

NHS Board Meeting
31st August 2022

Lanarkshire NHS Board
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STRATEGIC ACADEMIC PARTNERSHIP REPORT 2021/22

1. PURPOSE

This paper is coming to the Board:

For approval	<input type="checkbox"/>	For endorsement	<input type="checkbox"/>	To note	<input checked="" type="checkbox"/>
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The purpose of this paper is to provide NHS Lanarkshire Board with an update on the progress in developing effective strategic academic links between NHS Lanarkshire and Scottish Universities.

2. ROUTE TO THE BOARD

The content of this paper relating to quality assurance and improvement initiatives has been:

Prepared	<input type="checkbox"/>	Reviewed	<input type="checkbox"/>	Endorsed	<input checked="" type="checkbox"/>
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by the Executive Medical Director. The information within this report is also shared with, and discussed by, the NHS Lanarkshire Strategic Partnerships Working Group and the established Joint Strategic Governance Boards with respective University Partners where there is a formal agreement supported by the Board of NHS Lanarkshire and the University Senates.

3. SUMMARY OF KEY ISSUES

NHS Lanarkshire is committed to delivering world-leading, high-quality, innovative health and social care that is person-centred. Our ambition is to be a quality-driven organisation that cares about people (patients, their relatives and carers, and our staff) and is focused on achieving a healthier life for all. Through our commitment to a culture of quality we aim to deliver the highest quality health and care services for the people of Lanarkshire.

A key component of delivering high quality care is to be an outward looking organisation seeking to share best practice from elsewhere in healthcare and beyond and the ability to shape future practice by engaging with research and innovation through links with existing academic institutions supports this commitment. Closer links with academic institutions who train our healthcare professionals supports higher recruitment rates of graduates. Staff engagement in this work also supports recruitment and retention across the full range of the healthcare professionals working in NHS Lanarkshire.

The paper provides an update on the following areas covering the period April 2021 – June 2022:

- ▶ A summary of ongoing partnership working
- ▶ Academic status awarded to individual departments
- ▶ Honorary Academic appointments to NHS Lanarkshire Healthcare Professionals

4. STRATEGIC CONTEXT

This paper links to the following:

Corporate objectives	<input checked="" type="checkbox"/>	AOP	<input checked="" type="checkbox"/>	Government policy	<input checked="" type="checkbox"/>
Government directive	<input checked="" type="checkbox"/>	Statutory requirement	<input type="checkbox"/>	AHF/local policy	<input type="checkbox"/>
Urgent operational issue	<input type="checkbox"/>	Other	<input type="checkbox"/>		

5. CONTRIBUTION TO QUALITY

This paper aligns to the following elements of safety and quality improvement:

Three Quality Ambitions:

Safe	<input checked="" type="checkbox"/>	Effective	<input checked="" type="checkbox"/>	Person Centred	<input checked="" type="checkbox"/>
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Six Quality Outcomes:

Everyone has the best start in life and is able to live longer healthier lives; (Effective)	<input checked="" type="checkbox"/>
People are able to live well at home or in the community; (Person Centred)	<input checked="" type="checkbox"/>
Everyone has a positive experience of healthcare; (Person Centred)	<input checked="" type="checkbox"/>
Staff feel supported and engaged; (Effective)	<input checked="" type="checkbox"/>
Healthcare is safe for every person, every time; (Safe)	<input checked="" type="checkbox"/>
Best use is made of available resources. (Effective)	<input checked="" type="checkbox"/>

6. MEASURES FOR IMPROVEMENT

We will measure the progress we make towards our aim of delivering the highest quality health and care services for the people of Lanarkshire against the strategic priorities identified in the Quality Strategy and the Measures of Success contained within the associated Quality Plans.

In addition, this work will also be assessed through the measurement of growth in academic status of departments, joint honorary appointments and associated research outputs.

7. FINANCIAL IMPLICATIONS

No financial implications are identified in this paper. The partnerships are supported by ‘in kind’ resources.

8. RISK ASSESSMENT/MANAGEMENT IMPLICATIONS

The Joint Strategic Governance Boards with respective University Partners oversee the delivery of this work and associated appointments. NHS Lanarkshire Strategic Partnerships

Working Group has established governance arrangements for oversight of honorary appointment status. The Working Group is chaired by the Executive Medical Director and comprised of the Professional Leads for all Healthcare Professional Groups and also includes the Chief Executive.

9. FIT WITH BEST VALUE CRITERIA

This paper aligns to the following best value criteria:

Vision and leadership	<input checked="" type="checkbox"/>	Effective partnerships	<input checked="" type="checkbox"/>	Governance and accountability	<input checked="" type="checkbox"/>
Use of resources	<input checked="" type="checkbox"/>	Performance management	<input checked="" type="checkbox"/>	Equality	<input checked="" type="checkbox"/>
Sustainability Management	<input type="checkbox"/>				

10. EQUALITY AND DIVERSITY IMPACT ASSESSMENT

An E&D Impact Assessment has not been completed for this work as it is covered by the overarching governance standards of all organisations within our partnership agreements.

11. CONSULTATION AND ENGAGEMENT

This approach to strengthen academic links between NHS Lanarkshire and University Partners was initiated in 2014 as part of the Board's action plan following the Acute Services Rapid Review in 2013.

12. ACTIONS FOR THE BOARD

The Board is asked to:

Approve	<input type="checkbox"/>	Endorse	<input checked="" type="checkbox"/>	Identify further actions	<input type="checkbox"/>
Note	<input checked="" type="checkbox"/>	Accept the risk identified	<input type="checkbox"/>	Ask for a further report	<input type="checkbox"/>

The Board is asked to:

- Note the development of academic partnership working with departmental university status;
- Note the development of academic partnership working with shared honorary appointments and;
- Endorse the approach to this work in supporting the Board's Quality Ambitions and agree on annual updates to the Board.

13. FURTHER INFORMATION

For further information about any aspect of this paper, please contact Dr Jane Burns, Executive Medical Director

NHS Lanarkshire;

Strategic Academic Partnerships Report – update to Planning, Performance & Resources Committee.

Period covering March 2021- June 2022.

This report covers the developments and ongoing progress between NHS Lanarkshire and our three formally recognised strategic academic partners; Glasgow Caledonian University (GCU), University of Strathclyde (UoS) and University of West of Scotland (UWS). It also outlines ongoing work with other academic partners where there is no formal organisational partnership in place.

Over the last year, progress in our strategic academic liaisons, like all other aspects of health care, have continued to be affected by the coronavirus pandemic, but nevertheless, significant progress has continued to be made. It is noted again how helpful our university partners have been to NHS Lanarkshire during the pandemic, particularly in our covid modelling work with the University of Strathclyde, which has now been given national recognition and won national awards.

Despite the clear constraints, a number of milestones have been achieved with various strategic university partners.

1. Partnership Working:

1.1. Glasgow Caledonian University

1.1.1. Partnership with AHP education and training;

Student Placements; In 2021, the physiotherapy service devised a paid placement approach for Level 4 Physiotherapy student placements. However, this year, in conjunction with GCU, and following the previous year's success, the service revised the placement model for 2022 to offer 38 level 3 students an unpaid placement within NHS Lanarkshire for eight weeks.

Before this revised placement approach, NHS Lanarkshire Physiotherapy traditionally worked in its clinical-specific silos when hosting students. The pandemic necessitated changes in the practice placement arrangements within physiotherapy.

Five clinical educators were seconded one day a week over five months. It was agreed that the funding for these posts would come from the winter planning monies allocated to the service.

The practice educators collected quantitative and qualitative data from students and the practice educators to provide a robust evaluation which captured positive outcomes.

Further details on the outcome of this approach are available on request.

Educational Initiatives; NHS Lanarkshire, in partnership with GCU, provided International Postgraduate Radiography Therapy student placements for students from the Middle East in Diagnostic Imaging. This is a *quid pro quo* benefit for radiography staff with these arrangements as the NHSL staff can benefit from free Master's modules allowing them to accrue credits toward an M.Sc. award. Furthermore, the promotion of the Funding Agreement in place with GCU has enabled AHP staff to undertake postgraduate modules to support the advanced practice development of AHP staff.

Examples of the modules being undertaken are:

- Social Action Approaches to Public Health.
- Psychologically Informed Practice.
- Work-based advanced skills and innovative practices.

AHP Students Employment Opportunities within NHS Lanarkshire; CGU has also been instrumental in promoting part-time paid employment opportunities for AHP students via the NHSL Staff bank, which has assisted staffing numbers over the various waves of the pandemic

AHP Lecturer Practitioners; Susan Pride, the occupational therapy (OT) practitioner responsible for guiding a shielding final year student to enable the student to graduate, has been seconded to GCU to support the GCU OT department in their practice placement programme. The inclusion of this role within GCU has expanded OT student placements in Lanarkshire by 50% for the incoming academic year. It is anticipated that this approach will aid the recruitment of OT graduates in the coming years. Her appointment now brings the number of AHP lecturer practitioners supporting GCU to four.

