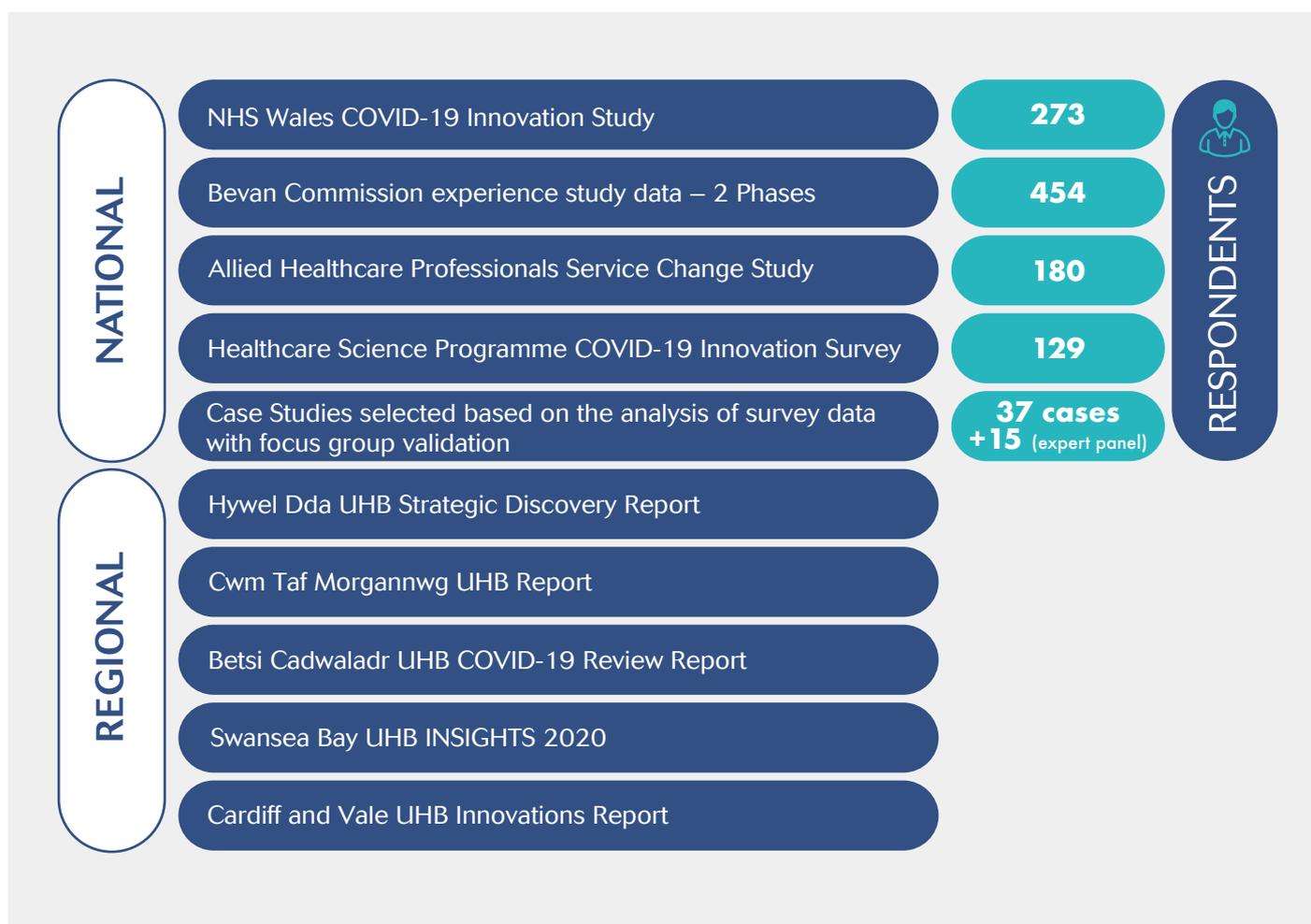
The aim of the study is to capture learning and share the novel and innovative practice that has emerged as a result of COVID-19 in NHS Wales.

The key objectives of the research study are to:

- capture key learning to understand the reasons why NHS Wales organisations and staff could or did innovate;
- share a set of case studies that detail examples of innovation;
- produce a set of emerging themes originating from key findings;
- provide an evidence base that can sustain the adoption of innovative practice and transformative ways of working;
- inform future policy-making from the evidence.

The evidence base

This report has been created using a broad range of qualitative evidence generated during the past twelve months, as shown in the table below:





Key themes

Our analysis of the broad range of qualitative data revealed **seven key themes**, which we have explored further with case studies:

More agile use of resource

- Significant reallocation of resources took place, some staff reported this was very easy, others said it was process heavy (informal vs. formal arrangements).
- Barriers were identified in redeploying staff to priority areas at pace.
- Access to funding for innovative and transformative ideas was readily available to some colleagues but not others.

Staff well-being

- Interventions introduced to support the emotional and mental health of colleagues were reported, and were positively received.
- The impacts of these interventions have varied across a diverse workforce, highlighting the need for a wider range of interventions (in partnership with other organisations).
- Frontline colleagues have reported a need for different support, provided in more accessible ways.
- Clear communication was highlighted as an essential element of staff well-being.

Working together

- A sense of real pride in the way staff pulled together through a difficult, high pressure time was clear from the responses.
- Staff reported feeling empowered and valued through being able to design and implement new innovation and transformation projects.
- Multi-Disciplinary Teams and networked approaches were used more widely to make the most of varied skills to tackle new challenges.
- Positive community spirit, cohesion and resilience were reported, involving third sector colleagues and organisations.

Accelerated decision-making

- Due to revised governance arrangements, many staff reported that decisions were made at a faster pace (described as “reductions in red tape”). This made a big impact and was welcomed.
- Staff felt empowered to make decisions based on their knowledge and experience.
- This enabled staff in some areas to try new and different

things, leading to changes in service provision.

- Staff views highlighted a real need to capitalise on this momentum to change and transform ‘the way we do business going forward’.
- Many staff fear a return to old ways of working, where they are unable to make the changes to services they feel are needed.

Sustaining the pace of innovation and change

- A feeling of confidence and ability to try new things and provide services in new ways was a major theme.
- As well as improving the service, this had a positive effect on staff morale and patient outcomes.
- Strong views that NHS Wales needs to capitalise upon the ‘COVID-19 platform’ and current change-receptive state to make changes to services, based on what has worked so far, have emerged.

Digital access and confidence

- There is strong evidence of an effective uptake and use of digital technologies by staff, both in providing patient services and internal working and communication.
- Digital technology provided more choice and control to patients over service use and self-treatment.
- The question of ‘digital by default’ vs. ‘digital by choice’ needs to be addressed to ensure digital inclusion.

Embracing new technology

- The systematic (rapid) acceptance and adoption of technologies has been critical in responding to the pandemic.
- It is clear that the use of technology is considered essential in responding to the stabilisation and reconstruction of services.

In addition, the following **wider themes** emerged:

- COVID-19 provides a broad platform for innovation and transformation.
- NHS Wales has a significant role to play in carbon reduction, particularly through the use of technology. The environmental impact of service change should be measured.

The seven key themes are detailed in pages 11-19.

Key Findings and Recommendations

The rich and diverse data has provided our work with insight into NHS Wales and its staff in these times of crisis. The COVID-19 pandemic was still ongoing at the time this report was published.

Through analysis of the surveys and case studies, we have identified many examples of novel practice and innovation that demonstrate a passion among staff and a vibrant environment within NHS Wales, amidst the challenges.

NHS Wales appears to be in a state of flux which could represent an opportunity to evolve, if not transform. The key question is:

“How can NHS Wales ensure that it embeds the learning and innovative practice that has emerged during the pandemic rather than reverting to previous ways of working?”

The following **recommendations** have been distilled from an initial series of “areas for consideration” for each of the seven emerging themes that our research has identified. These can serve as a springboard for further evaluation, reflection and action by all stakeholders involved in NHS Wales (as identified in this report). For more details on the research methodology adopted, please refer to the Appendix on page 51.

1

NHS Wales organisations should co-produce an Innovation Strategy with Welsh Government.

Every NHS organisation should have an Innovation Strategy that is fully integrated within its governance and aligned with ‘A Healthier Wales’. This Innovation Strategy will need to consider the risk management differences between clinical and non-clinical settings, enabling the creation of an agile culture that mobilises innovation and concept generation to happen at pace within a safe environment.

approach to workforce development. The intention here is to increase the long-term net innovative capacity of the workforce, maintain momentum and promote a culture change.

4

Improve visibility of innovation contact points across NHS Wales organisations.

All NHS Wales staff should know who to contact for innovation and service transformation.

2

NHS Wales organisations should develop and implement an Innovation Framework and processes to enable innovation.

To help progress innovation priorities, it is recommended that each organisation develops an Innovation Framework underneath the strategy of Recommendation 1 that is closely aligned to its identified strategic research and innovation objectives, to escalate and approve innovative practices in a timely manner.

5

Promote, champion and engender a shared purpose and passion for continual improvement.

Promote, champion and engender a shared purpose for continual improvement, change readiness, agency and adaptability culture, as well as a culture of curiosity around research, innovation and improvement within NHS Wales (“switch[ing] from thinking innovation is a risk” to asking “what’s the risk of no innovation or not transforming?”). This should apply to all staff at all levels, with support from and sponsorship by senior leadership.

3

Review workforce development approaches to increase innovation capacity across NHS Wales.

Increase opportunities to engage in innovation activities, training and recruitment in all areas of health, through a strategic

6

Review staff redeployment practices.

Review the ability to redeploy staff and other resources at speed, by identifying dynamic prioritisation, enablers and inhibitors.

7

Understand and act upon health and well-being impacts on staff as a result of increased pressure.

To achieve the best long-term results everyone – at individual as well as organisation level – should value their own well-being and recognise and promote health and well-being practices, and self-reflection. Well-being surveys to understand the effects of the pandemic on staff’s mental health and happiness, and the impact of well-being measures and protocols put in place, should be used to develop a range of interventions, recognising the different needs between frontline and non-frontline staff, to improve resilience.

8

Continue to actively and purposefully integrate health and social care.

Evaluate the integration that has happened during the COVID-19 pandemic between health/social care and third sector providers to increase value co-creation and enable an integrated approach to health and care.

9

Review governance in relation to decision making.

Review the governance levels and associated processes of escalation and decision-making in order to lower barriers to access decision-makers and enable the right people to make the right decisions.

10

Foster and encourage multi- and interdisciplinary networks, for improved long-term agility.

Evaluate and promote formal as well as informal collaboration and multi-disciplinary network structures that have spontaneously formed during the COVID-19 pandemic, to enable faster decisions on the field. Senior leaders should consider agile and lean methodologies, and pilot initiatives to safely evaluate the potential impact at scale (e.g. software development-like sprints, swarming approaches to problem solving). Evaluate the effect of delegation of authority and decision making on the overall decision making quality of the past 15 months, to understand how to refine or improve approaches to operations.

11

Ensure no one is left behind within the digital agenda.

Carry out digital skills and digital inclusion assessments working in partnership with Welsh Government, to understand the levels of digital inclusion across different parts of Wales and age groups/demographics.

12

Develop a forward-looking vision and strategy for the safe integration of disruptive technologies that takes into account the future needs of our population.

Devise a long-term, research-informed strategy to safely harness and deploy digital and converging technologies in order to: provide a clear direction on the digital health agenda for NHS Wales and Welsh Government, taking into account the impact of incorporating digital technologies on the future needs and eudaemonic imperatives of people, patients and staff; enable better decision making; allow for longer-term upskilling of the workforce, harnessing big data, artificial intelligence, machine learning and digital tools and technologies to enable effective focusing of human effort in high value adding activities.

COVID-19 provides us with the greatest opportunity of a generation to transform our health and care services, using the evidence base provided by this report.

We thank you for reading through this report, and we hope you find it stimulating and useful. We would like to:

- encourage the sector to use the report as a practical guide to take forward the recommendations in their own environment;
- continue the momentum that has been initiated by the COVID-19 pandemic;
- sustain innovation and service transformation;
- consider the “how to” provided through the case studies and analysis as an inspirational guide.



Key Themes

Introduction

In this section we present key findings from the interviews and case study research conducted as a follow-up to the surveys.

We have developed 37 case studies based on in-depth semi-structured interviews (i.e. that utilise a flexible interview framework of themes and broad questions to allow us to probe further depending on what the respondent discusses). To access the case studies please refer to the Annex document to this report.

In the interviews, we explored the themes, the respondents' experiences of carrying out innovative practice, including challenges, positive and negative practices considered when developing or rolling out the interventions; and the seven emerging themes identified from the thematic analysis:

- **More agile use of resource**
- **Staff well-being**
- **Working together**
- **Accelerated decision-making**
- **Sustaining the pace of innovation and change**
- **Digital access and confidence**
- **Embracing new technology**

We also explored the perceived importance of the work conducted, and any next steps that the respondents may have identified to take the work forward.

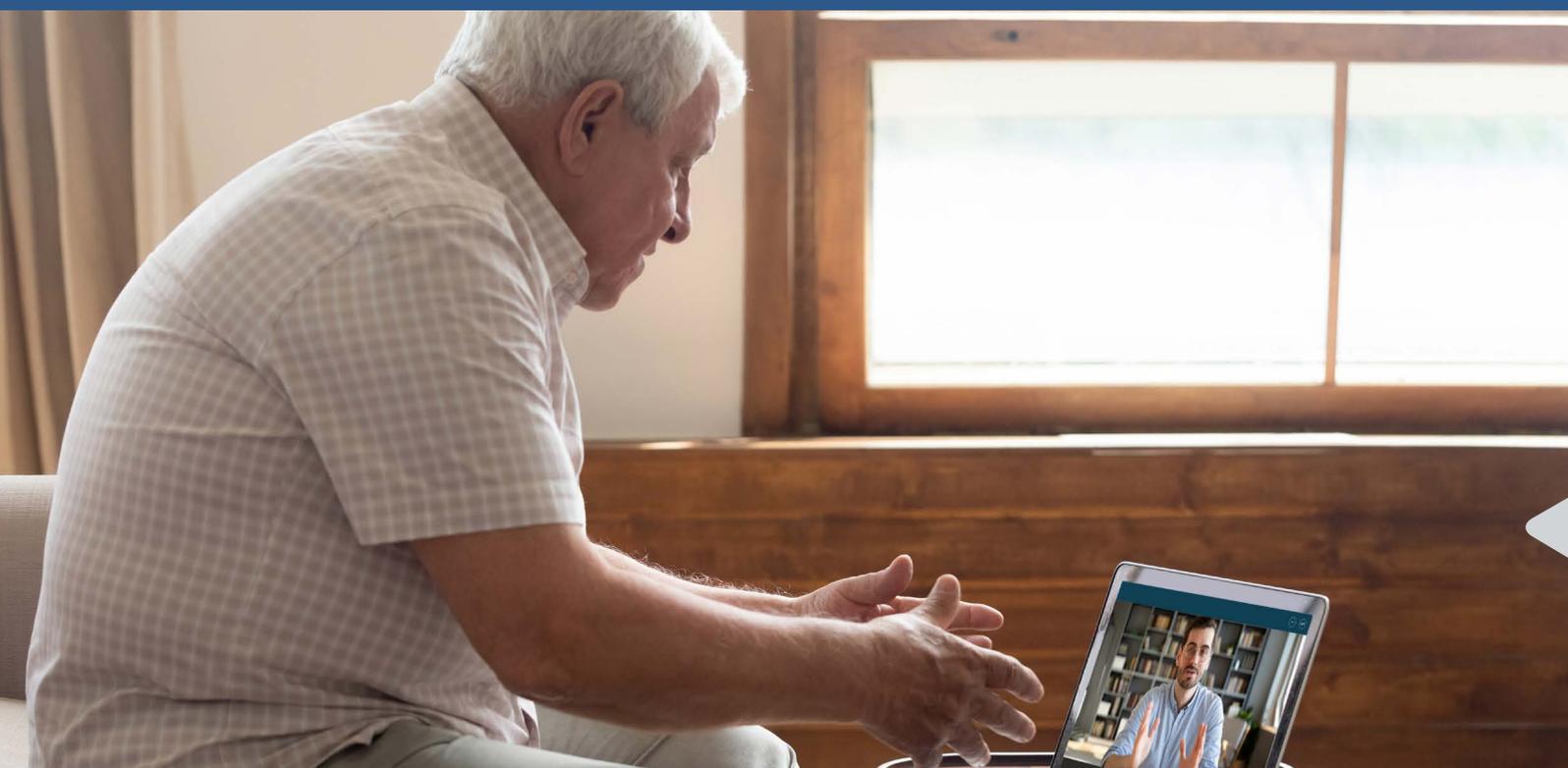
We analysed the evidence gathered and undertook three key actions.