Non-Medical Prescribing; Several Podiatrists and Dieticians have completed the non-medical prescribing course at GCU. The current number of AHP's who are registered with the Board to undertake non-medial prescribing are:

- 1 x Dietician Prescriber
- 9 x Podiatry Prescribers
- 9 x Physiotherapy Prescribers

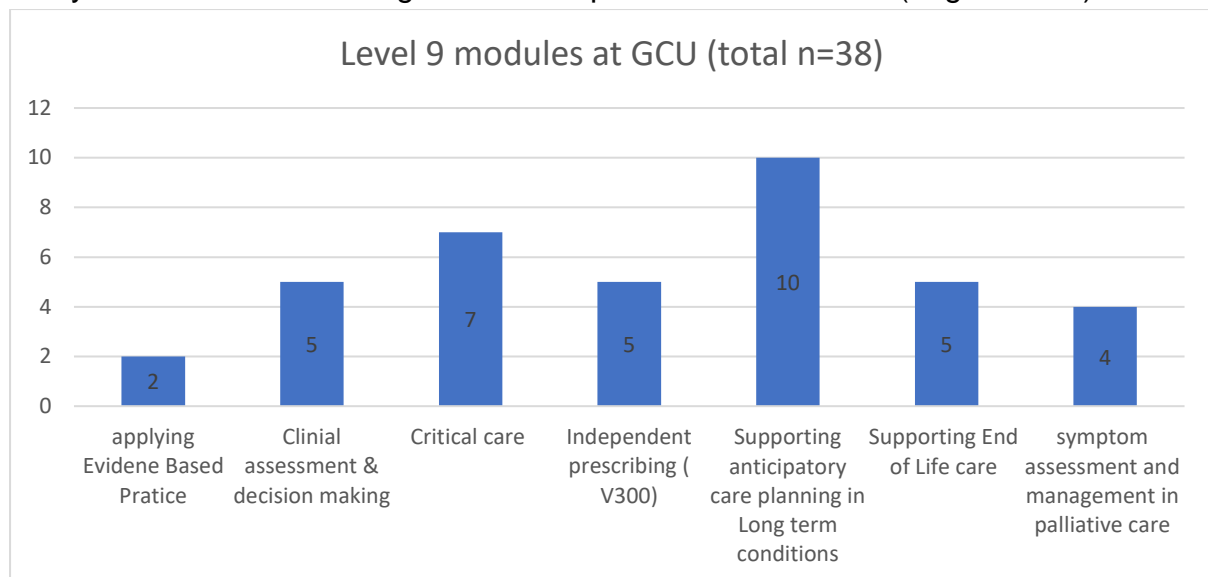
On-Campus MSK Physiotherapy Clinic; The MSK Physiotherapy Clinic on the GCU campus, a treatment location option for NHS physiotherapy, remains paused following the pandemic.

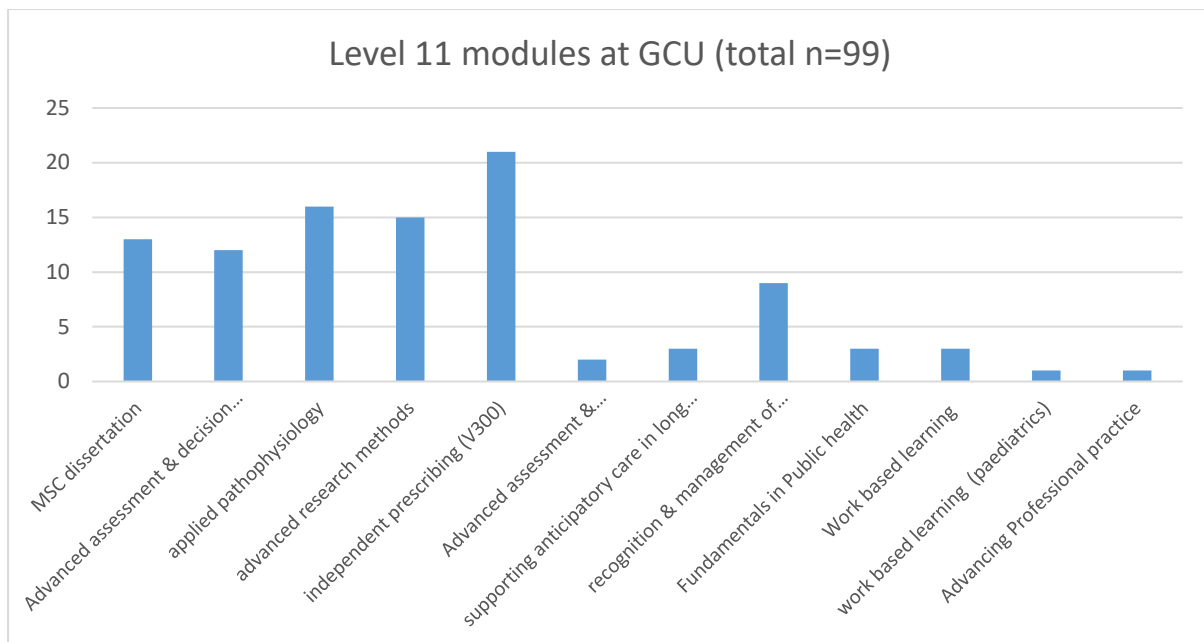
1.1.2. Partnership with Nursing education and training;

Working with the department of Nursing and Community Health Studies continues. In addition to the provision of practice learning experiences for Child and Learning Disabilities fields of nursing work continues to increase practice placement capacity with a view to incorporating Adult and Mental Health nursing students as part of a normal practice placement agreement. This work has been impacted on the systems pressures experienced over the past 12 months and the pace of service recovery, especially within community areas.

NHS Lanarkshire has been working closely with GCU to support the Return to Practice programme for nurses and midwives. This not only involves the provision of practice placements but has included NHS Lanarkshire staff teaching within the university setting. Over the course of 2021/22 10 Return to Practice students have been supported to meet the requirements for return to the Nursing & Midwifery Council (NMC) register.

Post-registration studies continue to be supported at GCU through a financial agreement. There is an increasing move to supporting more Masters level (level 11) study with 99 modules being funded compared to 38 at level 9 (degree level)





Over the course of the year there has been joint working to develop a lecturer practitioner role within Childrens services. This post is due to be recruited to in May 2022 and will increase the nursing joint lecturer/practitioner posts to three joint appointments.

As part of the recruitment strategy NHS Lanarkshire participated in the GCU student virtual careers fair and have engaged in the newly qualified practitioner recruitment process, with circa 116 students completing the NHS Lanarkshrie preference survey and invited to participate in matching conversations.

Future Areas for Exploration with GCU; GCU is keen to explore in conjunction with NHSL, creative ways to share simulation resources and expertise within the AHP professions.

The director of AHPs and the Vice Dean of the School of Health and Social Care at GCU continue to meet regularly.

Work is ongoing to link GCU to the Care academy approach in North Lanarkshire by promoting NHSL as a preferred employer.

1.2. University of Strathclyde

Practice Placements; The departments of Speech and Language Therapy and Orthotics and prosthetics continue to host student placements for both courses.

A proposal is being developed with the Sports and Physical Activity Department at Strathclyde University. This would create an agreement for NHS Lanarkshire to

provide 20 hours of placement experience for the year 3 BSc Sports and Physical Activity students.

Sports and Physical Activity BSc students; Over the course of 2021/ 22 a proposal has been developed to enable NHS Lanarkshire to provide placement experience for the year 3 BSc Sports and Physical Activity student (20 hours over an academic year), with the potential to host the Year 4 students in the academic year 2023/24 for their final year project.

A memorandum of agreement has been developed and is currently being reviewed by the Strathclyde team and NHS Lanarkshire areas are developing up placement specifications and details to enable the student to identify an area of interest to apply for. It is hoped that we will be welcoming our first BSc students in the academic year 2022/23. It is anticipated that the students will have their placements in falls, MSK, health improvement, etc. It should be noted that several of the students, on completion of their degree course, apply for fast-track MSc programs.

There may also be the potential to develop a non-registered AHP rehabilitation dispenser role to assist the challenges and shortfall of attracting registered AHP staff.

Student Pharmacist Experiential Learning Placements; In 2021/22, NHSL supported a total of 260 days of student placements with 58 students. This was spread across hospital pharmacies (100 days / 26 students), Specialist Pharmacy areas (80 days / 16 students) and Primary Care (80 days / 16 students). The proposals for 2022/23 are to increase to 305 days of student placements with 61 students with a similar distribution.

Undergraduate Pharmacist Teaching; The Department is working with UoS on future suggestions for course changes including teaching sessions, which would involve support from NHSL. The department has not been involved in direct UoS teaching since the start of the COVID pandemic NHSL Pharmacy did provide some face to face teaching prior to this and it is hoped that this will resume after the pandemic.

A senior NHS Lanarkshire Education & Training Pharmacist attends the quarterly Pharmacy Practice Support Network meetings hosted jointly by UoS and Robert Gordon University in Aberdeen. This meeting concentrates on undergraduate experiential learning and supports the review of the UoS Experiential Learning Handbook.

Postgraduate Pharmacist Education - Independent Prescribing Training; At present we have five pharmacists across in NHSL working with the University of Strathclyde to deliver the independent prescribing course.

1.3. University of the West of Scotland (UWS)

Strategic level; Due to restructuring and personnel changes within UWS there has been limited strategic level engagement however there are plans to reinvigorate the strategic partnership board as part of the work plan for 2022/23.