- We used the findings from the analysis of these interviews to create a set of **"areas for consideration"** (*an outline of these is given on the next pages in this section*).
- Based on these areas for consideration and the emerging evidence, we selected case studies based on the surveys' respondents, and we created short case studies based on the interviews conducted.
- We shared key findings from the case study research with four focus groups, to help validate them and to create additional recommendations.

Finally, we evaluated the recommendations derived from the focus groups' work in light of the sets of recommendations developed by our researchers, and integrated them.

The validation through focus groups was conducted using expert practitioners, academics, clinicians and healthcare scientists. The findings from these focus groups informed the final analysis and development of the high-level recommendations found on pages 9-10.

For further information on the methodology, please refer to the Appendix on page 51.



More agile use of resource

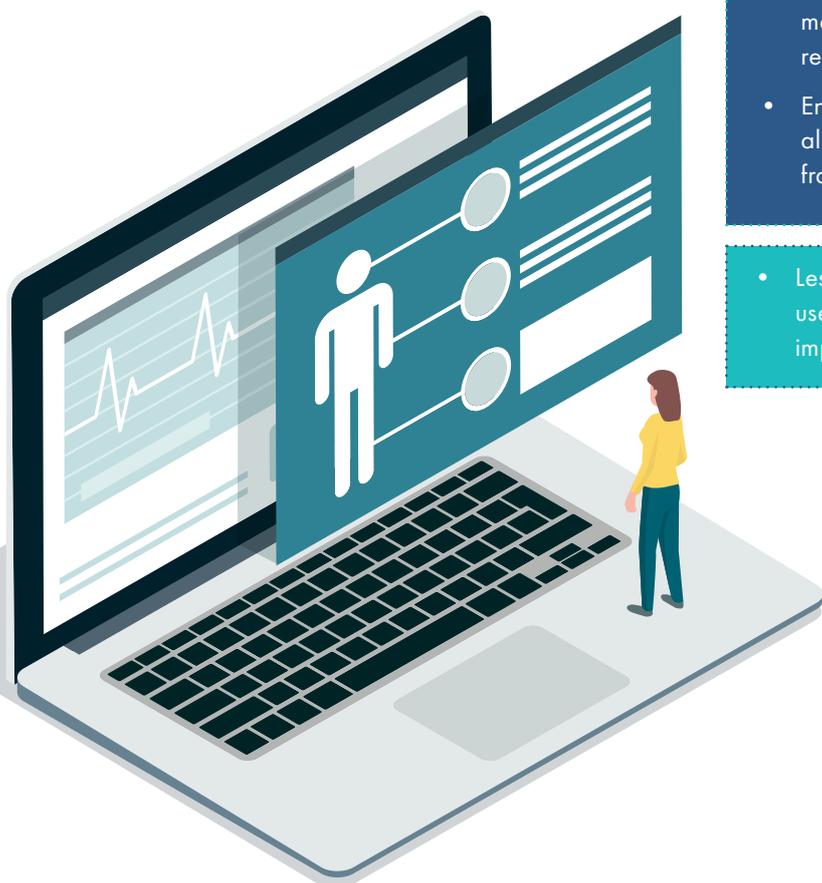
This theme captures the main findings and initial recommendations concerning availability, allocation and access of resources by staff.

Emerging evidence

- Management within the NHS reacted quickly to the situation, and could streamline resource allocation to capitalise on ideas and innovations to help with the extreme demand the pandemic brought to the sector.
- Availability: resources and funding to support innovation were available for some, but not to others.
- Agency:
 - Some staff reported feeling unable (beyond their grasp) to ask for funding.
 - Others reported a belief that funding was always available to them for innovation/change.

Areas for consideration

- The healthcare system should question whether the right environment exists to enable innovation to happen within realistic timescales.
 - Enable opportunities for innovation by creating a positive, supportive culture and encouraging environment throughout NHS Wales.
 - Communicate how colleagues can be supported to innovate through time allowed and communication of available internal/external funding.
 - Streamline processes (also see the themes: Accelerated decision making and Sustaining the pace of innovation and change) to enable efficient decision making and reduce decision making layers and 'red tape' where possible. This is critical for the success of innovations which are subject to time-sensitive processes.
 - Review governance arrangements, reporting, decision making and communication processes so they are less restrictive or prohibitive.
 - Enable flexibility for and awareness of resource allocation/redeployment requests, and improve these frameworks for increased efficiency.
- Lessons learned: review the allocation, redeployment and use of resources during the pandemic to inform continuous improvement and improve business continuity.



Staff well-being

This theme captures the main findings and initial recommendations concerning the mental and emotional health and well-being of patients and staff. This includes support mechanisms, staff members' response to the increased demands of time, effort and responsibilities and the effect these had on their health and well-being.

Emerging evidence

- Mental and emotional health and well-being challenges of staff and patients, together with people being aware of their own health and well-being were frequently reported.
- Interventions that were put in place to reduce issues such as stress, depression, and anxiety were viewed positively.
- Staff experienced stress brought on by working in persistent high-pressure environments and/or stress deriving from working from home and not having a work-life balance.
- Challenges were brought on by increased responsibilities and additional duties given to nurses and other healthcare staff (e.g. nurse-led care becoming overwhelming and stressful as they experienced feelings of isolation).
- Communication between staff is critical in supporting clinical practice and well-being of staff, as they take on more responsibility.

Areas for consideration

- Consistently communicate the importance and value of staff well-being and the real-life impacts of maintaining/not maintaining well-being.
- Provide accessible, timely well-being interventions (mental, emotional) for staff; inclusively raise awareness and provide opportunities across all areas of health, using multiple delivery channels.
- Adopt a more conscious focus on supporting well-being among the diverse NHS Wales workforce, taking in to account different patterns of work, and individual staff cultures and lifestyles.
- Consult staff (research survey) on the impact of COVID-19 on well-being, including increased feelings of isolation as well as the additional pressures from COVID-19. These should be used to develop a range of interventions, recognising the different needs between frontline and non-frontline staff, to improve resilience.
- Recognise that well-being is personal to each individual.
- Encourage managers and colleagues to adopt a positive well-being culture and find time to talk about well-being by sharing experiences.
- Develop mechanisms to reduce feelings of isolation and loneliness for staff who are working alone or from home.



"What's really great is we've been having psychology, staff well-being [interventions], and they put lots of webinars and sessions on . . . [W]e were shown good practice now of how we can engage with people that are new in the organisation, even if they're not in your team."

" . . . [I]t's very much looking at how we make the most of technology to ensure that staff have good well-being and a good work-life balance."

"You have opportunities to have conversations about mental health, but they [staff and volunteers in Gwent] don't feel confident to talk about mental health and mental well-being. They feel it's for professionals. So we wanted to break down that myth."

" . . . [W]e've commissioned a workforce mental well-being training programme. . . . It's called Connect 5. It's an evidence-based workforce training program and it's been validated by the Royal Society of Public Health."

Working together

This theme captures the main findings and initial recommendations concerning collaborative, multi-disciplinary work dynamics that have arisen during the pandemic, as well as the community spirit that has been cultivated.

Emerging evidence

- Community spirit was significant with most participants feeling “proud” of the way everyone pulled together through an extremely difficult and high-pressured time.
- Staff felt encouraged, invigorated, valued and empowered by taking part in innovation and transformation projects and activities. This has improved service engagement and delivery to a higher standard.
- Multi-disciplinary team (MDT) and/or cross-boundary Health Board networking approaches have been as the best way to use varied skills and attributes that NHS Wales staff possess to tackle problems.
- Community spirit, cohesion and resilience examples extended into the third sector.

Areas for consideration

- Maximise collaboration between different departments and drive multi-disciplinary approaches to achieve the best results the first time while reducing pressures.
- Evaluate cross-Health Board collaboration (both formal and informal), and devise approaches to ensure collaboration is maintained and replicated post-COVID-19.
- Identify and assess the level of organisational resilience and the short, medium and long-term impact on the workforce following a pandemic.
- Review collaboration frameworks to ensure capture, refinement, and re-use of knowledge acquired (learn through collaboration).
- Evaluate the integration that has happened during the COVID-19 pandemic between health/social care and third sector providers.



“We’ve got an employee well-being service, so I’ve been linked in very much with them so that any member of staff that accesses support . . . also have information about the Melo website so that they know that there are resources out there that they – if they’re on the waiting list – could be looking at.”

Accelerated decision making

This theme captures the main findings and initial recommendations concerning decision making, delegation of authority and quality assurance.

Emerging evidence

- The most effective innovations originated from having the correct management leads to progress them and were supported by senior/executive management.
- The COVID-19 pandemic acted as a catalyst for the acceleration of already planned innovations.
- The subject of 'red tape' and 'bureaucracy' was mentioned frequently with some conflicting responses regarding bureaucracy.
 - Many described an easing of red tape, speeding up the timeline for decisions to be made.
 - Others mentioned the inherent issue around red tape still being present, slowing down potential progression of some of the innovations.
- Concern that management will revert back to "old ways" post-pandemic, and that innovations may slow down/stop altogether.

Areas for consideration

- Opportunities should be in place for staff to provide views regarding the improvement of services. This will allow for greater staff satisfaction as they become more involved in the decision making of their department.
- Health Boards to review management and financial delegation of authority, looking at means to establish flexible frameworks for accountability at the organisational, team and individual levels.
- Review corporate governance arrangements to reduce restrictive or prohibitive frameworks, policies and reporting processes.
- Review end-to-end patient pathways to ensure they are efficient and effective. This should include removal of blockages and barriers to enable decisions to be made by the right people at the right time.
- Assess if the patient journey continues to be appropriate and offers a holistic pathway to value creation.



"Once the pandemic hit, we reconfigured our services to roll the responsive feed into teams out in all of the five boroughs."

"[Governance changed so that] the patient would have a scan which assessed the gestation and check the pregnancy was in the right place . . . if everything was OK , then . . . we could give the patient [pre-packaged] medication to go home so that the patient did not need to have a scan if they could provide the day they were gestating [sic]."

Sustaining the pace of innovation and change

This theme captures the main findings and initial recommendations concerning an identified need to keep the dynamic state of flux within NHS Wales, to ensure long-term change/transformation.

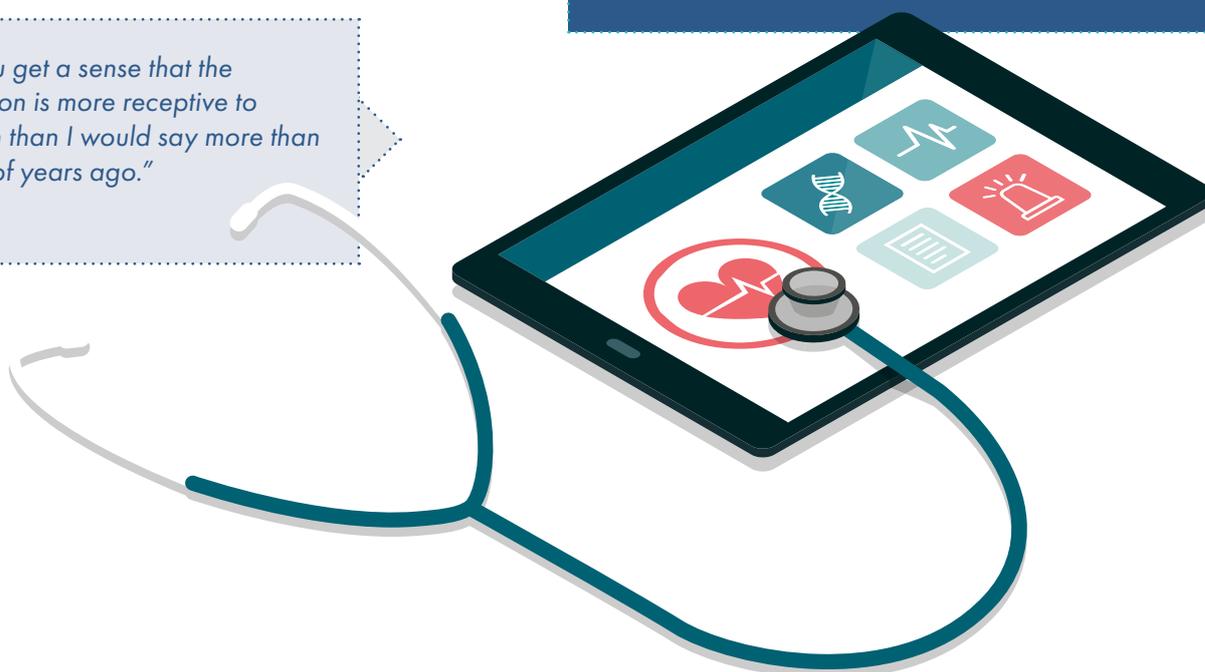
Emerging evidence

- Retained feeling of confidence and a dynamic environment for innovation, created by service changes/transformations and innovation during the COVID-19 pandemic's early stages.
- Benefits from new ways of working were immediately realised and this demonstrated an improvement to the service, staff/team morale and patient outcomes.
- Concern among staff that the paradigm is already shifting back to the pre-COVID-19 status quo, where there is a strong desire to keep momentum going.

Areas for consideration

- Evaluate service change and transformation (where applicable) to identify what is of value, ensuring mechanisms to sustain and nurture these are in place long-term.
- Maintain channels of communication and engagement created since the start of the COVID-19 pandemic.
- Encourage and enable innovation to happen by stimulating a culture of change readiness, increasing awareness of exemplars of positive change. Consider establishing "change champions" to help evangelise and be catalysts for change in behaviour and attitudes at individual, team and organisation levels.
- Provide structured mechanisms to capitalise on patient/staff inputs and feedback, to encourage their buy in and support.
- Consider reviewing performance management frameworks to incorporate mechanisms which take into account exemplary practices and feedback/recognition.

"... [Y]ou get a sense that the organisation is more receptive to innovation than I would say more than a couple of years ago."



Digital access and confidence

This theme captures the main findings and initial recommendations concerning digital inclusion. This includes access to and acceptance of digital health by staff and patients.

Emerging evidence

- A number of effective digital technologies and software packages have been quickly deployed.
- Digital by default versus digital by choice. Necessary precautions were needed to allow for digital inclusion for all and to address initial hesitations regarding patients' abilities to access the correct technologies.
- Digital technologies gave patients more choice and control over treatment/self-treatment and often led to equal or even better results for them in the long run (patient-led health).

Areas for consideration

- Digital skills assessments (use of software and hardware) are needed: assumptions should not be made on the level of skill/experience in using digital solutions before implementing.
- Pilot new hardware/software and evaluate so that issues are identified upfront and solutions are sought at an early stage to reduce impact on staff and patients.
- Carry out digital inclusion assessments, in partnership with Welsh Government, to understand the levels of digital inclusion across different parts of Wales and age groups/demographics.



"We're seeing what the patients think of it [the virtual rehabilitation programme]. I've had feedback from staff who may not be internet savvy or computer savvy. And then the more they use it, the more confident they are; then they can obviously persuade our patients to use it, which has been the case, luckily."