Operational level; The relationship with UWS continues to work well at an operational level with UWS being the main supplier for student nurses and midwives. NHS Lanarkshire provides practice learning placements for circa 930 UWS nursing and midwifery students over the course of 2021/22. As with GCU, work continues to build up and increase placement capacity as services recover, and to accommodate increased Scottish Government nursing and midwifery student targets.

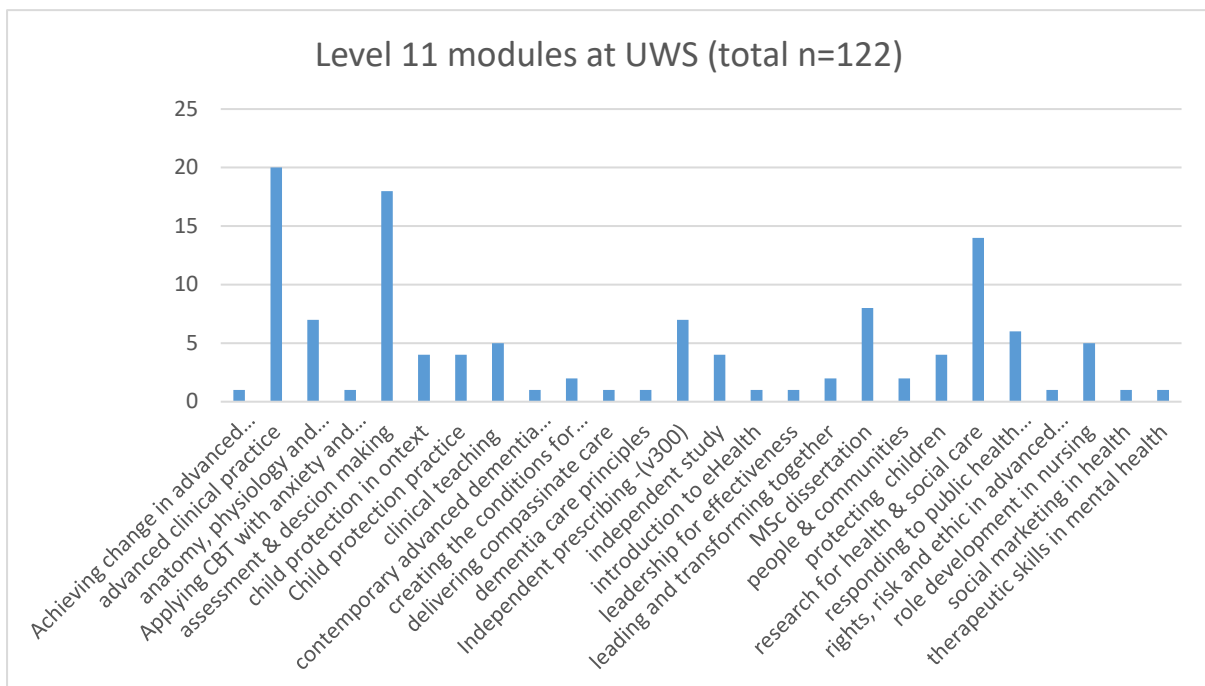
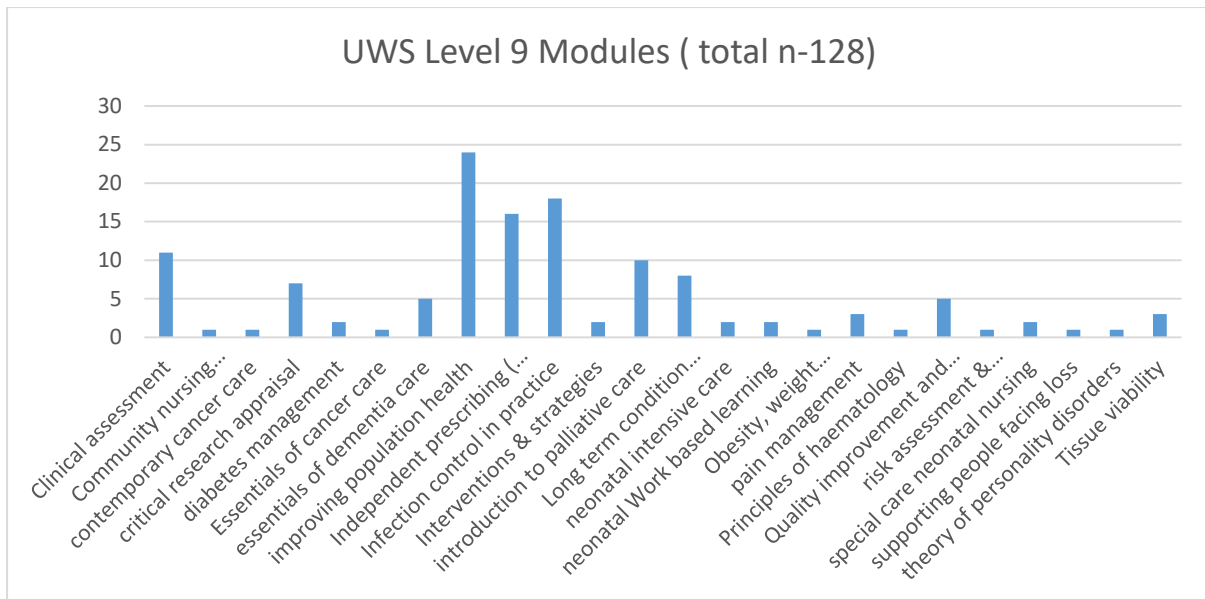
As part of the recruitment campaign for newly qualified nurses and midwives UWS students participated in NHS Lanarkshire's student preference survey, resulting in circa 330 being invited to participate in matching conversations

The BSc paramedic science programme continues with UWS, as regional provider. NHSL currently supports 60 students within non-SAS placements across first and second year of the programme and will continue to evolve placement support and capacity as the years progress.

UWS is the national provider for the Operating Department Practitioner programme. NHSL continues to provide practice placements for circa 20 students on this programme as part of the perioperative workforce.

In addition to pre-registration studies UWS is the Scottish Government preferred provider for the Specialist Community Public Health programme for health visiting and school nursing.

In addition to the post registration programmes highlighted above, through the annually negotiated Service Level Agreement UWS support a significant number of NMAHPs on the post registration studies:



Dr Judith McLeod has recently been appointed to UWS as Divisional Research Lead and meetings are scheduled to explore future collaborations.

1.4. The University of Glasgow and the University of Edinburgh

Undergraduate Medical Education; NHSL is being asked to take increased numbers of medical students, and at present this has been agreed, principally with the University of Glasgow, as they do not require accommodation. This reflects the national picture of increased medical school places. This trend is likely to continue, with a further 18% increase in numbers this last year. Exploratory discussions are planned with the University of Glasgow in this area.

In September 2022, NHSL will welcome our first students as 3rd year medical students on the Health Care Professional Edinburgh University Medical School course. These are mostly colleagues working in NHS Lanarkshire or neighbouring boards in roles such as physiotherapy and pharmacy, who have enrolled in this course, which is part time in Years 1-4 to enable them to continue working in their current roles whilst studying. They have during 1st and 2nd year had very successful placements in primary care within NHS Lanarkshire practices. These students will be based at University Hospital Monklands for their 3rd year placements. Although not normally included as part of the recruitment campaign for newly qualified practitioners, Edinburgh University expressed interest to be involved in the student preference survey. This has led to an additional three students participating in the matching conversations process.

NHSL continues our extensive placements of Glasgow, Edinburgh and Dundee University undergraduate medical students across most disciplines in the board area.

A number of colleagues have taken on central roles with the University of Glasgow recently, adding to our existing staff who have sessional commitments in central teaching roles; including Dr Anne Chapman and Dr Scott Oliver who take on roles in the delivery of Professionalism and Dr Annapurna Pandravada in central obstetrics and gynaecology teaching for the University.

Undergraduate Nursing & Midwifery Education; Currently NHS Lanarkshire does not support placement experience for the undergraduate nursing programme at University of Glasgow, however the Bachelor of Nursing (hons) students were invited to participate in the NHS Lanarkshire recruitment process for newly qualified nurses. Four students submitted preference surveys and have been invited to be involved in the matching conversations process.

1.5. The Open University

Nursing Education; Work continues with the Open University as NHSL enters into its fourth year of involvement with the institution for pre-registration nursing. There are currently 66 NHSL employed healthcare support workers engaged in the BSc nursing programmes. This summer will see our first cohort of five HSCW successfully graduate with BSc(hons) in Nursing from the OU

Discussions to examine a similar model for AHP professions with the Open University were commenced and will feed into the National AHP workforce and education review by Scottish Government. The Director of AHPs and the director of NMAHP Practice Development have had initial discussions with the Open University regarding the potential to develop an AHP apprenticeship model similar to the successful apprenticeship model offered by the Open University for nursing students.

1.6. Queen Margaret University (QMU)

Whilst there is not a strategic partnership currently with QMU, at an operational level practice learning placements for a number of pre-registration AHP programmes are supported by NHSL. Additionally NHSL supplements the Scottish Government funded School Nursing programme by accessing the post-registration programme at QMU for existing NHSL employed staff.

1.7. Edinburgh Napier University (ENU)

As a means to address some of the workforce challenges faced by midwifery across Scotland ENU has developed a post graduate diploma programme for registered adult nurses to become midwives over an 18-month period. In 2021/22 NHS Lanarkshire had one participant on the programme as a test of change and is looking to expand this in the next academic year.

Normally NHS Lanarkshire does not involve ENU in the recruitment campaign for nurses and midwives, however due to difficulties in recruiting children's nurses and learning disabilities nurse (both taught as preregistration programmes) it was agreed to include that student cohort in the preference survey for NHS Lanarkshire. Seventy students responded and have now been invited to take part in matching conversations.

Similar recruitment approaches for newly qualified nurses were undertaken with Robert Gordons University and the University of Dundee as they too offer children's and learning disabilities fields of practice. A further fourteen students took part in the preference survey and have been invited to participate in matching conversations.

2. Research, Development & Innovation

Several NHS Lanarkshire departments, and individual clinicians, have collaborative research relationships with academic colleagues that pre-date the formalising of our academic partnerships. Those pre-existing relationships have, in fact, underpinned the awarding of University Status to some of our clinical departments. The Stroke Department at Monklands Hospital, for example, has long-standing collaborative research links with both Glasgow Caledonian University and University of Strathclyde, with staff and students from both Universities regularly attending our regular Stroke Research Group meetings.

The formalising of our academic partnerships has seen a strengthening of these existing ties. More significantly, they have also opened up many new areas of collaboration.

It is important to stress the word 'collaboration' in this respect. Out with those NHS organisations that are co-located with University Medical Schools, the norm is that NHS organisations typically act as what is termed a 'Host-Sites' for research. They

enrol patients, provide treatment, gather data, etc., for the central (University) research team but are not typically involved in the ongoing planning of how the study should run, writing the study Protocol, the grant submission, analysing and publishing the results, etc. Our formalised partnerships are now enabling true ‘collaborations’, where NHS staff are co-authors of, or have input to, grant submissions, where they work jointly in planning NHS Ethics submissions, where they help plan infrastructure that will enable further collaborative working, etc. This is an evolving process; it will take time to grow and mature, but early signs are positive.

Two examples that touch on some of the more collaborative activities that are described above are summarised below. The first is an EU-funded multinational project in which NHS Lanarkshire and University of Strathclyde are working as symbiotic partners on a number of work packages; the second relates to the establishment of enabling infrastructure in the form of a Biorepository at University of Strathclyde as a satellite of the regional NHS Biorepository in Glasgow.

Analysis of the model of care for advanced chronic disease patients (ADLIFE)



Collaborating with University of Strathclyde on a major EU-funded Horizon 2020 programme of work involving sites in UK, Spain, Sweden, Denmark, Germany and Israel.

ADLIFE aims to “...*take the concept of integrated care further by providing a range of digital solutions to facilitate care provision for patients and carers and their communication channels with their health and social care professionals. We call this The ADLIFE Toolkit and this will be made available to patients with Chronic Heart Failure (CHF) and Chronic Obstructive Pulmonary Disease (COPD)...*” – see the ADLIFE website for more: <https://adlifeproject.com/>.

NHS Lanarkshire’s role includes provisioning (anonymised) patient data to develop a predictive model for an early warning tool for the ADLIFE Toolkit (*colleagues in eHealth are supporting this element*) and testing the Toolkit with patients as part of a formal research study (which will be supported by our R&D team).

The project is complex, with challenges to be overcome, such as the sharing of data across international partners and the recruitment of, and support for, our proposed research participants (*all people suffering from advanced Chronic Heart Failure (CHF) or Chronic Obstructive Pulmonary Disease (COPD)*).

This is an example of ‘projects’ that are emerging via the relationships with University partners that involve activities not classed – entirely - as research, but involving a component of research. The R&D Committee does have oversight of the research elements of the study but that does not extend to the whole ADLIFE Programme; that falls under the auspices of the Strategic Academic Partnerships Working Group.

University of Strathclyde / NHS Lanarkshire Research Satellite Biobank



The Senior R&D Manager has been working during the reporting period with colleagues in the Strathclyde Institute of Pharmacy and Biomedical Sciences, and with the Manager of the Chief Scientist Office (CSO)-funded NHS Research Scotland West of Scotland Biorepository, to work towards establishing a research tissue bank at the University. This follows on from discussions with clinical colleagues in a number of specialties in NHS Lanarkshire, including Breast Cancer care, Respiratory Medicine and Rheumatology who hope to collaborate on the development of new treatments in their areas of interest.

The University of Strathclyde-based Biobank will be established as a satellite biobank to the main NHS Biorepository based at Queen Elizabeth University Hospital, and will therefore fall under NHS governance processes as approved by the NHS Research Ethics Committee (NHS REC). The NHS REC approval is contingent on establishing an oversight governance group, and that is expected to include Patient Public Involvement as well as membership from the University and NHS Lanarkshire and the regional NHS Biorepository Manager.

This collaboration has significant potential for collaborative research in the coming years; more on the expertise and research interests of team from Strathclyde who are leading on this, and therefore the likely direction of travel with respect to research, is available via the following links:

- <https://www.strath.ac.uk/staff/ratrayzahradr/>
- <https://www.strath.ac.uk/staff/ratraynicholasdr/>

Similar to the above Biorepository plans, early discussions have taken place between Senior R&D Manager, Director of Information and Digital Technology and colleagues in NHS GG&C who host the West of Scotland NHS Data Safe Haven – another CSO-funded element of research infrastructure. The Data Safe Haven provides an approved and secure facility for enabling research access to fully anonymised and securely-held NHS data. Our work to date with University partners makes it clear that there is a strong desire to enable safe access to health data for the purposes of collaborative research – engaging with the NHS Data Safe Haven will facilitate this.

The above examples involve significant and ongoing joint working between NHS and University staff. Absent our formal academic partnerships it is unlikely that this level of commitment to joint activities would occur.

Alongside these larger collaborative research undertakings, NHS Lanarkshire continues to host individual, approved research studies and clinical trials that arise from our University partners. The growth in hosted research with our partners stalled during 2020 – 2021 as NHS research activities nationally were focussed on

understanding, and evaluating new treatments related to, the COVID-19 pandemic. As non-COVID-19 research has resumed across the board we are again seeing increasing volumes of NHS Lanarkshire-hosted research being carried out in the Board.

Appendix 1 of this report provides a summary of research projects being carried out, or planned, with our University partners. The Appendix describes the project status at time of writing – note that a number are in various ‘pre-active’ stages – e.g., marked as ‘Early Stage’ or ‘Proposed’. This reflects the opening-up of new areas of research activity as access to clinical services for non-COVID-19 research improves.

As mentioned above, the formal partnerships have enhanced some of the pre-existing collaborative relationships and have also enabled new relationships to flourish. This happens when academic and clinical interests coincide and where the priorities for the partner organisations (NHS and University) overlap.

The two examples below spotlight:

- The Respiratory Medicine department at University Hospital Wishaw – highlighted as a service that has embraced new collaborative working relationships since our academic partnerships were formalised
- The Stroke service at University Hospital Monklands – highlighted as a service that had pre-existing research links, but has expanded the nature of collaborative working as a result of the partnerships being formalised

Note that a number of other services - including, but not limited to, Ophthalmology, Rheumatology, Breast Cancer, Cytology, Microbiology, eHealth, Public Health, etc. - are developing similar links as our relationships continue to evolve, and engaging actively with University colleagues across a range of activities, including formal research.

Examples of department-level collaboration

Respiratory Medicine

Significant links have been made between the Department of Respiratory Medicine at University Hospital Wishaw (UHW) and the University Department of Digital Health & Care at UoS. Funding has been secured for a research registrar in respiratory medicine to be based in the department at UHW and he has commenced a PhD at the University.

Academic activity includes:

- Co-supervising a Doctorate of Philosophy (PhD) student investigating digital health applications to improve asthma care.
- Grant application: Co-applicants on an Engineering and Physical Sciences Research Council (EPSRC) grant (£750k) looking at improving asthma care

through the co-design, development and testing of a transformative patient-centric digital asthma pathway driven by human centric Artificial Intelligence.

- *Grant application:* Reducing Childhood Exposure to indoor Air pollution in Homes and schools (REACH project) – collaborators on grant application submitted to UK Research and Innovation (UK RI) and the Medical Research Council (MRC).
- Collaborating on a trial designed to test the effectiveness of saliva-based COVID-19 test (*described in Appendix 1*).
- Collaborating on pilot project to assess how Carbon Dioxide (CO₂) monitoring to assess air quality in NHS Lanarkshire sites could be used to inform actions to mitigate against airborne transmission of infections (*described in Appendix 1*).