Embracing new technology

This theme captures the main findings and initial recommendations concerning: technology; acceptance and adoption of technologies; opportunities provided by new and emerging technologies; and challenges related to convergent technologies and their incorporation into the current practice.

Emerging evidence

- Technologies and their convergence, and staff acceptance/resistance to incorporate said technologies.
- Efficiencies from using technology lower the barriers to acceptance and help further embracing its use.
- Retain innovations long-term (post-COVID-19) instead of going back to the 'old way'. This shows how well technology has played a part in development of services.
- Progress innovations described by staff to enable further/new technological development for improved and timely patient outcomes.
- Evaluation of innovations to provide evidence of success is critical for successful adoption and spread.
- Adequate support of technologies and innovations is critical for ongoing and future benefits.

Areas for consideration

- Conduct an evaluation of digital platforms, packages and communications mechanisms and technology tools (e.g. Open Eyes) to ensure a universal approach and consistency across digital solutions (transfer of information).
- A clearer lead role should be considered for the central assessment (and mandating of) new infrastructure technology on a once for Wales basis.
- Devise procedures that facilitate a consistent use/application of technology.
- Carry out a detailed review of organisational technology strategy to assess fitness for purpose/use post-pandemic due to increased speed and momentum of introduction of new technologies.
- Create and maintain a dynamic asset register for the introduction, management and allocation of new/existing technologies, along with a library of up-to-date digital resources that can be made available.

"... there were other challenges that we identified around the deployment of technology. It wasn't just purchasing it and sending it and setting it up. It's spending some time to understand the individual use case and what they want to do and manage their expectations."

"We found... having a clinical team and an industry partner with technical knowledge allowed us to roll out the systems in a very easy way."







**Analyses and
Findings from
the Qualitative
Studies**



Findings – Highlights

NHS WALES COVID-19 INNOVATION SURVEY

The overall Study was triggered initially by the Aneurin Bevan University Health Board (ABUHB) COVID-19 Innovation Survey. ABUHB was proactive in creating and deploying an internal data-gathering instrument, which was subsequently shared widely across NHS Wales through the Innovation Leads group. This Survey gained significant profile with the support of Jamie Roberts – the Welsh Rugby International – in his time as an Innovation Fellow at Cardiff and Vale University Health Board (CAVUHB). The ABUHB survey was organised around three main qualitative questions:

- *Please describe the novel practice and innovation you have been part of or observed. This may be at team, organisational or national levels.*
- *Please describe any examples at local, organisational or national levels where we could have done things differently.*
- *Is there anything else you would like to tell us?*

The three qualitative questions were designed by the ABUHB innovation team to stimulate as much input from

respondents as possible, in order to provide the greatest possible insight, given the timeframe and staff constraints. The first two questions were also accompanied by a series of qualifying questions which sought to tease out additional quantitative information (in the form of descriptive statistics), such as whether the examples provided by respondents included changes in:

1. Local issues
2. Organisational working
3. National working
4. Patient quality, safety and care
5. Facilities
6. Procurement
7. Training
8. HR
9. Staff well-being
10. The use of products or technology
11. Partnership working
12. Community engagement
13. Governance and assurance
14. Finance
15. Working with industry or academic partners

RESOURCES

Respondents adopted positive tones to the proactive use of available resources, whether physical or virtual. In general, we noted the attitude was that resources were accessible and fast to obtain, rather than an insurmountable problem.

A sense of fluidity and “massive change” undertaken across all areas and sites is evident across the dataset - we found evidence of highly positive attitudes towards this. In addition, some appreciated the opportunity to gain further experience (e.g. redeployment of staff to COVID-19 wards).

- “Can do” attitude applied to resourcing translates into altruistic behaviours (e.g. doctors purchasing walkie-talkies to allow staff to communicate from inside isolation bays; access to ‘maker’s groups’ to rapidly manufacture PPE etc.).
- Creative approaches to developing a wide range of quality resources (often aided by the use of technology) to support

staff and patients to cope with the disruption caused by lack of face-to-face contact (e.g. ‘rainbow packs’ to support engagement for people with a mental health need or learning disability; ‘COVID-19 confidential’ – a resource for healthcare professionals; and a number of other diagnostic aids that do not require physical interaction).

- Use and access of resources, including repurposing of resource for rapid adaptation; this extends to:
 - use of facilities;
 - repurposing of buildings/other infrastructure (e.g. heart failure hub established in Gorseinon Hospital, cluster mobile MDT Hubs for triage, etc.);
 - rapid access and reconversion of manufacturing;
 - use of additive manufacturing and third party facilities (also linked to Engagement with third parties and research or business collaborators – see next section).

Example: Access to small business fabrication facilities for rapid manufacturing of clinical devices including operating theatre solutions.

Example: Collaboration with the Army for leaner and faster supply chain set up.

IMPACT

Need to capture and capitalise on lessons; our case studies research has probed this further (please see the Annex document to this report to access the case studies evaluated).

ISSUES

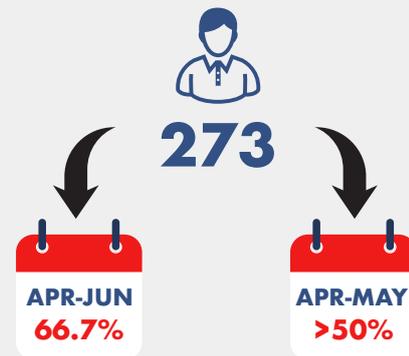
Relative frequency of the Resources theme increases as respondents were asked to describe examples of how things could have been done differently (i.e. the subject of Question 2 in the survey), usually associated with less positive connotations.

- There is a sense of uncertainty surrounding:
 - the future and NHS Wales’s ability to retain the agile access to resources that has become “second nature” during the COVID-19 pandemic;
 - allocation of human resources, which calls for the evaluation by Health Boards of approaches for “Smart” resource allocation as a future strategic imperative. A level of scepticism is apparent when considering the sustainability of resources deployed during the pandemic and the potential issues that may arise if the same level of effort is kept constant without any increase of budget and/or staffing.

“The COVID-19 crisis has impacted staff across NHS Wales in very different ways. We work across the whole Health Board and I have noticed that some staff are really busy . . . and others not so busy.”

- It is important to note that the energetic approach shown in terms of doing more, in those cases where the envelope was unchanged, is perceived as unsustainable in the long term. This extends not only to the human resources element, but also to more tangible and physical aspects such as asset tracking and maintaining the additional equipment rapidly purchased, as well as its proper inventory, to avoid future waste.
- In other cases, access to basic IT resources was also identified as an issue – in general when connected to potentially perceived disparity of treatment across different categories of staff. This may have caused feelings of a diminished sense of

COVID-19 SURVEY



BROAD AUDIENCE

STAFF

GEOGRAPHY

SENIORITY



WHAT NOVEL PRACTICE OR INNOVATION HAVE YOU BEEN A PART OF OR OBSERVED AT

- TEAM LEVEL
- ORGANISATION LEVEL
- NATIONAL LEVEL

WHAT AREAS OF IMPROVEMENTS HAVE YOU IDENTIFIED?

self in those who did not get access to such resources.

A number of groups within NHS Wales are actively reflecting on what COVID-19 has meant for their specific function and its resourcing, and are showing the adoption of a growth and change mind-set in combination with a proactive approach to planning for long-term solutions.

ENGAGEMENT

“[The] COVID-19 response has shown that the public sector has a collaborative role to play in well-being, rather than being individual organisations.”

Multidisciplinary engagement with a wider stakeholder group, including public and private sector organisations, proved to have a significant role in enabling the innovation and service change activities reported within the survey.

Respondents referred to:

- strengthening team capability and engagement through integration of processes with technology;
- introduction of other disciplines (e.g. the use of behavioural science within communications teams to channel the most impactful communications and responses during COVID-19).

The two factors above highlighted:

- awareness of the increasing convergence of technology and organisational processes;
- a faster multi-/inter-/trans-disciplinary approach to a rapidly changing knowledge and practice-based profession;
- a willingness to embrace the changed paradigm.

There is strong evidence of a **substantial increase in communication between two or more departments/units** and generally across the entirety of the healthcare sector; these communications appear to have been both the **product of necessity** (e.g. in order to solve a problem or guarantee certain services), as well as **feeding off itself in a virtuous circle**:

- increased communication led to rapid improvements and adaptations of services/practices within shorter timescales and with less bureaucracy;
- this ultimately led to better (or at least as good) decisions, with positive repercussions on the well-being of staff and patients alike.

There has been:

- an **increase in the use of social media to increase awareness of services**, enable social interaction, and **“market” the service changes**;
- use of a plethora of media channels to engage virtually, lowering barriers to changed practices and increased acceptance of the use of alternatives (e.g. therapies conducted online).

The increased engagement was often accompanied by faster decision making, in particular when new services were conceived and rolled out. Such trends have been investigated in greater detail through the case studies – see *the Annex document*.

This has also been identified as an aspect that should be strongly progressed, to enable easier working across departments, signalling that such dynamism is still evolving and is unevenly spread.

In general, engagement is seen as critical to enabling long-term change adoption and for change to be embedded within NHS Wales. Increased engagement with government or actors at a national level are seen as important in promoting top-down and bottom-up change and adoption in a more harmonious, coordinated way.



TEAM CAPABILITIES

Several respondents mentioned the **development of additional skills within the workforce, as part of a change mindset currently present within the healthcare sector**. There are numerous examples of a continual professional development culture currently in the making, which provides staff with additional skills.

It is crucial for the sector to consistently unlock the potential of its workforce, and increase staff knowledge, skills and innovation capabilities.

Virtual working has provided further opportunities to bring disparate teams together to perform consistently at high levels, although we note the issue raised with regards to long-term sustainability of prolonged overstretch of resource and efforts.

Many best practice examples come from a wide variety of NHS Wales staff, not just clinicians. The **sense of empowerment** and **inspiration** identified in the responses demonstrates that **currently** there are **lower barriers to interaction across the organisation**. Increasingly integrated teams of multiple actors are able to maximise outcomes using combined capabilities for high quality delivery.

Evaluation of teams in relation to process changes and new process innovation will enable further insights into the subject matter.

ORGANISATIONAL CULTURE

"I feel the NHS Wales workforce is now in a change-receptive state, more so than ever before."

"Managers and management seemed to melt away and we all just . . . got on with the job."

The main aspects identified within the data relate primarily to:

- the breaking down of **silos**;
- a paradigm shift in how development work is carried out – **more value added provided by internal developments rather than commercial solutions**;
- increased freedom to work on mini projects;
- a **shift in the approach to interdisciplinary and inter-departmental working** (e.g. rehab engineering offering their expertise; development of sprint-like prototyping solutions internally with increased freedom to progress solutions to theatre);
- an increased focus on **collegiality and lowered hierarchy-induced barriers**, with **"greater recognition and discomfort with existing inequalities"**;
- an active approach to **try to reduce bureaucratic aspects** related to normal day-to-day operations as well as extra ordinary activities (e.g. new devices/new trials set up), **while maintaining the standard of decision making**.

As expected, and perhaps borne out of necessity, the shift to online virtual meetings and working from home has changed the dynamic for many departments who are now considering implementing a more flexible work week on a long-term basis. These aspects have been facilitated by a growing sense of empowerment, which staff are very keen to retain and capitalise upon. Self and institutional reflection is seen as critical to understand how organisational change and mind-set shifts can be assessed and appraised, to enable maximum positive change and reduce the risk of negative change (e.g. "over-reliance on command and control, top-down leadership").

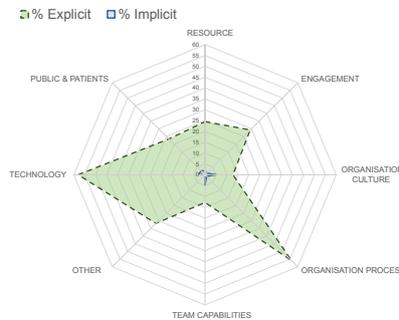
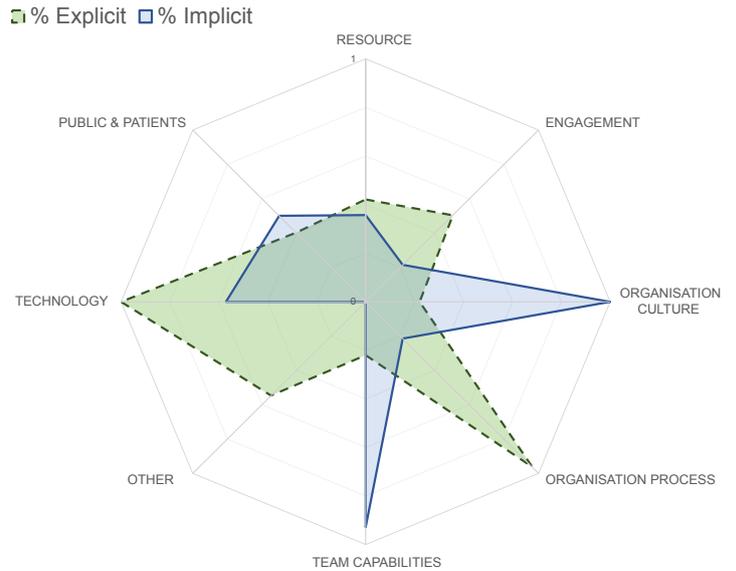
Themes such as: health inequality; staff well-being and system resilience; space and support to learn – enabled by greater engagement and conducive of increased team competence and sense of belonging – were identified by respondents, together with a more or less explicit recognition of the state of flux that staff are experiencing, and that momentum needs to be kept.

There is a significant focus on well-being and mental health support for staff as well as the population, and respondents have emphasised the importance of such aspects for NHS Wales at the senior level.

ISSUES

Some negative aspects emerged.

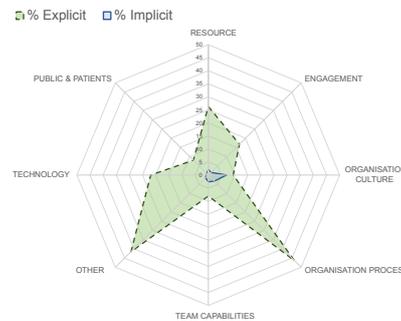
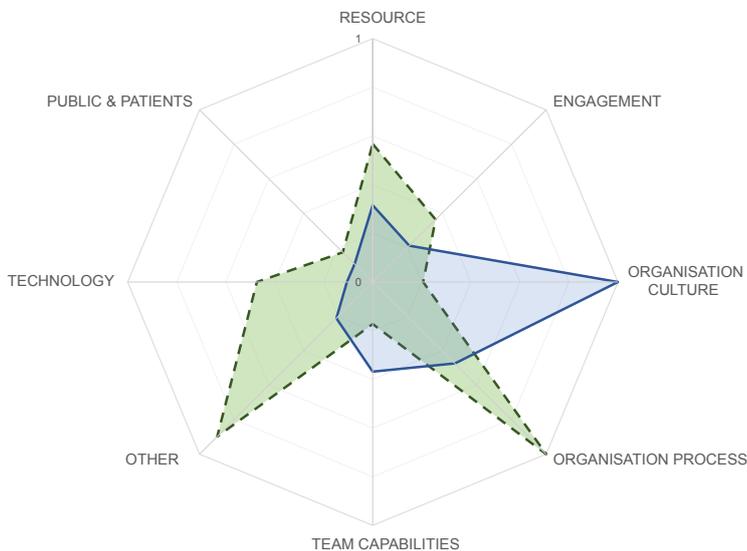
- Not always timely communication.
- The need for more transparency.
- A more personal approach in the communication with shared services is advocated, to avoid the **“them and us feeling”** when dealing with those services which conduct business in an anonymised fashion.
- Presentation of obstacles by management in some cases (or a perceived detached approach, not **“on the coal-face”**), which signals an unequal state of play.
- Uptake of innovations or service changes which lead to long-term culture changes are actively pursued with the respondents’ hope that they can spread and become systemic. However, **there is a lingering concern that post-pandemic, the institutional machine may again swallow the change mind-set.**



Responses by Frequency of Explicit (Green)/Implicit (Blue) Themes, Q1.

- Main picture (normalised by the largest theme per each group)
- Inset: Absolute frequencies

■ % Explicit: ■ % Implicit



Responses by Frequency of Explicit (Green)/Implicit (Blue) Themes, Q2.

- Main picture (normalised by the largest theme per each group)
- Inset: Absolute frequencies

ORGANISATIONAL PROCESSES

“[There has been a] fast track of some service improvement initiatives [because of COVID-19].”

This theme is the second most recurrent within this dataset. The sentiment is evenly spread between positive and negative.

Respondents have disclosed many novel practices and changes to organisational processes. In-depth interviews have provided a further glimpse into a number of cases that have originated from increased communications and/or flat hierarchy operations across different actors. Clinicians’ direct oversight has proven to be viable and led to high quality faster decisions. Some of the practices have now been rolled out nationally and beyond: digital mental health provision for children and young people; the creation of a UK-wide network - or “community of practice” - of clinical engineers to share problems and solutions within rehabilitation engineering; the adoption of SMTL’s industry triage process as a portal to support NHS Wales and industry engagement; the Welsh-led, four-nation joint PPE procurement exercise by NWSSP Procurement services; among other.

Many traditional in-person related processes have been disrupted and have moved online. This shift has not been without its hurdles, from a technology access/adoption/use perspective, and with regards to bureaucratic constraints (e.g. the use of specific online platforms rather than others was seen as a disruption to the attempt to provide a seamless transition to a service implementation).

Often, negative connotations associated with this theme are in relation to other themes, such as Resources (or lack thereof) which limit process effectiveness (e.g. access to IT equipment for virtual consultation). Although in general there appears to be a substantial increase in speed deriving from leaner processes (including clinical trial approval processes). This calls into question, for a number of respondents, the need for the pre-existing ‘red tape’ and multiple layers of bureaucracy involved in the decision-making processes at NHS Wales and in Health Boards.

At the same time, experiences such as the involvement of the Army in supply chain assurance, the hub-based organisation of services and more, have demonstrated

new avenues for ‘**low-tech**’ **substantial process improvements** that have tangible benefits downstream.

The identification of communication improvements is correlated in responses with suggestions for process and service experience improvements, whereas **new processes born in times of need have proven to provide advantages during normal service provision.**

The **need to capture learning** has been made clear from many respondents, together with their willingness to participate in such a process.

The organisation appears to be currently in a **learning modality** which needs to continue to enable lasting changes and service transformation.

PUBLIC & PATIENTS

“It was a great moment to drop something to a service user that wasn’t a script. It made my day too because the lady concerned has very little positive family support in her life so it was great to give her something that reminded her that she mattered.”

The respondents have mixed opinions and feelings with regards to this theme.

On one hand there is the realisation that changes to the way the public interfaces with healthcare staff were necessary. On the other, their experience of the changed services is tainted by the influence of **multiple actors communicating conflicting information.**

In general, there is an **overly positive sentiment** from respondents, with clear indication that most changes were made with the patient’s experience at heart, and to ensure quality provision for the ultimate benefit of the patient.

SUGGESTION

Helpful suggestions made by respondents to engage in research into services’ demand drop could shed a light on the complex dynamic behind the interaction between NHS Wales staff and patients/the public.

TECHNOLOGY

Technology is the most recurrent theme both explicitly and implicitly in respondents' survey data. Technology has been a key factor during the entire COVID-19 pandemic and will continue to be in the foreseeable future.

Respondents have identified:

- new technology development;
- new technology adoption and use,

as enablers for new and changed processes, teamwork and responsiveness.

Effects that could potentially enable cultural shifts have also been identified.

- Virtual clinics, triaging, telecare and teletherapy (across a range of specialties including cardiology and cardiac rehabilitation; epilepsy and remote neurodevelopmental assessments in children; psychiatric assessment; psychologist support; abortion services, etc.).
- Development of: advanced artificial intelligence bots (e.g. CERi); customised engineering solutions (e.g. intubation and tracheotomy tool; endoscopy tool and tools for wards); technology augmented processes and services to streamline:
 - services and practice (e.g. elimination of radiology outsourcing and backlog through enablement of remote reporting);
 - process automation and task management.
- Creation of: solution oriented tech hubs; creativity hubs; digitally-delivered training (e.g. digital platform for palliative care and end of life education programme; virtual mother and baby group zoom sessions; nurses and doctors training on virtual platforms).

Technology has **enabled creative solutions** for a range of situations, facilitated practice and the development of solutions and pilots for rapid deployment.

- These have been **collaboratively developed** with multiple public-private stakeholders **or purely in-house** (e.g. integration of Attend Anywhere; app for diabetic patients communication; paediatric continence app).
- In some other instances, **partnerships have been forged** to adopt existing digital platforms (e.g. Patients Know Best has enabled secure communication

between isolated patients and the outside world).

- The rapid finalisation of technological solutions during the emergency has highlighted the **realm of possibilities** and untapped potential within NHS Wales. Further work to unbundle such processes will be invaluable to the organisation's long-term evolution.
- There is evidence of the use of technology tools (e.g. media outlets) to communicate with and advertise to patients directly, albeit with some issues relating to bureaucracy when accessing official channels.

CONCERNS

- At the earlier stages of the pandemic, PPE was flagged as insufficient or difficult to procure.
- Service continuity plans were identified as in need of update.

These issues have decreased in frequency with more recent responses.

Further areas for concern:

- In some areas, **policy development** was not followed up with resourcing and technology access (e.g. insufficient decontamination equipment despite solid policies in place).
- Standards and regulations concerning in-house manufacturing of technology, or adoption of tools in certain settings are suboptimal, creating issues for rapid and responsive design, development, validation and adoption of custom solutions. There is evidence of this new dynamic causing issues in terms of timely and/or equal access to tools and technologies – in particular at early stages (e.g. VPN tokens, software and hardware – especially laptops); and in terms of opportunities to learn how to use them effectively and efficiently.
- A **"digital divide"** was also identified when trying to roll out virtual clinics (i.e. lack of smartphones/broadband forces telephone-only engagement in some communities).
- There were also concerns that a **bureaucratic communication approach** rendered technology and process innovations too slow to be disseminated.

These findings have been explored further through the in depth case studies – see the Annex document.

OTHER

“[The] COVID-19 response has shown that the public sector has a collaborative role to play in well-being, rather than being individual organisations.”

In this theme, we have incorporated a number of varied topics which are embedded within respondents’ answers. Such themes are either of a cross-cutting nature, to some extent, or do not fit neatly – or solely – into one of the other themes.

Well-being was the most prominent **Other** theme for the first qualitative question, mostly explicitly featuring in the narratives within all three main questions. This was closely followed by *Collaboration* (the highest overall cited theme within the Other category), *Communication/information communication*, and *Knowledge capture/practice/transfer/learning*.

Well-being related discourse touched on a number of different domains, such as well-being of NHS staff, support staff (carers), and patients (also discussed in reference to the Public and Patients theme above).

- There is evidence of: **proactive support to physical as well as mental health by psychologists, and counselling for staff**, well-being **monitoring** through periodic surveys; repurposing of spaces to create relaxation areas; positive changes in work life balance caused by remote working, and more.
- There is a **predominantly positive sentiment towards the many well-being initiatives implemented for staff and the public**, including larger initiatives (e.g. mental well-being project initiated to cover the entire population of Gwent to counteract COVID-19’s impact on at-risk groups).
- However, there are also a number of concerns in relation to **discrepancies in localities** and **lack of immediate support**, causing anxiety in frontline staff.

Communication, together with *information communication*, and *access to information*, is featured prominently, in particular with a negative sentiment, as evidenced in responses to the second qualitative question.

- Suboptimal processes for information and communication to staff.

- Multiple references to unstructured or difficult/slow approaches (calls for ease of communication to improve resource sharing) or inaccurate/confusing and conflicting messages. This latter issue is present in references to both NHS and government-originated information, and the communication of said information through the management channels.

On the other hand, things such as the daily email update were described as “invaluable” by a number of respondents.

Collaboration was a very wide-reaching and multi-faceted issue, involving domains such as public-private, government, academia, the “triple helix” of government/industry/academia, and the interaction among Health Boards. Many positive examples have been provided within the sections specific to **Technology, Organisational Processes, Organisational Culture**, as expected, given the nature of the theme.

There are examples of:

- **collaborative delivery of new services for patients** (e.g. paediatric continence app development – a coproduction between Aparito, Bevan Commission and Powys Teaching Health Board; Cwm Taf Morgannwg University Health Board’s advanced digital and physical engineering lab – a creative collaborative space to solve workplace challenges, in collaboration with industry and academia);
- joint projects with access to government funding for R&D (e.g. rapid targeted SBRI calls for the Welsh Ambulance Services NHS Trust, with SBRI and Welsh Government collaboration).

On the other hand, there were also **calls for more work with industry and amongst departments**, signalling that there is potential for increased collaboration, even during times of emergency. More objectives and target-setting practices could also be implemented across departmental boundaries. This point was also raised with reference to “**facilitating a culture of shared success and win-win**”.

Respondents have been reflecting on the **learning** that has happened during the pandemic, and **advocate finding mechanisms to ensure knowledge and learning can be retained, captured and spread**. The pandemic has been viewed as a learning opportunity for staff to work in different ways as well as to offer expertise and services to the wider NHS and beyond.

EMERGING ISSUES

- Process related changes appear to be a critical theme arising from the data.
- Creativity of staff in creating novel sets of resource for patients' benefits.
- Well-being of staff is a recurring underlying theme within the narratives.
- Staff are overall proud of NHS Wales and their Health Board leadership approach, with renewed sense of empowerment present at times.
- However, there was some frustration in early stages with bureaucracy and, to a lesser extent, with central government.





Findings – Highlights

BEVAN COMMISSION EXPERIENCE STUDY (Phase I/II)

The Bevan Commission has developed an extensive network of international commissioners, exemplars, advocates and Adopt and Spread programme participants. Through this unique network the Commission surveyed network members on their experiences during the COVID-19 pandemic, providing a valuable perspective from individuals and groups engaged in the challenges and opportunities facing the sector.

The Bevan Commission designed and distributed two surveys (phase I and II).

BEVAN COMMISSION EXPERIENCE STUDY (Phase I)

The phase I study, designed by the Commission, aimed to capture how COVID-19 impacted on the work and lives of people in Wales, to learn from these experiences and build upon the positive aspects – whether they be changes to working practices, how people access and receive services, or other contributions made by staff or the public. The survey was distributed at four weekly intervals from April to June 2020, and posed three questions to participants, as detailed below:

- Please list up to three changes/issues that have arisen as a result of COVID-19 that you think are broadly positive.
- Please list up to three changes/issues that have arisen from COVID-19 that you think are broadly negative and need to be addressed.
- Please add any additional comments/points you may wish to make about the COVID-19 crisis and follow-up actions.

RESOURCES

Respondents described a significant acceleration in the availability, adoption and scale up of technological resources or digital platforms, suggesting a ‘rapid acceleration of digital take up . . .’ across NHS Wales services. Digital resources identified by respondents included:

- greater access to the Welsh Clinical Portal;
- AccuRx for remote consulting and patient text messages;
- more commonly used platforms such as Microsoft Teams, Zoom and Skype;
- the application of such resources in practice, through the use of virtual wards and wider virtual support for patients, was also cited as a positive outcome.

Respondents also reported positive changes in relation to the use of human resources throughout the pandemic.

Where redeployment of staff to different environments was necessary, responses praised the hard work and dedication

of both health and social care staff, who demonstrated resilience and an ability to excel and work flexibly in a variety of unfamiliar roles across the health system. This promoted the ‘cross fertilisation of ideas’ and is exemplified by one respondent detailing the positive role allied health professionals (AHPs) have played throughout the pandemic when redeployed:

“Occupational Therapists in primary care and their work in anxiety management has been awesome.”

Learning from this might in future be used to inform the development of new workforce models.

Respondents also reported that people not attending hospital due to fear of infection freed up resources in care settings, such as beds, and staff capacity for redeployment. **NHS Wales staff were also considered to be more prudent** with use of resources, for example being **“more selective with requesting diagnostics”**. Furthermore, responses also positively reflected on **infrastructure development** in response to the pandemic

including:

- COVID-19 command centres;
- triage flow centres;
- intermediate care community hubs;
- expansion of community care facilities;
- field hospitals.

Furthermore, findings also suggest elements of public behaviour change, with respondents reporting community resources such as community pharmacies being used more frequently by patients.

ISSUES

- Respondents negatively described a significant lack of preparedness, investment and planning in terms of the resources required in emergency scenarios. These were described in reference to PPE, testing kits, oxygen provision, ventilators and a lack of qualified medical personnel.
- Concerns were also raised in relation to the **impact of resource diversion** due to COVID-19 on wider care and the treatment of other conditions. They were also expressed in reference to the poor capacity, priority and **low levels of funding allocated to social care**, and the **additional strains placed on primary care services**.
- Participants also noted that **technological resources** alongside internet connectivity, **were not universally available** to neither NHS Wales staff nor the general public, and the paradigm shift in care had in some cases promoted **digital exclusion**, which could suggest **technology might be a driver of heightened inequality in access to health and care services**.

ENGAGEMENT

“Seamless team working across sectors, with the common goal of benefiting patient first and foremost.”

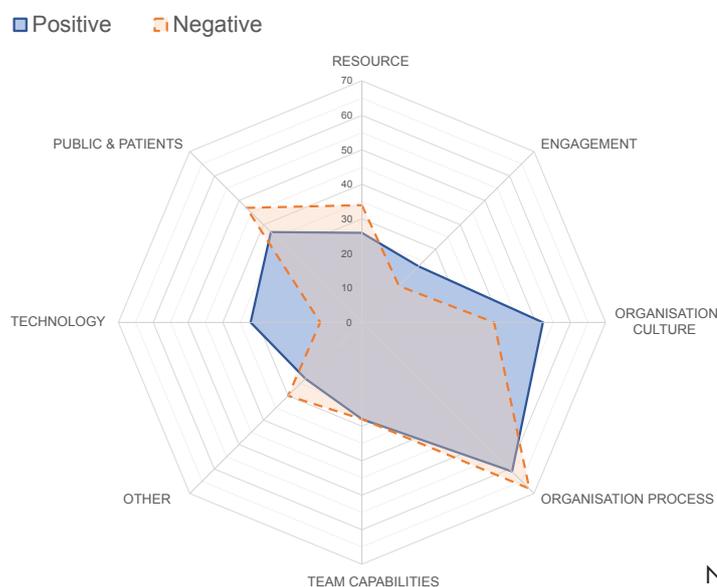
In relation to engagement, respondents positively acknowledged better working relationships between and amongst community care, primary care, secondary care, and social care bodies, as well as with actors further afield (including local authorities, universities, and the private and third sectors).

Respondents identified **“fewer boundaries, with less evidence of silo working”, “improved collaboration”** and **“more effective joint working”** supported by **“better working relationships”** within teams, across organisations, and with external partners.

It was also suggested that **“clinicians are being allowed some say in local decisions so that for once such decisions are not completely driven by central bureaucrats. . . .”** This tentatively indicates elements of improvement in shared decision making. In support of this, respondents emphasised the **value of “daily site command meetings”** and the **“co-location of” multi-disciplinary team meetings as a platform to drive greater information sharing, often facilitated by digital communication platforms**.

Conversely, however, other respondents cited a **“lack of integration between health and social care”** suggesting that there remain weak working relationships and silos between partners, preventing effective communication, which in some instances has led to the **“duplication of similar projects, with a reluctance to share knowledge”**.

Furthermore, other respondents also noted a ‘divide’ between government and NHS Wales, as well as at a Health Board level, suggesting this had a detrimental effect on communication of clear guidance and information to staff and the public, leading to anxieties and fear.



Comparison of Positive and Negative responses by theme.