University Department of Stroke Care at UHM

Building on the pre-existing research links with both University of Strathclyde and Glasgow Caledonian University, the stroke service has expanded its joint working with both institutions. As well as formal research, the service is now exploring more significant joint developments that will benefit Lanarkshire's patients. A sample of the work being undertaken is given below:

- Collaborating with colleagues in GCU on the PREdictors of COVID19 OUtcomeS (PRECIOUS) study, which is funded by the National Institute for Health Research (*described in Appendix 1*).
- Providing clinical supervision for three PhD Students - two from GCU, one from UoS. This type of activity opens up the potential of attracting staff to work in NHS Lanarkshire:
 - Firstly, it is hoped that the good experiences of the individual PhD students may encourage them to consider NHS Lanarkshire as an employer
 - Secondly, the partner Universities themselves are now looking at what models might help enable NHS Lanarkshire staff to undertake advanced studies, and how such models could potentially help attract clinical academics to NHS Lanarkshire.
 - One option being considered is creating job opportunities that enable staff to undertake part-time PhD or Masters in Research qualifications alongside a part-time clinical role, and where their research would be carried out in NHS Lanarkshire.
 - University of Strathclyde have raised the possibility of such an approach that could apply to AHPs working in stroke rehabilitation, and where the University would cover all academic fees for up to four staff members – thus avoiding fees of circa £75,000.

- Approaches such as these have the potential to attract high-quality professionals in hard-to-recruit-to areas where substantive, funded and persistent vacancies exist, and for retaining existing staff who have academic career ambitions.
- Collaborating with the Department of Biomedical Engineering at the University of Strathclyde to develop and run trials of co-created rehabilitation technology for supported self-management for patients who have had a stroke. This work will seek to address the lack of a scalable post-stroke rehabilitation service which maximises stroke survivor function and quality of life. Via the collaboration, NHS Lanarkshire patients will have the opportunity to access cutting-edge rehabilitation trials in the new Sir Jules Thorn Centre for Co-creation at Strathclyde University.
- A clinical academic (Speech and Language Therapist) from GCU has been seconded to NHS Lanarkshire to work on a collaborative project that involves training NHS Lanarkshire staff to implement the '*Goal setting and Action Planning (G-AP) framework*'. G-AP training enables rehabilitation staff to work in partnership with people who have neurological conditions, such as stroke, to find out what matters to them, and to set and pursue their personal rehabilitation goals.

The increase in the range of academic activity has not been limited to our formal partnerships, with additional grant applications and publications now being taken forward with other institutions such as University of Glasgow and University of Edinburgh. This *may* be an indication that academic partnership working facilitates additional beneficial networking; it will be worthwhile assessing whether this is repeated in other departments.

Public Health Directorate

The PH Directorate have continued working closely with UoS colleagues in various departments during the reporting period in several areas of work listed below:

- Ongoing work with Department of Management Sciences around use of modelling to support service planning around hospital bed utilisation for COVID 19.
- Scoping project to explore the use of modelling to understand demand and capacity trends to help predict optimum workforce requirements for care at home services in the future on behalf of both North and South HSCPs.
- Work around the role of misinformation and disinformation in vaccination uptake, an evidence review undertaken in collaboration with Department of Psychology and Department of Information Science to identify facilitators and barriers in vaccination uptake particularly among ethnic minorities and other hard to reach groups. This work undertaken with UoS during the pandemic helped to improve communication messages, targeting groups with low vaccination uptake rates.

- A needs assessment undertaken by two masters students using local and nationally published data to support understanding of what is needed to reduce alcohol related harm in Lanarkshire. The review focuses on data particularly in relation to inequalities to highlight gaps in data or evidence base as well as giving consideration to the impact of Covid-19. The review also includes analysis of readily available data on contact with health and care services for alcohol related issues with consideration being given also to how available information can be used to influence local licensing.

Understanding areas of enduring COVID-19 transmission in Lanarkshire (MSc project)

- During the pandemic some areas have been identified as “enduring transmission”. These are areas which have higher incidence rates over considerable periods of time compared to other areas. Understanding this provides a greater insight into where the burden has been greatest and provides evidence to help inform measures for any future waves of the pandemic. The student is investigating the areas which had enduring transmission and some of the factors that may have contributed to this and considering this in the context of the published literature on this topic.

Early warning system and dashboard development (MSc project)

- UoS have previously provided data from an early warning system to help predict the local direction of the pandemic. The data sources that are now available to monitor COVID-19 are very different compared to early in the pandemic. The project is looking at how best to refine this dashboard to include the different data sources that are now available at a local, national, UK and international level.

Predicting High Resource Use in Health Services via Explainable AI Models

- National and local work has highlighted the need for a more anticipatory and predictive approach to the identification and management of those who are frequent attenders in order to move from a system that is reactive, dealing with events once thresholds are met, to one that can identify a person's risk of becoming a frequent attender early in their trajectory. This approach will enable early intervention and support utilising a multiagency support model in the community, reduce unscheduled service use for these individuals, and improve outcomes for patients.
- PH along with North HSCP and UoS are currently exploring the feasibility of undertaking research to develop and test new explainable AI approaches to predict frequent attenders in NHS Lanarkshire. The research will target the use of state-of-the-art AI models to support the prediction and human centric analysis of FA.

3. University Departments:

Just prior to the start of the pandemic, three of our departments were successful in being awarded University Departmental status. These are

- **The University Department of Stroke Care at University Hospital Monklands**
- **The University Department of Psychological Services (pan Lanarkshire)**
- **The University Department of Podiatry (pan Lanarkshire).** It has been noted by the Head of the UK College of Podiatry that this is the first such university department of podiatry in the UK, so a UK first for the GCU/NHSL partnership.

Our three university departments continue to prosper. In Podiatry applications to join our department have significantly improved in the last year, up from five at band 5 last year to twenty-two this current year.

The three departments university departmental status will be due to be considered for renewal February 2023 and as such each department is currently working up its documentation of application for renewal and it is hoped that these will be successful.

4. Honorary Appointments:

Eight of our senior staff been given honorary chairs in the last year by the University of Strathclyde;

- Professor Mark Barber (Care of the Elderly)
- Professor Robin Munro (Rheumatology)
- Professor Angus Macdonald (Surgery)
- Professor Josephine Pravinkumar (Public Health)
- Professor Gabe Docherty (Public Health)
- Professor Manish Patel (Medicine)
- Professor Andy Smith (Medicine)
- Professor Eamonn Brankin (Primary Care/Medicine)

One member of staff has been given an honorary chair at the University of Glasgow – Prof Sir Gregor Smith, the CMO, who remains on secondment from NHSL.

Mr Natarajan Balaji (ENT) and Dr Ann Chapman (Medicine) have been given associate professorial status at this University.

In addition, three more of our senior AHP staff have been given honorary fellowships in the School of Health & Life Sciences at GCU:

- Mr Jamie Quinn (Podiatry)
- Mr Scott McNab (MSK Podiatry Lead)
- Mrs Janice McClymont (Head of Occupational Therapy)

The earlier awards of honorary fellowship to Mrs Margot Russell, Mr Peter McCrossan, and Mrs Claire James are currently being considered for renewal.

Dr Gary Tanner has also become an honorary senior lecturer.

Two members of staff have become honorary research fellows at the University of Strathclyde:

- Dr Gary Tanner (Psychology)
- Mrs Katrina Brennan (Stroke Service)

Details of staff working in our partnership universities who have been given honorary status in NHS Lanarkshire in order to facilitate ongoing collaboration are detailed in the tables below;

University of Strathclyde (this list represents an increase of seven new honorary academic staff now contributing to the life and work of NHSL)

Professor Roma Maguire	Visiting Professor of Digital Health & Care	Computer & Information Sciences, Digital Health & Care
Dr Kim Kavenagh	Honorary Senior Statistician	Mathematics & Statistics
Dr Robert Van Der Meer	Honorary Reader In Management Science	Management Science / Business School
Ms Gillian Anderson	Honorary Research Associate	Management Science / Business School
Mr Chandrava Sinha	Honorary Research Assistant	Management Science / Business School
Professor Terry Gourlay	Visiting Professor of Biomedical Engineering	Biomedical Engineering
Professor Phil Rowe	Visiting Professor of Rehabilitation	Biomedical Engineering
Mr Roy Bowers	Visiting Principal Teaching Fellow	Biomedical Engineering
Dr Sylvie Coupaud	Visiting Lecturer in Biomedical Engineering	Biomedical Engineering
Dr Mario Giardini	Visiting Senior Lecturer in Digital Health	Biomedical Engineering
Mr Chris Gourlay	Visiting Researcher	Computer & Information Sciences, Digital Health & Care
Professor Anja Lowit	Visiting Professor	Speech & Language Therapy
Dr Anja Kushmann	Honorary Chancellor's Fellow	Speech & Language Therapy
Dr Joanne Clelland	Honorary Senior Lecturer	Speech & Language Therapy
Dr Wendy Cohen	Honorary Senior Lecturer	School of Psychological Sciences & Health
Professor Maggs Watson	Honorary Professor of Pharmacy	Institute of Pharmacy & Biomedical Sciences
Professor George Crooks	Honorary Professor	Digital Health & Care Institute
Professor Feng Dong	Honorary Professor	Computer & Information Sciences, Digital Health & Care

Professor Sir Harry Burns	Honorary Professor	Public Health
Dr Alex Mavroeidi	Honorary Senior Lecturer in Physical Activity for Health	School of Psychological Services & Health
Dr Alison Kirk	Honorary Reader in Physical Activity for Health	School of Psychological Services & Health
Dr Xanne Janssen	Honorary Senior Lecturer in Physical Activity for Health	School of Psychological Services & Health
Ms Mhairi Patience	Honorary PhD Student	School of Psychological Services & Health
Mrs Carolyn Andrews	Honorary Teaching Fellow	Speech & Language Therapy
Dr Grainne McGill	Honorary Chancellor's Fellow/Lecturer	Department of Architecture

Glasgow Caledonian University;

Professor Anita Simmers	Dean	School of Health & Life Sciences
Profssore Helen Gallagher	Vice Dean	School of Health & Life Sciences
Dr Nicola McLarnon	Associate Dean, Learning Teaching & Quality	School of Health & Life Sciences
Professor Fred Van Wijck	Profesor in Neurological Rehabilitation	School of Health & Life Sciences
Dr Gordon Hendry	Senior Research Fellow	School of Health & Life Sciences
Professor Jacqueline Mccallum	Professor of Nursing	School of Health & Life Sciences
Professor Joanne Booth	Professor of Rehabilitation Nursing	School of Health & Life Sciences
Professor Lawrence Elliott	Profesor of Nursing	School of Health & Life Sciences
Professor Lorna Paul	Professor of Allied Health science	School of Health & Life Sciences
Professor Niall Strang	Profesor of Vision Sciences	School of Health & Life Sciences

5. Summary

Overall, significant progress continues to be made across the NHS Lanarkshire and the Health and Social Care Partnerships in academic collaboration with partner universities.

It is of note that much of this has been achieved through the goodwill and enthusiasm of NHSL staff, many of whom do not have any formally agreed time commitments to undertake this work.

There has been an expansion not only in the volume of collaborative work undertaken but also in the complexity of projects and in the increasing diversity of links between NHS Lanarkshire and multiple departments and individuals across our strategic partnerships. This is evidenced in collaborative working in areas as diverse as the Board's Fall and Rehabilitation Strategies (*which benefit from expert input from Professor Skelton from GCU*) through to proposed work on 'Law and Information Governance in Healthcare' (*in collaboration with University of Strathclyde and the Digital Health & Care Innovation Centre [DHI]*).

There is a mutual desire to explore many more projects and areas of innovation that often require short notice decision making associated with modest sums of fixed term investments.

Further progress in this area will require some increase in operational management support and some resource allocation which would ensure alignment to the Board's strategic plans for 'Our Health Together', the Monklands Replacement Project and the pandemic recovery plans.

Contributors

Dr Jane Burns, Executive Medical Director

Prof Eamonn Brankin, Associate Medical Director, (Strategic Academic Liaison)

Mrs Margot Russell, Director, Practice Development Centre

Mr Peter McCrossan, Director of Allied Health Professions

Mrs Christine Gilmour, Director of Pharmacy

Mr Raymond Hamill, Senior Research & Development Manager

Dr Ian Hunter, Director of Medical Education

Project ID: ES_21017 *University partner / lead organisation:* Glasgow Caledonian University

Project title: **PRECIOUS - PREdictors of COVID19 OUtcomeS** (*status: Early Stage*)

Lead collaborators:

NHS Lanarkshire: Mark Barber, Andrew Smith, Manish Patel and Claire McGoldrick

University partner: Professor Marian Brady

Project summary:

More than 257 million people worldwide have had COVID-19. More than 5.1 million people have died, and millions will need health and social service support. COVID-19 has cost more than £750 billion. In the UK, more than 1.1 million people have Long-COVID: when symptoms last more than 3 weeks. These numbers continue to grow.

At first, researchers aimed to stop COVID-19 from spreading and to save lives. Now, we urgently need information about the long-term effects of COVID-19 to provide better care, including identifying who needs support, what kind of support and how much it costs

Project ID: L22039 *University partner / lead organisation:* Glasgow Caledonian University

Project title: **Family Project Based intervention after TBI; a feasibility study V1** (*status: Proposed*)

Lead collaborators:

NHS Lanarkshire: Lynn Grayson

University partner: Professor Kay Currie

Project summary:

Communication difficulties are very common following traumatic brain injury (TBI) and have been found to affect not just the person but also their family for many years following the event. Difficulty socialising and maintaining relationships with others following TBI can result in reduced confidence, low mood, unemployment, family breakdown and loneliness. Very few studies have explored how we can help people following TBI more than one year after the injury, however, or actively involved them in designing communication training programmes to make sure they meet their needs. Working with people following TBI and their families to co-design a new therapy is desperately needed as more than 60% of family members taking part in a recent international survey reported that they did not feel that any of their communication needs had been met. Project based interventions (PBI) have been found to improve the communication abilities of people following TBI but no studies have actively included family members within the therapy. The aim of this project is therefore to explore whether project therapy can be used with people following TBI and their families working together as a team to improve communication. We will invite people following TBI, and their family members, who are more than 12 months following their injury and live in either Lanarkshire or Greater Glasgow and Clyde to take part in the project. The first part of the project will involve people following TBI and family members meeting in small groups on four occasions over three months to create, design and produce the adapted family focused project therapy. The second part of the project will test this adapted family therapy with 8 families over a period of twelve weeks to find out whether it will work and is acceptable to both people following TBI and their family members.

Project ID: ES_22006 *University partner / lead organisation:* Glasgow Caledonian University

Project title: **MAvERIC** (*status:* *Early Stage*)

Lead collaborators:

NHS Lanarkshire: Prof Eamonn Brankin / Prof Roy Scott / Mr Alex Vesey, Stewart Marshall

University partner: Sean Paul Carroll

Project summary:

Phase 2 study. Peripheral Arterial Disease (PAD) is a common vascular disease which is symptomatic in 2.4% of 50 to 89 year olds in the UK population 6. Symptomatic PAD initially presents clinically as limb pain and reduced exercise intolerance termed Intermittent Claudication (IC). Patients with PAD and IC have impaired quality of life due to reduced physical capacity and 3-4 times increased mortality compared to age and sex matched controls 7.

Improving daily physical activity (PA) is particularly important in individuals with IC as lower PA levels have been recognised as a strong predictor of increased morbidity and mortality in this population. 8–10 Supervised exercise programs are recommended in clinical guidelines with proven efficacy to help increase physical activity, improve quality of life and contribute to secondary prevention of adverse cardiovascular events (ACVE). Despite this, provision of classes is varied geographically which may limit uptake and adherence, moreover, the COVID-19 pandemic discontinued the provision of these classes. Therefore, there is a need for investigation of alternative methods of increasing physical activity remotely during, and post-pandemic.

Project ID: ES_22003 *University partner / lead organisation:* Glasgow Caledonian University

Project title: **A feasibility study to assess the effectiveness of an enhanced patient consultation on patient outcomes (Cataract Project/Hairmyres)**
(*status:* *Early Stage*)

Lead collaborators:

NHS Lanarkshire: Dr Doug Lyall

University partner: Ambreen Hussain / Catriona MacLennan

Project summary: Protocol TBC (*currently in development*)

Project ID: L22018 *University partner / lead organisation:* Glasgow Caledonian University

Project title: **Investigating immersive VR for People with MS and Upper Limb**
(*status:* *Active*)

Lead collaborators:

NHS Lanarkshire: Niall MacDougall

University partner: Ms Amy Webster

Project summary:

Virtual reality (VR) has reported benefits of engagement, immersion, and motivation in rehabilitation and has been proposed to be a solution for long-term engagement in rehabilitation. However, the use of VR within the multiple sclerosis (MS) population is not widely investigated and the optimal dose of therapy, such as frequency, time and intensity,

especially regarding immersive VR that uses headsets remains unclear. The main aim of this study is to assess the feasibility of using the Oculus Quest VR headset and games for improving upper limb function within the MS population. In this study, we are looking to recruit participants with MS who have some self-reported upper limb dysfunction who will be randomly assigned to either an eight-week intervention using VR and upper limb exercise games, or the control group of usual care. Participants will be required to travel to Glasgow Caledonian University or NHS Lanarkshire (Coathill Hospital, Coatbridge) for the intervention and assessments. The VR intervention will use the Oculus Quest headset to play immersive VR games that have been designed by a co-production method, gathering data from people with MS and MS-specialists. After completion of the intervention, participants who undertook VR intervention will complete a survey regarding the usability of the games, and some individuals will be invited to interviews to express their experience of using VR and any suggestions for improvement for potential future trials. All participants will undertake testing at baseline, four weeks and eight weeks for multiple outcome measures of upper limb and motor function.

Project ID: L21062 *University partner / lead organisation:* University of Southampton
Project title: **CaDET** (*status: Early Stage*)

Lead collaborators:

NHS Lanarkshire: Christine Paterson

University partner: Suzanne Hagan

Project summary:

Multicentre trial of the clinical and cost effectiveness of a novel urinary catheter design in reducing catheter-associated urinary tract infection compared with the traditional Foley design for adults requiring long-term catheterisation

Project ID: L19011 *University partner / lead organisation:* University of Strathclyde
Project title: **Measuring Personal Agency in Hospice Patients (V1)** (*status: Active*)

Lead collaborators:

NHS Lanarkshire: Ms Ann Campbell

University partner: Ms Ann Campbell (*follow-on from student project*)

Project summary:

This is a measure development study aimed at constructing valid and reliable measures of personal agency in hospice patients. In a previous study carried out in St. Andrew's Hospice, categories of personal agency, were robust and consistent across patients, suggesting that they could be used to construct a valid and reliable self-report measure. It would also be useful to develop an observational measure of personal agency, as patients may not always be able to complete self-report measures. The purpose of this study is to evaluate how well personal agency can be measured using these two methods with hospice patients.