PUBLIC & PATIENTS

“People taking more responsibility for their own health and self-medicating for minor ailments.”

Respondents noted positive and negative issues relating to patients and the broader public. One major positive theme was the perception that, as a result of the COVID-19 pandemic, patients are taking greater responsibility and ownership over their own health and *“self-medicating for minor ailments”*. Aligning with this, respondents also reported less unnecessary attendance at care settings by the general public, suggesting the public are now *“more informed”* and considerate about when to seek health and care support.

Additionally, respondents highlighted the *“increased reliance of patients on their own resources, and those of their families and communities”* and noted behavioural change across society with *“less emphasis on consumption”* and more *“communities working together and volunteering”*, in turn mediating greater community cohesion and resilience.

Furthermore, respondents said that the pandemic has *“united patients and NHS Wales to a common cause”* with patients/the public and staff across health and social care professions demonstrating greater respect and appreciation of their roles.

However, less positive issues communicated by respondents relating to patients and the general public include the detrimental *“effects of social distancing and isolation on the public’s mental health”* and the implications this might potentially have on health and care services and related backlogs. Aligning with this, frequent concerns were also raised in relation to sick people not seeking timely health and care support, with worries communicated in regard to the long-term impact on patients’ health and well-being.

ORGANISATIONAL CULTURE

“There is a profound pride in working for NHS Wales, both from nursing and medical side.”

Positive responses relating to organisational culture highlighted a number of issues, with respondents in many cases demonstrating a greater appreciation of health and social care staff, alongside greater concern and consideration of their own well-being. This is reflected by one respondent who noted

“the vital importance of the well-being and continuing protection of workforce in health and social care has been highlighted and should be built into future quality systems.”

Supporting this, respondents both emphasised and valued the greater *“camaraderie”*, *“community spirit”* and support networks that exist between colleagues. In addition, health and care staff also report a greater appreciation of the role of volunteers across the health and care sector, and the value they have added to the delivery of services throughout the pandemic.

Further positive cultural change reported by respondents relates to greater agility and an *“action rather than words”* mentality demonstrated across the system. Respondents reported significantly lower levels of bureaucracy and *“less issues [sic] with red tape”* which has supported *“a willingness to look at different ways of working”*. This includes working from home, and the adoption of technology and other *“initiatives which have meandered in IT departments for a long time, suddenly happening across Wales e.g. Attend Anywhere”*.

Respondents also identified a *“willingness to be flexible, adaptable, and to make decisions quickly even without perfect knowledge”* alongside *“people willing to take risks”* which has facilitated *“a greater pace of change”* over a period of weeks which in normal circumstances would have taken months.

Conversely, further responses highlighted a COVID-19 centric culture, with the majority of attention and resources focused upon this, with many other patient needs neglected which could have significant negative implications on patient health outcomes.

Respondents noted anxiety about **“what the future holds”**, noting many services had ceased temporarily due to COVID-19. This in turn has been creating significant pent-up demand that would be an enormous challenge in itself.

TEAM CAPABILITIES

“Trying to juggle working from home/home schooling. Challenge to multi task all roles.”

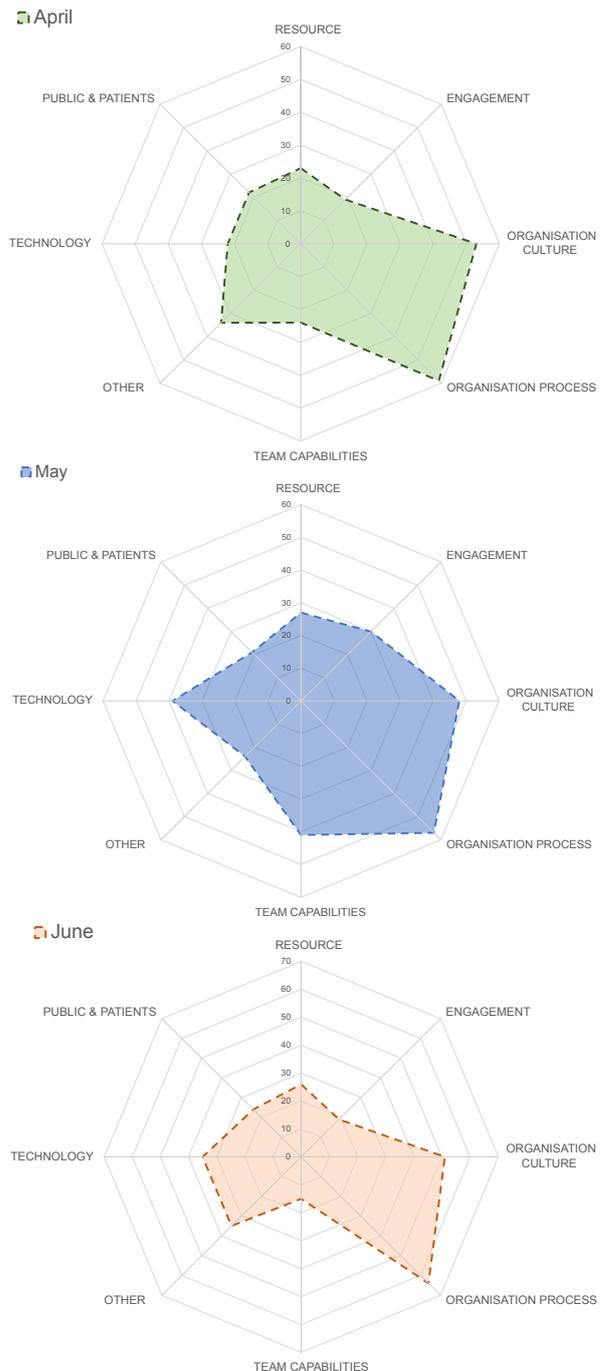
Respondents noted the positive effect that more joined up and collaborative approaches had on team capabilities, as new knowledge and skills were shared in novel environments.

Furthermore, respondents reported greater capabilities as a result of improved access to technology, while further improvements in staff digital literacy skills were also acknowledged, with **“many clinicians having to learn”** how to perform video consultations.

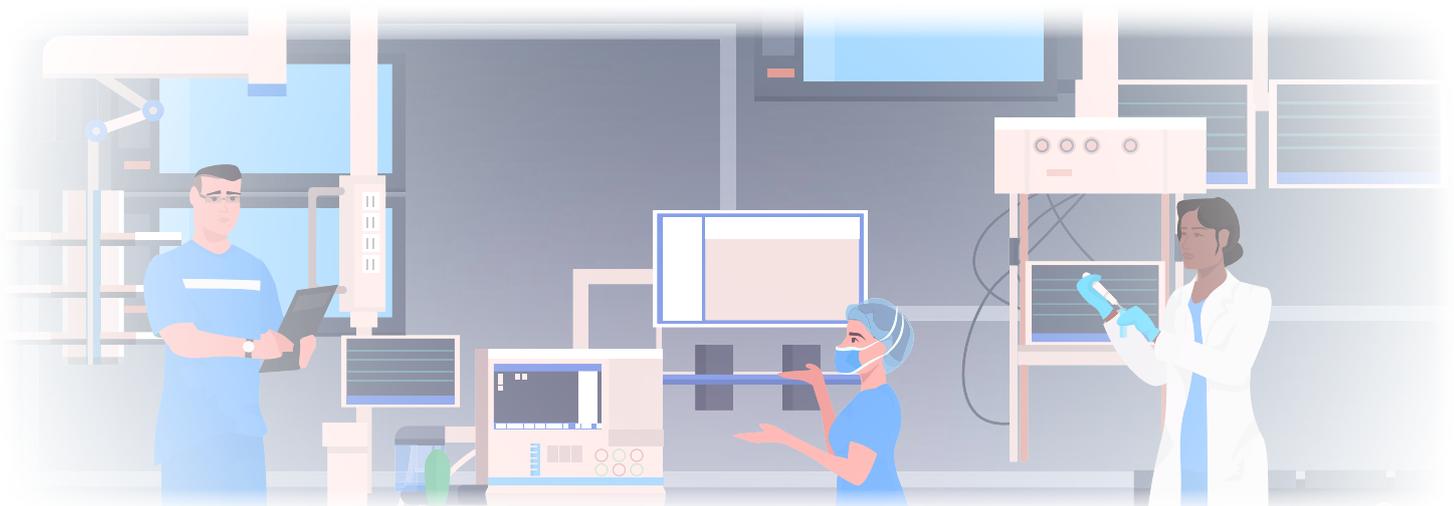
However, respondents also identified a number of impediments that negatively influenced team capabilities:

- reduced team capacity as staff are redeployed to other areas of the health and care system;
- staff being forced to work from home and being unable to perform routine daily tasks due to a lack of access to or appropriate resources;
- challenges of childcare and home schooling as a driver of lower productivity when working from home.

Furthermore, respondents highlighted that many projects have been suspended indefinitely whilst other services have been completely shut down.



Breakdown of themes by month: April (top); May (middle); June (bottom).



ORGANISATIONAL PROCESSES

“Fast track of some service improvement initiatives.”

Organisational processes were the dominant theme in participant responses, across both positive and negative domains. Respondents highlighted a wide range of issues or change related to the way in which organisational processes have traditionally been pursued, some of which have already been noted earlier in this section.

Positive responses related to organisational process change included: increased use of technologies; more flexible working practices; reduced meeting times; new ways of working and more streamlined approval processes – demonstrated by respondents describing *“the fast track of some service improvement initiatives”*.

Respondents also specifically described how change as a result of the COVID-19 pandemic had *“transformed ambulatory trauma care”* and *“modernised [the] fracture clinic entry process”*. Furthermore, respondents also noted that change is now happening at a significantly quicker pace and scale.

However, a number of negative issues were also highlighted by survey respondents. One major negative theme associated with Organisational Processes related to the closure of non-emergency services and the significant impact this could have on long-term patient health outcomes. Respondents cited worries about the postponement of elective surgery as well as the cancellation of outpatient clinics alongside other services more generally, which is demonstrated by the following response: *“hold on ‘routine work’ both in primary and secondary care meaning patients are waiting even longer than usual”*.

Concern was also raised by respondents in relation to whether positive changes to organisational processes would be sustained, with some identifying that good practice had already begun to fade away. This is demonstrated by one respondent who said *“the more I witness of service provision, as NHS Wales staff and teams have resumed contact with me at primary and secondary care, the more it really feels like that not a lot has actually changed”*. Furthermore, respondents also identified the intense work patterns and stress placed upon health and care staff, with others describing wide-scale staff burn out and low staff morale as an outcome.

TECHNOLOGY

“This crisis has shown that those services that had already embraced change i.e. use of technology, were best prepared to cope.”

As demonstrated in the preceding sections of this report, issues relating to technology were a common thread throughout participant responses, with respondents generally describing positive perceptions of the scale up and use of digital resources across health and care environments.

From a usability perspective, it was suggested that *“feedback from most patients reported that virtual appointments are more convenient for them and they still get the advice they need to self-manage chronic conditions”*, although this is mirrored by concerns regarding access to the technological means required to engage in online consultation by some segments of the population. However, respondents also identify examples of technology being used to combat the detrimental effects of loneliness and isolation by reaching out to vulnerable communities.

The use of digital platforms such as Zoom and Microsoft Teams to facilitate meetings from afar was positively received by respondents, who report *“meetings are far more efficient and timelier, minimising the need for travel and parking”*. Respondents also suggested that the utilisation of such technology has improved communication with other departments and domains in the wider health and care sector.

However, concerns over patient access to appropriate technology in order for them to engage with health and care services were widely cited, with respondents highlighting digital exclusion and noting the role this could have in driving greater societal inequalities. Respondents also suggested that both health and care services were technologically unprepared for the pandemic and are continually playing *“catch-up”* in this area.



OTHER

“Work-life balance is much improved.”

Respondents highlighted a number of wider issues that fell outside the criteria of the core categorisation scheme, and were subsequently classified as other by the researchers. Positive responses captured here prominently cited issues relating to the **environmental benefits** of working from home, **reduced travel time**, the availability of parking when attending work, alongside more time with family and a greater work-life balance.

Negative responses included: poor planning and a lack of clear guidance from government, with concurrent priorities relating to Brexit; the wider effects on the economy and looming unemployment; **“increased risk for women and children experiencing domestic violence”**; as well as a lack of support for the most vulnerable segments of society, including the homeless and those with alcohol and drug dependencies. Additionally, respondents highlighted other challenges such as “VISA issues and NHS charges for overseas workers” and the continued impact of the pandemic on children’s education.

EMERGING ISSUES

- **Anxiety over lack of future planning:** significant anxiety exists over the lack of future planning in regards to reinstating non-emergency services and future backlog pressures facing health and care services.
- **Digital exclusion and the resultant widening of health inequalities:** although the adoption and use of technology to support health and care services has been broadly positively welcomed and encouraged, issues relating to further widening of the health inequality gap remain.
- **Members of the public appear to be taking greater responsibility for their own health:** as health and care services are stretched to their limits, and the threat of COVID-19 infection remains elevated in care settings, respondents suggest members of the public appear to be taking greater responsibility and ownership over their own health and well-being, as well as considering whether the use of statutory services is completely necessary.





Findings – Highlights

BEVAN COMMISSION EXPERIENCE STUDY (Phase II)

Phase II of the survey received 117 responses from a diverse range of clinical and managerial staff across Wales. Responses covered perspectives from COVID-19 specific technology development through to service continuity and personal reflection. As such, the survey presents valuable multi-faceted insight into the effect of and response to COVID-19 across the healthcare system. A small number of responses (6) were identified as being more general thoughts or issues, without reference to developments in practice. However, the majority of responses provided insight into developments specifically in response to the COVID-19 situation.

The Commission's own initial analysis identified examples of good practice being started, less effective practice being stopped, and innovation emerging from the newly challenging context. The thematic review undertaken in this study provides further exploration of the dataset against the response narratives. It also provides insight into the health system, including emerging issues that have been carried forward through the case studies – see *the Annex document*.

RESOURCES

“ . . . medical, nursing and allied HCP staff are a valuable asset . . . ”

Respondents from both frontline and support/corporate roles made reference to the availability and use of resources. Perhaps unsurprisingly, the initial availability of PPE was noted as a challenge, though this extended through to other resources such as appropriate home office equipment.

Interestingly, these perspectives were frequently described alongside development of practices to use resources ingeniously, and with increasing efforts being made to improve availability. The extent to which such practice was shared has been an interesting avenue for investigation through the case studies.

The availability of remote working video platforms such as Attend Anywhere was frequently noted as providing flexibility, service continuity and some benefit to patients. However, the more extensive use of simple telephony was also cited as being effective in supporting many patients, and in a way that did not bring some of the accessibility challenges of video platforms.

The benefits of such resources were accompanied by negative comments such as limitations in the nature of engagement with patients and the occurrence of “screen fatigue”.

Quite often, where other themes were expressed, there was an implicit availability of new resource to support activity. This included areas where decision making had been improved in relation to it.



ENGAGEMENT

“Individual motivation brought together by organisational expertise.”

The responses here showed examples of engagement, across services within NHS Wales and also externally. The theme presented less strongly than in traditional innovation activities, featuring lower both explicitly and implicitly, potentially reflecting the time pressures and separation faced by respondents, focusing their activity within local/smaller groups.

Two areas of notable engagement:

- technology development;
- social support.

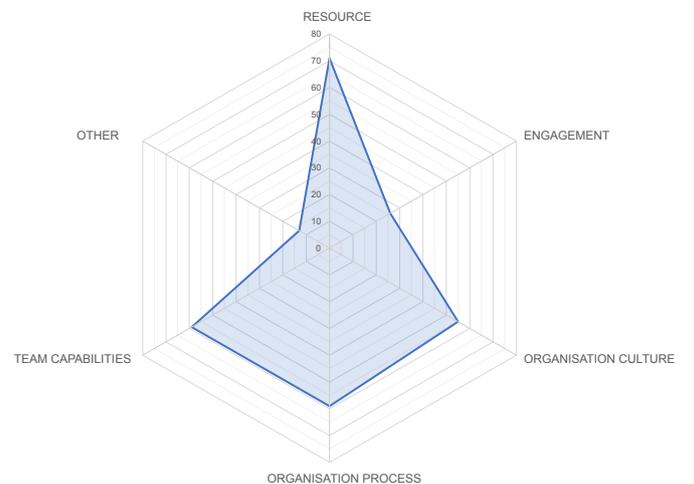
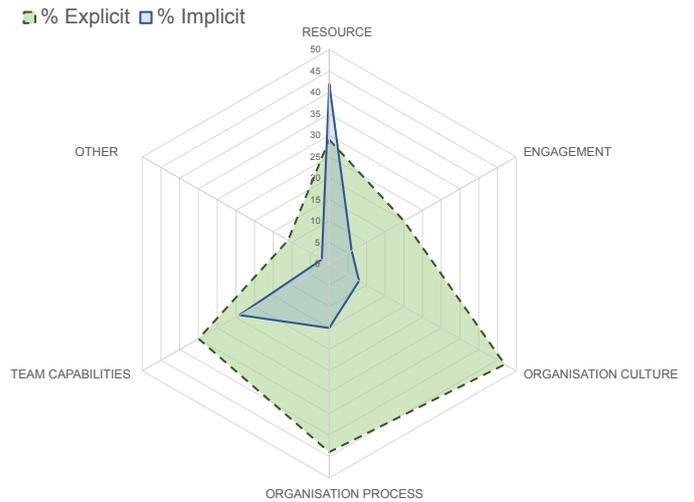
Example: manufacture of PPE – examples of collaborations, which by nature were generally ad-hoc and outside existing channels.

Some other projects were more ambitious in scope, scale and complexity.

- Application of artificial intelligence for a virtual assistant.
- Development of ventilator technology.

Such endeavours often take time and resource, though COVID-19 clearly brought impetus to their development.

These initial findings have prompted further evaluation through case studies to find some detailed examples of opportunities for greater co-ordination between health and social care, particularly in the roll-out of support services/technology.



Responses by Frequency of Explicit and Implicit Themes.

ORGANISATIONAL PROCESSES

“Lessons learned. We must still act in the patients’ best interest and manage conditions as per guidelines to prevent harm and reduce risk.”

The ability of individuals/teams to make decisions in the interests of the patients/communities they serve was a

significant feature among responses, not least with regards to doing so in an expedited manner to maximise benefit and reduce risk.

Examples did not imply any lack of rigour or process, but instead that they were dealt with in real-time and proximity to the matter at hand.

Aligned strongly with Organisational Culture was **Trust** as a key component of decision-making and process.

Example: reconfiguration of services into remote delivery with distributed colleagues led to autonomy and empowerment, working in a manner unaccommodated by existing process.

Some responses did, however, share opportunities for greater/wider engagement to provide the optimally-informed decision making.

ORGANISATIONAL CULTURE

“People make the difference not strategic visions.”

Responses were characterised by **strong patient-centricity** and local level team working (e.g. within a GP/clinic). Many examples were not just task-focused, but saw **emotional support provided across teams**, particularly among frontline staff.

Isolation was noted as a key issue, with remote working described as a double-edged sword. An example of this is the potential to rebalance work-life dynamic, where working at home both blurs the divide and allows greater flexibility.

There were some implicit comments relating to evolving organisational culture, with **enabled compassionate leadership** being celebrated in narratives focused on other issues.

TEAM CAPABILITIES

“This was a combination of good leadership; the correct people in a team; trust and understanding; luck.”

Often aligned with *Organisational Culture*, many developments relied upon the *inherent capabilities of teams and their members*. This related not only to obvious clinical aspects, but also to the **ability to reorganise and reconfigure** in response to isolated contexts.

Responses also gave emphasis to **learning** and **knowledge sharing** across teams, reflecting the positive developments drawing upon *Organisational Culture*.

ISSUES

Negative comments often related to *Resources* limitations or *Organisational Processes* preventing capabilities from being exploited.

Example: The inability to access widely-used IT applications which would have made collaboration far easier.



OTHER

“Having the flexibility to work from home has resulted in increased creativity and productivity. I feel it has also improved my general well-being.”

Personal well-being and **resilience** presented was an important aspect amongst responses. This related to **isolation, workload** and **health issues**.

Other **issues** noted reflected the **patient-centric perspective** expressed in *Organisational Culture*.

- A number of respondents gave focus to the accessibility of services/platforms.
- Some groups (e.g. older people) communicated having difficulty using digital tools, however several also communicated being perfectly capable of using them.

EMERGING ISSUES

- **Risk of loss of improvements in practice ‘as things return to normal’:** while the pandemic has brought immense tragedy and hardship, some of the improvements to practice were highly valued.
- **Mental health and general well-being of staff and patients:** responses conveyed a strong camaraderie and commitment to patient well-being. This sentiment was accompanied by grave concern for the immediate and long-term impact and challenges that the pandemic would present.
- **Individual and Collective Leadership:** defining the response to challenges has required teams to cohere and define their own direction, taking responsibility with autonomy and accountability.





Findings – Highlights

ALLIED HEALTH PROFESSIONALS SERVICE CHANGE STUDY

Allied health professionals (AHPs) have always worked in a person-centred and creative way. They seek to find the most effective way to maximise recovery and development so that people are able to live the life they want as independently as possible. The COVID-19 pandemic added significant challenges to that way of working. Across Wales, each person in every service sought to find innovative ways to work with people and help them keep healthy, well and active. They sought new ways of working which would help deliver as much care proactively in people's communities as possible; using technology and online access wherever possible to keep staff, patients and their families safe. They focused on helping people remain out of hospital; facilitated discharge wherever possible; created ways of enabling people to help themselves to avoid health crises; and continue therapies needed to maximise development for children and young people.

This section analyses the dataset supplied to us with a view to start developing an examination of the innovations and transformations undertaken by AHPs across Wales, in health and social care; physical and mental health care; and in communities, schools and care homes, to ensure we can evaluate and learn from this work for the continued improvement of AHP services after the pandemic ends.

The dataset contained 180 entries, outlining service changes for AHPs from across most of the Health Boards, trusts and local authorities in Wales. It encompasses a broad spectrum of AHPs, including occupational therapy, community rehabilitation services, physiotherapy, psychology, dietetics, and more, with staff being utilised creatively. The entries very specifically refer to the areas of change targeted, and whether they would refer to staffing models of care; new innovations; workforce utilisation, among others. The rationale for the changes introduced is in general provided, as are the potential risks, if identified. Wherever possible, there is an attempt to identify lessons learned and recommendations. Rapid early responses and innovation is very evident by the dates of actions in the dataset.

Data from the survey was augmented through case study analysis to validate outcomes and retain the most effective transformations for the future (*please see the Annex document to this report to access the case studies evaluated*).

RESOURCES

The dynamism and responsiveness of AHP teams is evident, as is their resourcefulness.

We noted an emphasis on identifying risks to the patients' well-being and experience (distress, special needs care, etc.).

AHPs provided resources as well as created a varied range of new resources, such as:

- face-to-face digital support
- frontline support

for:

- use by other AHP colleagues, and
- as a resource for hospital patients, colleagues etc.

Resources also enabled rapid adaptation to:

- support nursing/care staff;
- develop and support of field hospitals;
- develop new roles (e.g. Healthcare Support Worker (HCSW) within field hospital settings).

CHANGE and IMPACT

Change was initiated in response to limitations or constraints in resources available to deliver services. AHP staff and professional groups have reacted very rapidly to:

- deploy mobile units;
- redeploy staff from cancelled outpatient services to areas of greater need;
- create new resources (e.g. speech and language therapy groups providing training on basic awareness of speech language to AHP colleagues in paediatric wards; changed model of care to support autistic adults virtually; tailored information packs) for practice improvement.

These have enabled change to services at pace and, crucially, a smooth running of healthcare settings.

ISSUES

Different limitations of current resources, in particular staffing numbers, were flagged as potential risks preventing effective implementation of change. This is something to consider in terms of strategic planning of resources to enable lasting change.

Resource constraints for new tools and systems, and for specialist posts.

ENGAGEMENT & COMMUNICATION

“Take your staff with you on the journey no matter how hard that is and explain why you have made the decisions that you have.”

Communication played a key role at the outset. AHP staff showed proactive and effective communication and engagement to offer support:

- on the ward (e.g. supporting nurses);
- in intensive care units (e.g. communications hub led by psychology professional group);
- by developing resources to maintain engagement with isolated day unit clients;
- by providing reassurances to redeployed staff, focusing on their emotional well-being and job security.

CHANGE and IMPACT

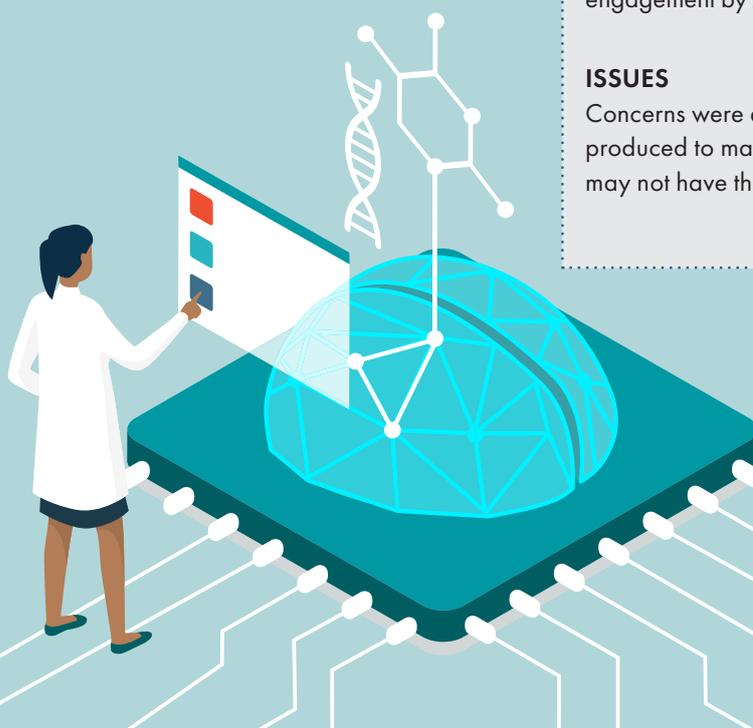
AHPs were able to manage resistance to changes in settings like remote patient’s therapy, through careful engagement, increasing its acceptance and lowering the barriers to change – thus enabling change to happen effectively.

“Blurred boundary working” (linked to the *Organisational Processes* theme) was enabled by effective engagement and communication.

Process improvements were achieved through meaningful engagement by AHP staff in design and deployment stages.

ISSUES

Concerns were expressed around the risk that resources produced to maintain engagement for specific purposes may not have the necessary reach to capture staff.



ORGANISATIONAL PROCESSES

Evidence of **Agile** workforce development was identified (e.g. podiatry clinical resource redirected to deal with vascular tissue viability cohort presenting with urgent wound/infection risk).

CHANGE and IMPACT

There are efforts and examples of changing practice to maximise pathways and minimise workforce deployment in some activities (**Example:** prudent health approach to minimise initial patient assessments and visits to reduce risks of infection), with a holistic focus to understand key barriers and inhibitors to the changed practice, and its:

- effects on patients (e.g. effectiveness of online therapy as a long-term solution);
- effects on staff (e.g. redeployed primary care occupational therapy/physiotherapy staff to end of life care presenting potential sources of distress for said staff).

Other evidence supporting the *Organisational Processes* theme is represented by careful management of service availability through dynamic deployment of personnel to counteract potential disruptions caused by the pandemic.

ISSUES

Concerns over the need to consider the skillsets involved in complex patient cases versus the opportunity for staff to gain knowledge of a wider range of patient cases. This raises interesting points regarding the potential need for new and enhanced training methodologies for the profession.

CULTURE

The *Culture* theme appears to be less visible than others. This is to be expected to some extent, due to the nature of the dataset. However, there are interesting returns from the data concerning the implication of process changes for long-term culture changes.

One notable case is represented by the deployment of a therapist in an intensive care unit (ICU) environment, and the long-term implications for ICU therapy teams.

Some of the responses relate to remote working, and its long-term implications for the culture of the organisation. The use of virtual meetings for briefings is weighted against the risk of staff isolation and mental health degradation.

PUBLIC PERCEPTION

In our data, this theme is often implicit, which is to be expected given that many changes introduced have an impact downstream on the patient's journey.

IMPACT

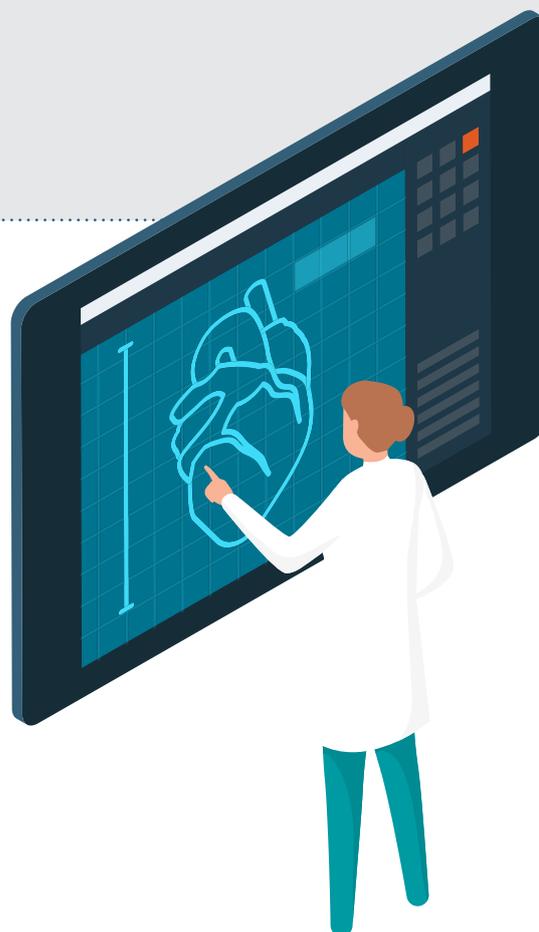
When introducing a new technology or process, AHP staff generally show a deep level of care in considering the impact the change may have for:

- therapeutic relations;
- patients' well-being, in particular for more vulnerable patients such as those with learning disabilities.

Such considerations can be further evaluated in light of new service improvement design and embedded in the design process itself, to capitalise on the state of fluidity and change currently experienced by NHS Wales staff.

CHANGE

New services can originate as a result of the above evaluation, for longer term deployment.



TEAM & KNOWLEDGE

This theme is implicitly often linked to the explicit *Resources* theme.

- Substantial efforts in the AHP staff workforce to develop their skillsets and to provide knowledge input and resources to the team.
- Strong emphasis on skills, recognising the value of professional training, blurred boundary working, and development of an adaptable workforce.
- Knowledge sharing through training provided inter-team.

Example: dysphagia specialists from speech and language therapy were trained by dieticians on first line modified nutritional supplements, who also provided training on basic dysphagia and awareness to all other AHPs.

CHANGE and IMPACT

- Willingness to develop a transfer of skills agenda, from individuals, teams and management's needs to solve pressing issues, but also to proactively prevent issues.
- Emphasis on ensuring the appropriate quality levels are kept throughout identification of competencies availability within the "evolved" team deployed.

SUGGESTION

Consider further investigation on:

- AHP wider upskilling agenda and multi-/inter-disciplinarity;
- quality assurance in relation to e.g. error rate reduction for an expanded upskilled profile deployed in the field;
- skills, skills evaluation (**Example:** evaluate the declining respiratory skills in Health Boards), de-skilling and redeployment, induction and training.

TECHNOLOGY

Perspective: Most groups represented in the data showed the development or use of technology and tech-based/enabled solutions within:

- the changes operated;
- the role that tech had to enable such change and new approaches to patient assessment, diagnostics and treatment;
- innovation and creativity to overcome limitations and constraints;
- R&D studies ongoing.