This study will also be carried out in St. Andrew's Hospice. Self-report (HLPAsr) and observational (HLPAso) forms will be used in a pilot study with a sample of ten patients from Day Hospice. Following that study, the number of items will be reduced, based on significance, representativeness and feedback. The new shortened measures will be tested with a new sample of forty patients, twenty from Day Hospice and twenty from in-ward.

These 50 patients (including the 10 pilot study patients) will each be asked to fill out the shortened self-report form either by themselves or with assistance of the investigator, using pen and paper. Each shortened observational report will be filled out, using pen and paper by one or more nurses from Day/In-patient Units. For the Day Unit sample, measures will be filled out once a week over six weeks; for the in-ward patients, reports will be carried out about 6 times, over a 1 to 2 week period, as appropriate.

Analysis: This phase will indicate whether the criteria of construct validity, stability and consistency are met, using correlations between successive measures for test-retest reliability; correlations among nurse/researcher observation for interrater reliability; correlations between observational and self-report versions for convergent validity.

Project ID: L20104 *University partner / lead organisation:* University of Strathclyde

Project title: **(SNAC Test): Evaluating a novel Saliva-based Nucleic ACid Test for infection by SARS-CoV-2** (*status: In follow-up*)

Lead collaborators:

NHS Lanarkshire: Manish Patel

University partner: Iain Hunter

Project summary:

This project evaluates a novel methodology using a simple saliva-sample to test for the infective agent (SARS-CoV-2) in patients. The novel nucleic acid Test ('SNAC Test') is compared to the existing 'standard care' NHS Polymerase Chain Reaction test ('NHS PCR Test') used for diagnosis of Covid-19.

The NHS PCR Test uses cell samples obtained using nasopharyngeal (nose and throat) swabs. Many patients find the process uncomfortable - the methodology has been cited in Scottish Government press conferences as a barrier to getting samples from older people, particularly those with, for example, dementia. Even with younger patients, nose/throat swabbing is inconsistent and could lead to incorrect results ('false negatives') due to poor sampling technique.

Saliva as an alternative biological fluid circumvents many of these issues:

- Obtaining a sample is easy – simply providing saliva in a sterile container
- For people who have difficulty providing a 'spit' sample, saliva samples can be obtained via swabs or 'saliva sponges' dipped into saliva that pools in the mouth
- PPE is not needed if the patient provides the sample themselves – e.g., outwith the hospital setting

The novel test has two technical advantages:

(1) the inventive methodology makes it potentially more sensitive than the NHS PCR Test, hence saliva being an alternative sample source, and

(2) it contains an internal 'positive' control for saliva circumventing the 'false negative' issue that can occur due to poor nasopharyngeal sampling technique.

We will also assess patients' views of two alternative methods for collecting the saliva. This is in support of the NHSScotland National Laboratories COVID-19 Saliva Testing Working Group, which is assessing how to integrate alternative testing approaches into NHS labs.

Such a disruptive change in methodology needs to be validated and compared against the current NHS PCR Test, which our study aims to do.

Project ID: L21011 *University partner / lead organisation:* University of Strathclyde
Project title: **Connected Symptom Management - Feasibility Study** (*status:*
Proposed)

Lead collaborators:

NHS Lanarkshire: Dr Catriona Ross

University partner: Roma Maguire

Project summary:

While the majority of people would prefer to die at home (Hoare et al 2015), only 23.5% of people do so compared to 46.9% who die in hospital, (Public Health England, 2018).

However home care at the end of life has been shown to improve patient outcomes and reduce costs as well as increase satisfaction for informal carers (Shepperd et al 2016).

Although support for informal carers alongside patients has long been advocated, this is often ad hoc with healthcare systems typically focusing on patients' needs.

Technology has the potential to deliver solutions in relation to healthcare and the feasibility of using telehealth in palliative home care is growing, improving access to health care professionals at home and enhancing feelings of security and safety (Steindal et al 2020). The global pandemic has significantly impacted the delivery of palliative care services making adoption of technology that is both high-tech and high-touch, overcomes limitations of social distancing and supports people and their carers is now more essential than ever.

This study will explore a digital system to support patients receiving palliative care at home, and to support their informal carers.

This system will capture health information electronically and securely and share this with their healthcare team allowing them to respond appropriately and promptly, provide users with access to information that could maintain or improve their wellbeing thereby using technology to improve service provision and user outcomes.

The study will take place in 4 sites across the UK including hospices and hospitals. Patients with advanced cancer (lung or gastro-intestinal) or advanced respiratory diseases, and their informal carer will participate for up to 12 weeks.

A range of outcome measures completed throughout participation will explore the feasibility and usability of the system as well as its impact on quality of life and healthcare utilisation.

Project ID: L22021_PIC *University partner / lead organisation:* University of Strathclyde

Project title: **Happier Feet: Diabetic foot ulcer self-management & social support**
(*status: Proposed*)

Lead collaborators:

NHS Lanarkshire: Dr Claire James

University partner: Andrew Eccles (Chief Investigator)

Project summary:

The study addresses a consistently problematic issue in personalised health care technologies over the past two decades; that is, uneven user adoption and weak longer term use. The problems are multiple, complex and often interacting, but three elements stand out:

(a) the disconnect between the assumptions of efficacy among technologists and the actual 'lived

experience' of users using the technologies

(b) the lack of different technologies to be able to connect and 'talk' to each other

(c) over-ambitious assumptions about users' capacity to 'self manage' their conditions

These issues are well documented in the evaluations of technology use which, in the nature of the process, reflect on usage after the technologies have been rolled out. The social science research points to discourses around health care technologies which marginalise user experiences and to a failure to put user voice at the centre of design. A further – and still under-researched – area is the role of health and care practitioners and informal carers in the management of these technologies; they too are ‘endusers’ in that they may be required to interpret data and make decisions accordingly. Thus, the reality of ‘self-management’ can be readily misunderstood.

NHS Lanarkshire is acting as a Participant Identification Centre for this study; as such our staff involvement is limited to identification of potentially-eligible participants (individuals with diabetic foot ulcers).

Project ID: L20128 *University partner / lead organisation:* University of Strathclyde

Project title: **ADLIFE** (*status: Proposed*)

Lead collaborators:

NHS Lanarkshire: Gabriela Maxwell

University partner: Roma Maguire

Project summary:

ADLIFE is a European project funded by Horizon 2020 and involves 12 partners from nine countries, collaborating in research to improve the health and quality of life of the elderly population living with advanced chronic diseases. Our key areas of interest are digital health, innovation and integrated care.

As people are living longer with chronic conditions, there are challenges with providing sustainable, quality health and social care services to allow people to live independently in home and community environments.

We already know that providing integrated care services has been identified as a key way to support people with chronic conditions receive quality care. In ADLIFE, we will take the concept of integrated care further by providing a range of digital solutions to facilitate care provision for patients and carers and their communication channels with their health and social care professionals. We call this The ADLIFE Toolkit and this will be made available to patients with Chronic Heart Failure (CHF) and Chronic Obstructive Pulmonary Disease (COPD).

Project ID: L22046 *University partner / lead organisation:* NHS Lanarkshire

Project title: **Validation of a Digital Cytology System** (*status: Active*)

Lead collaborators:

NHS Lanarkshire: Allan Wilson

University partner: Feng Dong / Roma Maguire

Project summary:

The study seeks to validate an innovative new technology that uses artificial intelligence, image analysis and high resolution monitors to assist in the detection and classification of abnormal cells in the cervical cytology samples taken from participants in the Scottish Cervical Screening Programme.

Project ID: A_22001 *University partner / lead organisation:* University of Strathclyde
Project title: **Impact Acceleration Account (IAA) - story telling & storyboarding**
(*status: Non research project*)

Lead collaborators:

NHS Lanarkshire: Mrs Alison Lannigan

University partner: Clare McLaren

Project summary:

the project involves a public engagement event in which we come together with patients, clinicians and scientists. All participants will be receiving training on story telling and storyboarding their journey experience. Some of these stories will be showcased during a social event and recorded as podcasts for future public engagement.

Project ID: L19009_PIC *University partner / lead organisation:* University of Strathclyde

Project title: **A study of the effectiveness of a leg splint during walking** (*status: Active*)

Lead collaborators:

NHS Lanarkshire: Mr Robbie Rooney

University partner: Stephanos Solomonidis (Chief Investigator)

Project summary:

Improving walking ability for patients with a dropped foot is one of the top priorities of stroke rehabilitation. Drop foot is a condition that makes it difficult to lift the front part of the foot and toes which can cause the foot to drag on the ground during walking. The use of lower leg splint aims to restore independent walking ability by support, hold, and control the ankle and foot.

This study aims to gain a thorough understanding of ankle joint load during walking in stroke patients and the effects of wearing the lower leg splint on this load. Therefore, load sensors will be attached to the splint, by a suitable adhesive, to record the loads in the splint during walking. The results of this study may influence clinical decision making in choosing splint design and material that best matches the patient needs.

Twenty Stroke participants from Greater Glasgow and Clyde and Lanarkshire health boards will be recruited.

Participants will be invited to attend three sessions for no longer than 2 hours each at the National Centre for Prosthetics and Orthotics at the University of Strathclyde. The first session will be a quick screening session to determine whether the participant can be included in the study if so a plaster of Paris cast of the participant lower leg will be taken. The second session (one week later) will be to check the splint fitting, comfort and function. The third session (two weeks later) will be to record the participants' walking on a treadmill with and without wearing the splint.

Reflective markers and electrodes placed on the participant lower limbs will be used to record the lower limb movements and the knee muscles activities, respectively. Force plates in the treadmill will be used to record the forces during the test.

Project ID: University partner / lead organisation: University of Strathclyde
Project title: **Strathclyde optically pumped magnetometers and healthcare applications**
(status: In early discussions)

Lead collaborators:

NHS Lanarkshire: Various consultants from cardiology, respiratory, stroke, obstetrics, paediatrics, neurology

University partner: Stuart Ingleby

Project summary:

As described by Dr Ingleby: "...OPM development at Strathclyde is conducted in the Department of Physics and has been supported by UK National Quantum Technologies Programme, EPSRC, Innovate UK and MoD (through dstl and DASA). Our team at Strathclyde have leading expertise in cell microfabrication and unshielded OPM techniques, and our research is focussed on demonstrating practical sensors in real-world applications. We have demonstrated lab-based sensitivity of 5 fT.Hz^{-1/2} and a portable sensor with 70 fT.Hz^{-1/2} sensitivity. Our active projects will deliver compact SERF OPMs for biomedical imaging, unshielded sensor arrays for industrial applications, accurate calibration-free sensors for geophysics, and noise-cancelling gradiometer systems for use in the presence of background magnetic fields. We are interested in adjacent or complimentary applications for these devices, and biomedical magnetic signals offer this opportunity..."

Project ID: ES_21024 *University partner / lead organisation:* University of Strathclyde
Project title: **SENSOR-based Environmental Response System for HEALTHcare (SENSE-HEALTH)** (status: Early Stage)

Lead collaborators:

NHS Lanarkshire: Professor Stephanie Dancer, Dr Manish Patel, et. al.

University partner: Tim Sharpe

Project summary:

Hospital wards (and other health care environments) repurposed for Covid-19 may not have been designed to achieve recommended ventilation rates for infectious disease treatment rooms. Ventilation is an important modifier of Covid-19 risk. We will work with NHS Lanarkshire to evaluate the effectiveness of an early warning sensor system based on carbon dioxide (CO₂) sensors. The warning system would be coupled with a protocol for implementing interventions aimed primarily at improving ventilation. This will help minimize risk to hospital workers, patients, and visitors. We will co-design the warning system and intervention protocol with relevant staff members. The proposed study would provide initial data on the feasibility of using CO₂ sensors to estimate ventilation in hospital settings and obtain information to inform selection of interventions for future work

Project ID: University partner / lead organisation: University of Strathclyde
Project title: **University of Strathclyde Biobank** (status: being submitted to NHS Ethics)

Lead collaborators:

NHS Lanarkshire: Raymond Hamill

University partner: Drs Nik and Zahra Rattray

Project summary:

(Note: the following update has also been provided in the R&D Annual Report 2021-22)

The Senior R&D Manager has been working during the reporting period with colleagues in the Strathclyde Institute of Pharmacy and Biomedical Sciences, and with the Manager of the NHS Research Scotland West of Scotland Biorepository, to work towards establishing a research tissue bank at the University. This follows on from discussions with clinical colleagues in a number of specialties in NHS Lanarkshire, including Breast Cancer care, Respiratory Medicine and Rheumatology who hope to collaborate on the development of new treatments in their areas of interest.

The University of Strathclyde-based Biobank will be established as a satellite biobank to the main NHS Biorepository based at Queen Elizabeth University Hospital, and will therefore fall under NHS governance processes as approved by the NHS Research Ethics Committee (NHS REC). The NHS REC approval is contingent on establishing an oversight governance group, and that is expected to include Patient Public Involvement as well as membership from the University and NHS Lanarkshire and the regional NHS Biorepository Manager.

This collaboration has significant potential for collaborative research in the coming years; more on the expertise and research interests of team from Strathclyde who are leading on this, and therefore the likely direction of travel with respect to research, is available via the following links:

- <https://www.strath.ac.uk/staff/ratrayzahradr/>
- <https://www.strath.ac.uk/staff/ratraynicholasdr/>

Project ID: UoS_21001 *University partner / lead organisation:* University of Strathclyde

Project title: **Inside the NHS toolbox**
(*status: Active*)

Lead collaborators:

NHS Lanarkshire: Sandeep Thekkepat

University partner: Marilyn Lennon + Marian Medieros (PhD Student)

Project summary:

Full title - *Inside the NHS toolbox: using an NHS Lanarkshire dataset to validate single measurement of cortisol in adrenal insufficiency.* The project involves analysis of a dataset of paired (anonymous) samples of cortisol measurements for 2100 patients from NHS Lanarkshire. The project aim to predict at which value the baseline sample will indicate a value of >450 nmol for the 30 min sample on the Short SynACTHen (SST). During the SST, we take two samples from the patient – first at baseline, then an injection of synthetic ACTH is given and then a second sample is tested.

On the second sample if the cortisol is >450 nmol/l then the patient is deemed to have adequate adreno cortical reserve. Repeating the test has a service / time cost, as well as an inconvenience for the patient. The question is at what value (and above) of morning cortisol (baseline sample) will one be able to predict a 30 minute value over 450 nmol/l.

Project ID: ES_22008 *University partner / lead organisation:* Univesrity of the West of Scotland

Project title: **The impact of COVID-19 on nurses caring for patients with cancer in Scotland: a qualitative exploration** (*status: Early Stage*)

Lead collaborators:

NHS Lanarkshire: Mhairi Simpson

University partner: Dr Constantina Papadopoulou

Project summary: Qualitative project, interviewing nurses working in cancer care in Lanarkshire to explore their experiences of providing care to patients during the COVID-19 pandemic.

Project ID: L21020 *University partner / lead organisation:* Univesrity of the West of Scotland

Project title: **COVID-19 Impact using the Novel COVISTRESS Questionnaire** (*status: Proposed*)

Lead collaborators:

NHS Lanarkshire: No local investigator

University partner: Chris Ugbolue

Project summary:

A global health emergency based on the COVID-19 outbreak was declared and countries more susceptible to the COVID-19 situation included those with compromised, weak or vulnerable healthcare systems. During the COVID-19 global pandemic it became apparent that the lives of the citizens of the world would be affected from a public health, lifestyle and economy perspective. As a consequence, the spread of the COVID-19 pandemic continued to grow which gave rise to observing quarantine measures, social distancing measures, hospitalization / bed rest measures and risks of physical inactivity brought about by immobilization. This study aims to evaluate the effect of COVID-19 in Scotland on leisure physical activity, sedentary action, emotional feelings, oral health, sleep patterns, nutrition and ophthalmology among participants with and without coronavirus using a validated novel COVISTRESS questionnaire (<http://www.covistress.org/index-en.html>)

Project ID: L22040 *University partner / lead organisation:* University of the West of Scotland

Project title: **A meaningful insight into mothers' experiences of domestic abuse** (*status: Proposed*)

Lead collaborators:

NHS Lanarkshire: Yet to be confirmed – NHS Lanarkshire service has suggested changes to the Protocol

University partner: PhD Student

Project summary:

This study addresses the retrospective experiences of mothers during periods of domestic abuse. Domestic abuse is a significant global public health issue, affecting 1 in 3 women (WHO, 2013); throughout the Coronavirus epidemic, this has gained further attention as the prevalence of domestic abuse has heightened (Scottish Government, 2021), and the impact on victims, children and families has become more apparent. Women who experience abuse suffer a plethora of psychological and physical health issues, as do their children (WHO, 2013), and consequently they present frequently to healthcare settings (Lundell et al, 2017).

Despite the known incidence and prevalence of domestic abuse in communities, it is also known to be widely underreported (Decker et al, 2012), and women face many barriers to disclosing abuse, many of which relate to the healthcare setting (Decker et al, 2012). The pandemic lockdown restrictions have resulted in an increase in requests for help from victims, while also limiting women's contact with others, access to services, and opportunities to disclose (Social Care Institute for Excellence, 2020).

This Hermeneutic study aims to explore the relationships that women have had with health professionals during periods of abuse, and identify how these relationships with Health Visitors, midwives, GPs, might have promoted or prevented disclosure of abuse. Women who have experienced abuse while their children were aged 0-5 and within the last 5 years will be invited to participate. Data will be collected via semi-structured interviews, using the life history calendar framework to produce a visual timeline (Yoshihama et al, 2002; Nelson, 2010).

Women will be recruited from areas within Scotland that are accessible to the researcher, via Health Visiting caseloads, and also via Women's Aid organisations. It is anticipated that findings could influence policy and practice within Scotland.

Project ID: ES_22013 *University partner / lead organisation:* University of the West of Scotland

Project title: **Young Onset Dementia** (*status: Early Stage*)

Lead collaborators:

NHS Lanarkshire: Sowmya Munishanker

University partner: Lawrence Hayes

Project summary:

Pilot project to compare people with YoD (Young onset dementia) to controls for functional capacity, physical activity, cardiac and vascular function, respiratory function, physical performance, muscular health, and mental wellbeing.