CHANGE and IMPACT

- Rapid implementation of a number of innovative aspects, with significant activity and dynamism and impact on healthcare delivery.
- Pervasive use of online tools to conduct tasks such as doctor-patient visit.
- Staff have also developed technology solutions – websites, self-help videos – with evidence of need to generate a more comprehensive approach to ensuring patient and staff engagement.

ISSUES

Hurdles need to be overcome in terms of accessibility, operation, and overall uptake potential of online tools, by staff and patients alike.



OTHER

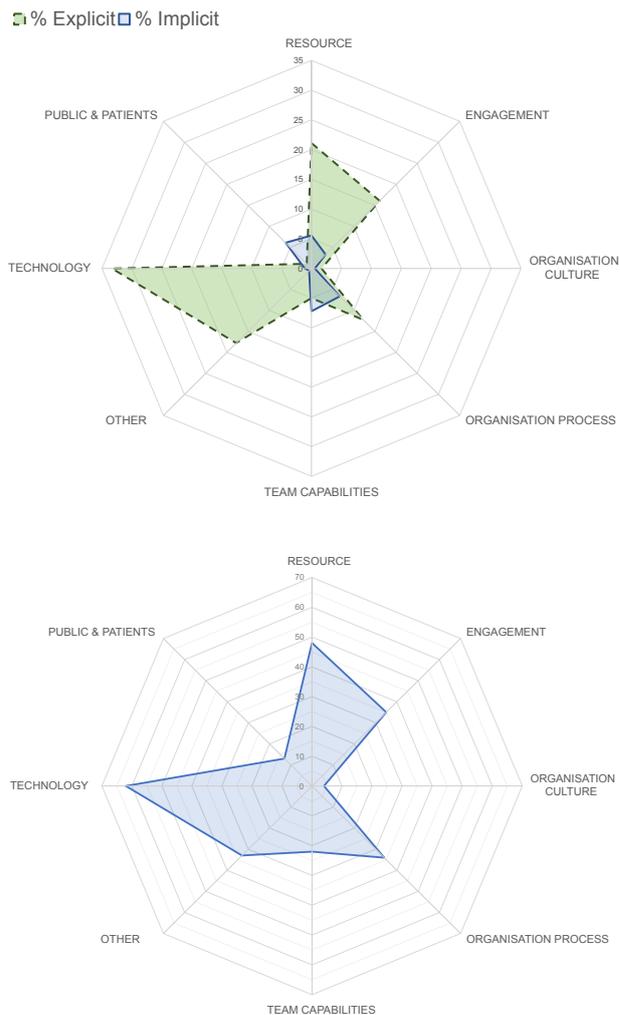
A strong emphasis on skills was present in the dataset, as was evidence of the explicit recognition of the value of cross professional training, blurred boundary working and the development of an adaptable workforce, for increased resilience.

Approaches aimed at AHPs' wider upskilling are interesting dynamics to explore, in particular in combination with other disciplines.

Quality assurance issues may need further consideration and research (e.g. error rate reduction for an expanded "upskilled" profile deployed in the field). The skills agenda encompasses the redeployment of staff considered in previous sections, with training and a robust induction as means to mitigate potential errors and to quality assure the upskilling process.

Resource constraints are referenced with regards to budget for new tools and systems to be trained on, or for specialist posts for expert input and upskilling.

Further studies and analyses of the benefits versus costs should reveal further opportunities and enable prioritisation of valuable contexts, in combination with frameworks to support redeployment across AHP roles. There is the potential to explore the skills agenda within AHP roles in more depth through dedicated studies.



Responses by Frequency of:
 - Top: Explicit (Green) and Implicit (Blue) themes;
 - Bottom: Combined responses for Explicit and Implicit themes.

EMERGING ISSUES

- Evidence of achieving process improvement through meaningful engagement by AHP in the design and deployment stages.
- The importance of having "blurred boundary working" and a "growth/learning mind-set".
- Skills audit is important to find opportunities for synergies and safe and rapid emergency repurposing.
- Consideration of mental health issues and the care for the mental well-being of fellow AHP colleagues suggests the need to consider such issues within the service/practice design stage.
- Process design within NHS Wales would be improved by engaging the expertise of AHPs more fully.



Findings – Highlights

HEALTHCARE SCIENCE SERVICE CHANGE STUDY and COVID-19 INNOVATION SURVEY STUDY

Healthcare science (HCS) staff carry out an array of vital healthcare-related duties, and play a major part in providing health services in diagnostics, therapeutics and rehabilitation. They use their expertise to help save lives and improve patient care, and are often at the cutting edge of technological advances and innovation.

The HCS workforce has been intrinsic to the NHS Wales and public health response to COVID-19. For example, HCS staff played a critical role in supporting the development and scaling up of COVID-19 testing capacity, both in testing to detect the virus and antibodies. Clinical engineers meanwhile have been fundamental to the roll out of huge volumes of critical care equipment, ensuring it is fit for purpose and supporting training of clinical staff on this new equipment. Radiographers have been part of the frontline response, ensuring accurate and early patient diagnosis at the point of care, while physicists have adapted long-standing diagnostic and therapeutic procedures to ensure patients are still able to access essential services in the safest and most expedient way possible.

In responding to the crisis situation, HCS staff in NHS Wales from across diverse discipline areas have embraced new challenges, and have become excellent innovators by rapidly adopting and implementing new technologies. Many have approached the provision of care by implementing new and innovative ways of working, often in very different and challenging environments. In a number of healthcare settings – from acute hospital sites to testing centres – the HCS workforce has utilised its unique scientific and technological skill set to best support NHS Wales and the public during the pandemic.

This section examines the innovations and transformations undertaken by the HCS profession across Wales, and will ensure we learn from this work for the continued improvement of diagnostics and scientific services, and to deliver better outcomes for patients. Data has been collected in a range of ways to ensure that outcomes can be validated and the most effective transformations are retained for the future.

The remainder of this section outline the findings from the qualitative survey undertaken, which have identified a number of key points for further investigation. The survey was structured with a qualitative component and a quantitative (yes/no) component. In the qualitative component, nine questions were asked to probe innovation and novel practice observed or participated in, its impact, and any risks and lessons learned. The survey then focused specifically on any digital innovation introduced in areas of HCS work, its impact, barriers, and future prospects.

HCS workforce have shown exceptional leadership in the last 15 months, and it is now vital that they take stock and build on these strengths. This will ensure that HCS staff continue to act as a catalyst for creativity, innovation and collaboration, and will assist in their ability to transform services, **delivering tomorrow, today**.

RESOURCES

Perspective: the theme of *Resources* is substantially skewed towards the 'negative' sentiment in the survey data.

- Lack of resources
- Long-term funding insecurity (for initiatives and workforce)
- Access to resources (by staff and the public)
- Need to future-proof tools, and policies to enable remote working

These have been identified as sensitive topics.

COLLABORATION

There is a willingness and advocacy to increase collaboration and partnerships. However, there are also some insights into a clear division of labour when it comes to collaboration, which would see, for example, a HCS engineering team focusing on clinical science while academics/business staff focus on design restraint and prototyping.

This is an interesting finding as it may be coloured by covert

fears of displacement, as other respondents have shown.

PROACTIVE APPROACH

HCS staff have demonstrated a proactive approach in taking on additional duties during the COVID-19 pandemic, regardless of any adverse consequences for staff morale and well-being. That is despite a lack of resources and equipment, as well as understaffing, which were perceived by respondents as potentially having a negative effect on patients' well-being.

This situation seems to be quite clearly delineated and suggestive of the need for further in-depth research activities.

PUBLIC PERCEPTION

Public perception is not a highly present theme within our data.

In general, responses show that the HCS workforce are mindful of the perception that certain changed activities (e.g. remote triaging) may cause the public to develop negative or mixed feelings, unless accompanied by future-proof resources and policies.

IMPACT

The effect of changed services to patients is felt as having potentially negative effects. However, this sentiment varies for different HCS groups, since it is dependent on the activities carried out, and how they have been disrupted by COVID-19.

In some cases, it is the processes adopted that have caused side effects in the team effectiveness, which may then translate to a reduced patient experience.

ISSUES

- Potentially promising interventions which are currently governance-constrained may not help patients now and cause their perception of the care they receive to diminish.
- There may also be a public perception that lack of physical face-to-face interaction translates into a lower level of care.

Understanding how to prevent such issues may help to design better processes.

ENGAGEMENT & COMMUNICATION

"Once we made it known that we were available to be used, there was no end of queries asking for help."

The importance of *Engagement and Communication* is highlighted in the responses, in both positive and negative terms, with a prevalence of the former.

EXAMPLES show the power of communication internally and engagement externally with public and private sectors. It has helped drive innovations to fruition and develop knowledge-driven, professional teams of excellence that can harness science and technology to benefit the wider population.

IMPACT

Innovative public-private partnership vehicles were set up to enable manufacture of medical devices such as CPAP, and to advise on PPE. This would not have happened without proactive engagement and communication across all levels.

HCS staff demonstrated the ability to successfully work under pressure and deliver innovative solutions, with the help of strong co-ordination. There is also evidence of successful team marketing, which generated further opportunities for conducting, for example, bespoke medical device work, as well as an ability to adapt communication skillsets from one area (clinical) to another (public).

AREAS FOR IMPROVEMENT in communication and multidisciplinary working have been identified, and a greater collaboration level with academia is encouraged.



ORGANISATIONAL PROCESSES

The *Organisational Process* theme was identified predominantly in a positive explicit and implicit way.

There is close alignment between the resourcing of (or technology enabling) the process and the process itself, as many HCS respondents showed that the creation of a new resource enabled change in one or more organisational processes:

Example: redesigned end user training increases training output, thus optimising the process.

Example: Use of digital tools enabled remote working, which increased productivity in disparate teams (including remote training for staff and even remote programming of auditory implants).

IMPACT

Such processes have the potential to translate into long-term organisational culture shifts, as also outlined in other datasets.

The development of new teams may also lead in turn to new organisational processes long-term and requires further investigation.

Example: embracing the entire medical device design and development pipeline using in-house skills and talent.

Example: reduction in number of treatments [tumour radiotherapy] was piloted during COVID-19 and the changes are already becoming permanent on a national basis, increasing the speed of service.

ISSUES and SUGGESTIONS

- One response (which made reference to a convalescent blood plasma process which has been discontinued) mentioned a need to examine the strategic underpinning behind NHS Wales' planning. It also pointed at the need to have robust systems in place to capture practice and how it links within the broader medical and scientific corpus.
- Use of digital technology could lead to an increase in inequality due to issues with accessing technology and tools/services, as well as personal circumstances (for workers who live alone, the office is often the only place where socialising is possible). Although in general it is well received by patients.

CULTURE

"When given the freedom to practice, innovation can be done quickly and effectively."

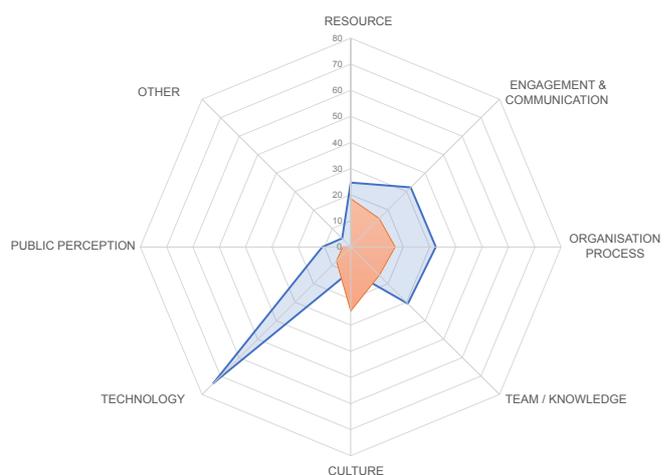
"The pandemic has provided a landscape where innovation has been able to flourish."

The theme of *Culture* does not feature prominently in an explicit form in this dataset. Implicitly however, we caught some glimpses of the respondents' feelings regarding organisational culture.

Within the data we detected a realisation from respondents that multi-disciplinary, fast decision making at a more local level (in combination with funding) and staff engagement at every step – and especially in times of need – have showed NHS Wales to be capable to meet the needs of the population, with faster unbureaucratic decisions of high quality that can withstand governance scrutiny.

Clinical input directly into rapid decision making is, in our data, attributed the merit of this shift. This should be reflected upon further and this theme was taken forward into our case studies research (please see the Annex document to this report to access the case studies evaluated).

Remote working is prominently discussed, and the need to operate a shift within traditional organisational setup is implicitly referred to.



Responses by Frequency of combined explicit and implicit themes, for both POSITIVE (Blue) and NEGATIVE (Orange) Themes.

TEAM & KNOWLEDGE

This theme has an almost even spread of positive and negative entries, with a slight prevalence of positive sentiment.

- Multi-disciplinary working was a strongly supported concept as it is embedded within the HCS way of working. Teams adapted very rapidly to the changed circumstances and were operational quickly (barring any external stressors or issues such as collaboration tools).
- There is:
 - an awareness of the significant knowledge base and delivery within teams;
 - a sense of pride in being part of such skilled teams;
 - an awareness of the issues surrounding budgets and availability of long-term security, which hamper resilience of the collective.

SUGGESTIONS

- Look at the knowledge management processes behind team working to ensure that said knowledge is nurtured, not lost.
- New digital tools (artificial intelligence-based) would help in this case.

These of course are stop gaps compared to eliminating insecurity; however, both vectors of attack would benefit the HCS workforce.

ISSUES

Some discordant voices see the excess of meetings (virtual) to be of detriment, in particular when combined to uneven access to AV equipment.

TECHNOLOGY

The *Technology* theme is the highest cited, with positive and negative sentiments almost equal.

Technology is seen in the main as an enabler for better patient experience, and future cost savings in the medium to long-term, in line with previous findings.

IMPACT

The HCS workforce played a key role in many product and process innovations, testament to the level of skills and innovativeness, and a positive attitude.

Many examples disclosed in the dataset show the very dynamic approach to solving problems or developing creative solutions even before issues become apparent, which is an indication of widespread intellectual curiosity and high skill levels.

HCS workforce actively accompany the development of new technology with a process of building new skills and knowledge, enabling a dynamic evolution of their teams – despite resource constraints.

HCS staff strongly acknowledge that communications and engagement within teams and with the wider stakeholder base is essential.

ISSUES

- Occasional access issues (including considerations of efficiency gains/losses) with reference to technology for remote working.
- Complex regulatory landscape to navigate in order to take innovations to fruition.
- Instances of insufficient or inaccessible IT equipment and staffing/resources which may exacerbate a digital divide in the workplace and decrease productivity.

EMERGING ISSUES

- **Resources need to be reconsidered**
Underfunding, combined with overstretching existing resources, could cause a tipping point in HCS workforce's morale and innovation potential. This may cause long-term damage to the HCS function and team, such as loss of talent and decreased service quality provision.
- **Blurred boundary working and growth mind-set**
Strongly consider how to gain further insights into, and

identify the factors that enable, high performing HCS teams and their team dynamic, to apply to other settings.

- **Bureaucratic hurdles to be evaluated in long-term strategic take**
Long-lasting change can only be enacted if the momentum can be kept; identifying the key factors to leverage is critical.

Our Research and Evaluation Team



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This independent report has been prepared by a team of academics, researchers and practitioners from Swansea University School of Management (SoM), Swansea University Medical School (SUMS), the Accelerate HTC programme, the ARCH Health Board partnership, the Bevan Commission, for and on behalf of Welsh Government and Aneurin Bevan University Health Board (CONTRACT Ref: 001/10/2020).

PROJECT GROUP

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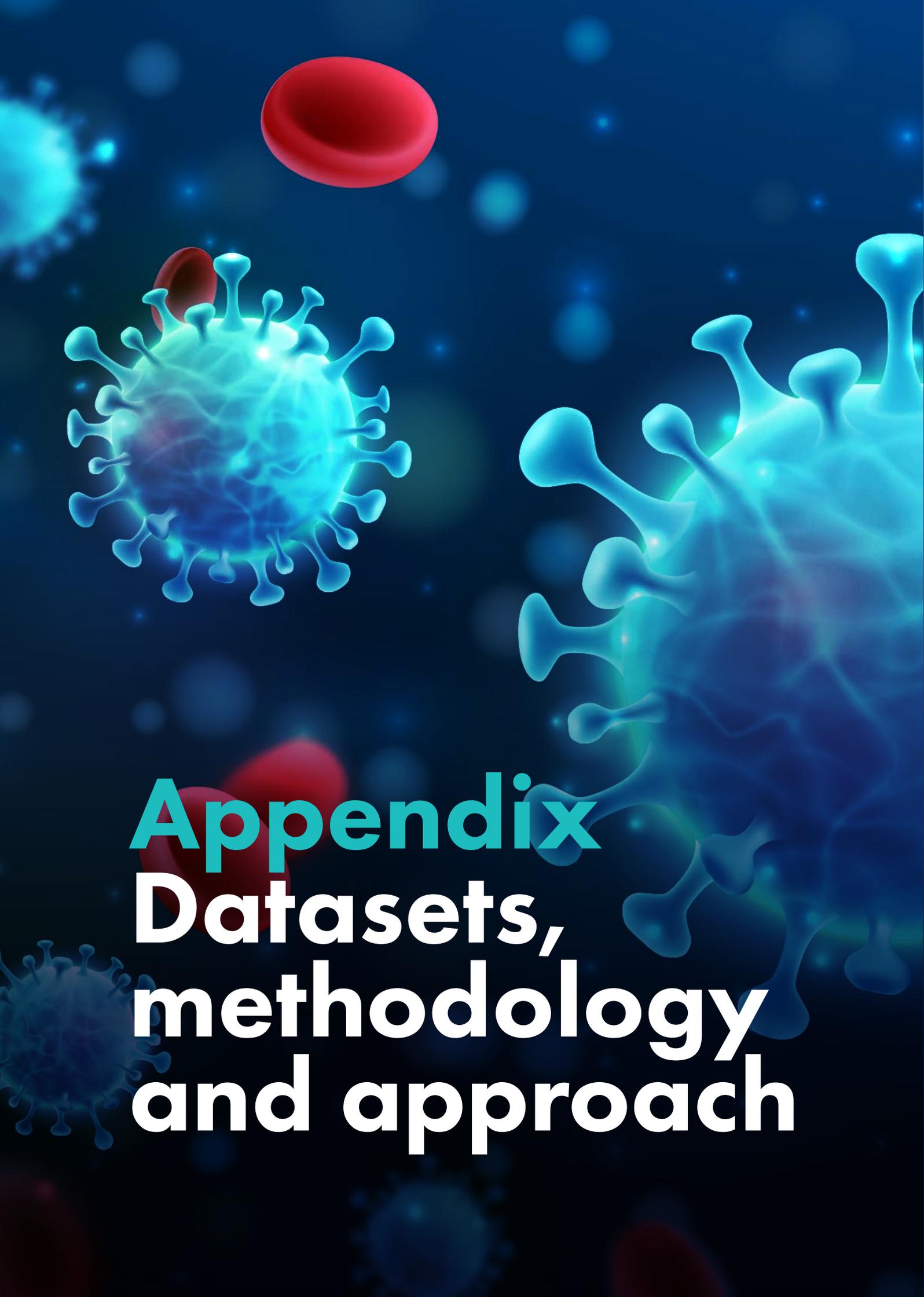
Sion Charles, Director

CARDIFF & VALE UNIVERSITY HEALTH BOARD

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REFERENCE GROUP

The NHS Wales Innovation Leads group was used for external reference.

A 3D illustration of a coronavirus particle, characterized by its spherical shape and numerous spike-like protrusions. The particle is rendered in a vibrant cyan color. It is surrounded by several red blood cells, which are depicted as smooth, biconcave discs. The background is a deep, dark blue, punctuated by numerous small, glowing cyan particles that create a sense of depth and movement. The overall composition is clean and scientific, typical of medical or biological educational materials.

Appendix **Datasets,** **methodology** **and approach**

Datasets, methodology & approach

In April 2020, Aneurin Bevan University Health Board issued an NHS Wales-wide survey which requested staff views on novel and innovative practice that had been developed in response to the COVID-19 pandemic.

A substantial amount of – primarily – qualitative evidence was gathered and a high-level summary of this evidence has been produced.

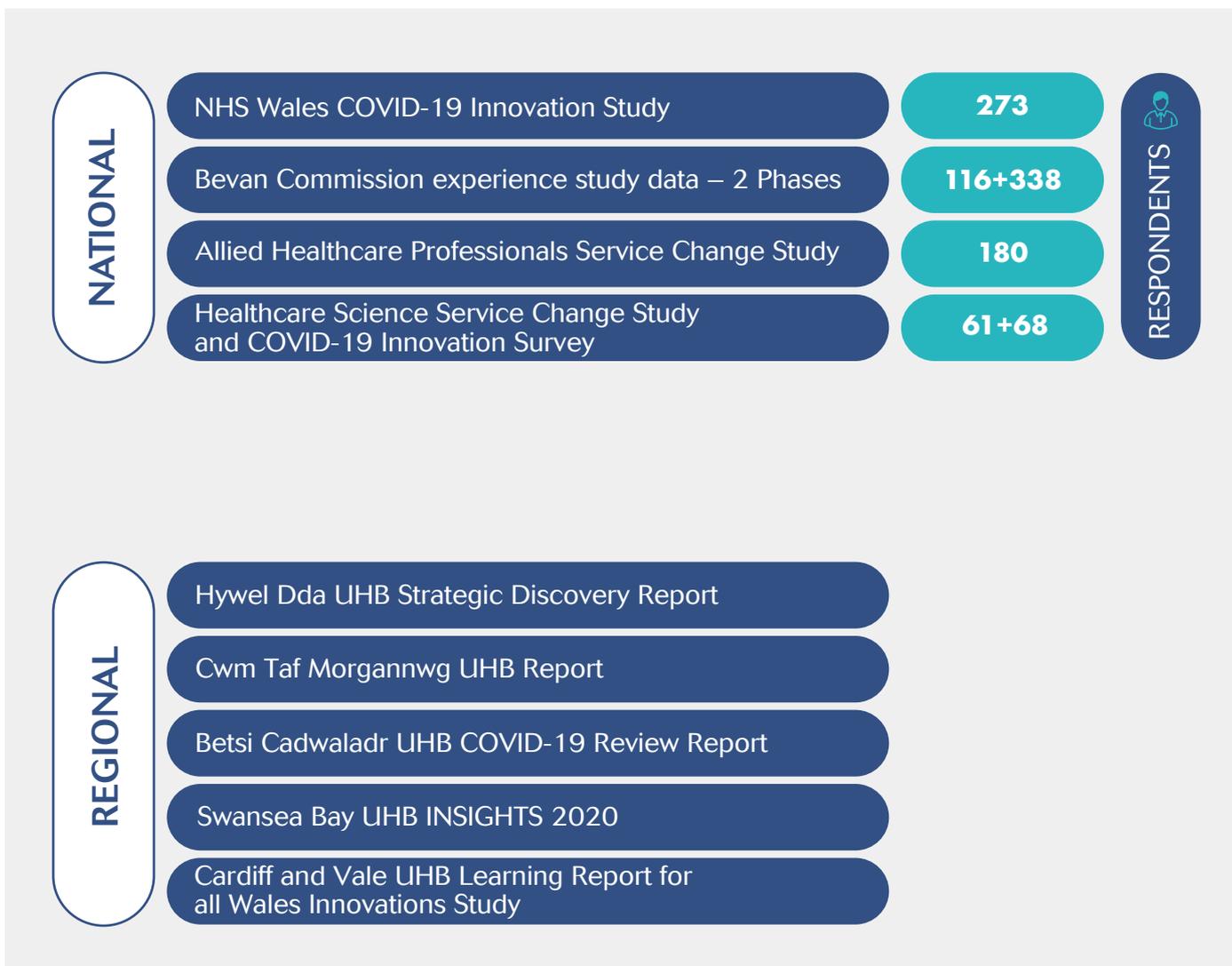
Academics at Swansea University have conducted the analysis of these diverse datasets.

The findings from this analysis informed a follow-up research study through case studies and in-depth interviews (*please see the Annex document to this report to access the case studies evaluated*).

Findings from the case study analysis were fed back to a panel of expert stakeholders to help refine a set of recommendations, which are included in this report.

Datasets

- Initial datasets



Case Studies

- **37** Case studies from all Health Boards (as well as NHS Wales Procurement Services) to investigate key themes identified **through** the analysis of the initial **datasets**.
- Case studies have been selected using the following **criteria** applied to the datasets from the initial survey based studies (see section "Datasets"):
 - Coverage of all the themes identified within the data;
 - Coverage of all the Health Boards included in the data sets.

Through these criteria, 90 cases were identified for further investigation; enquiries put to the appropriate contact points yielded 37 final cases for investigation through in-depth semi-structured interviews.

Through this methodology and in the spirit of the research informing this report, we have ensured that we have captured the experiences of as many representatives as possible whilst ensuring that the evaluation of the case studies will not discount any key factors. Such an approach will maximise the lessons learned and guidelines and recommendations that will constitute part of the key learning in the final report.

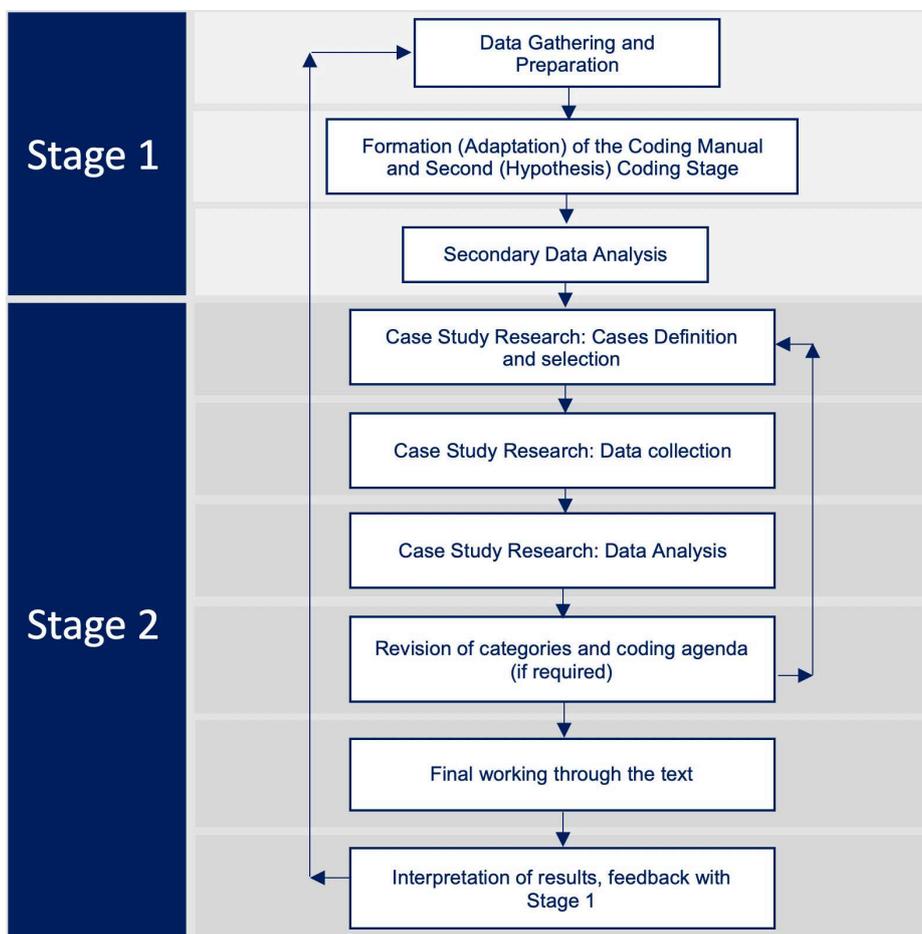
The case studies will help highlight the transformation details of both simple and complex innovations and the dramatic difference they made to delivering healthcare in Wales.

- Findings from the case studies analysis were subsequently **validated through four focus groups** of expert stakeholders.

Methodology

We developed a mixed methodology approach to enable us to capture the multi-faceted nature of the data. The design (see figure below) is of a sequential nature: the first stage consists of analysis of multiple datasets (primarily qualitative

data); this is followed by a second stage of qualitative data collection through case study research. The findings from the "Stage one" analysis informed "Stage two".



We also aimed to ensure lessons learned and early benefit realisation originating from the work could be incorporated into decision making and recommendations as early as possible. Regular stakeholder engagement was critical as the second and third waves of the COVID-19 pandemic began. Learning and cross-fertilisation from different methods of engagement have been captured in this report.

The key recommendations proposed represent the main areas that – based on the work conducted so far – would benefit from active engagement by decision-makers as well as wider NHS Wales staff. These points can help stimulate the development of new policy to serve the needs of a changing landscape, and prepare the NHS and the country for a more resilient future.

As for every piece of research, there are a number of limitations that must be considered. In particular, the entire data envelope is affected, to some extent, by respondents' self-selection

Approach to the Data Analysis

We used directed content analysis (DCA) (Mayring, 2000) and thematic extraction for data analysis. Drawing upon the DCA method described by Mayring (2000), and subsequent research by Howson (2019), a model was adapted for the purposes of this study.

bias. You are much more likely to engage in a service innovation and transformation study, to fill in a survey and have the chance to discuss your innovation or service transformation practice, if you are already an innovator, or possess an innovator's mind-set.

We have tried to mitigate this by: adopting a research framework that is rooted in innovation management; looking at the data in a holistic way; submitting the findings for peer review validation, which also aided in refining the final recommendations. This helped us turn a limitation into a specific lens with which to look at the data, findings and recommendations.

We hope that this report will be digested and reflected upon, and become a practical handbook for innovation and transformation across NHS Wales.

The following themes have been used to help in data analysis. In order to tailor the analysis to each specific dataset, we adopted a flexible analytical framework, which utilises subsets of themes whenever relevant and appropriate.

A PRIORI THEME	DESCRIPTION	EXAMPLES
Knowledge and resources/team capabilities	Any factors relating to knowledge, skills, expertise or other resources required to develop innovation projects. Any factors relating to the conditions of the external environment in which the organisation or project is situated.	<ul style="list-style-type: none"> • Funding • Knowledge, skills and expertise needed • Awareness (included) • Team experience • Team leadership skills
Technology/tech adoption	Specifically when datasets point at technological developments and / or use/adoption of technology (when not included within the <i>Resources</i> theme).	<ul style="list-style-type: none"> • New software acquired and adopted • In-house tools
Engagement	Any factor relating to engagement or interaction with external partners where an established communication channel or collaborative relationship does not/did not exist.	<ul style="list-style-type: none"> • Networking • User engagement • Engagement with wider stakeholders
Organisational culture/agility	Any factors relating to organisational culture and management perceptions towards innovation.	<ul style="list-style-type: none"> • Organisational culture • Supportive management
Organisational process	Any factor relating to an organisation's design and structure, and processes related thereto.	<ul style="list-style-type: none"> • Organisational processes • Cross-functional organisational design
Team capabilities	Any factors relating to project team members, or characteristics of the project team more generally.	<ul style="list-style-type: none"> • New skills development within the team • Time to work on project
Public/patients	Any factors relating to members of the public or patients.	<ul style="list-style-type: none"> • Patient feedback • Clinical ownership taken by patients • Missing family time
Other	Any other theme that does not neatly fit within one of the above themes/requires to be evaluated separately.	<ul style="list-style-type: none"> • Environmental benefits • Travel • Government guidance • Personal well-being



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