

Summary

The mission of UCL Elizabeth Garrett Anderson Institute for Women's Health (IfWH) is better lives for women and babies across the world. We bring together the expertise of clinicians and researchers from a diverse range of disciplines to deliver excellence and innovation in research, clinical practice, education and training in order to make a real and sustainable difference to women's and babies health locally, nationally and worldwide.

The IfWH Strategy renewed in Q3 2018 for 4 years, is focused on the four departments of the Institute: Maternal and Fetal Health, Neonatology, Women's Cancer and Reproductive Health, with a cross-cutting theme of Global Health. We were successful in our renewal application for a Gold Athena Swan Award in May 2021, one of only a handful of academic departments in the UK to be thus acknowledged for excellence in Equality, Diversity and Inclusion (EDI). Our first Gold Award was in 2016.

IfWH is the leading centre for Women's Health research in the UK, taking a unique life-course approach. The vision over the next 1-5 years builds on this platform, ensuring succession of staff after the retirement of senior academics, develop our Early Career Research track including investment in nursing and midwifery research, and build better links with other Institutes within the Faculty of Population Health Sciences particularly in Global Health and Clinical Trials and Methodology. Women's Health research was not part of the successful NIHR UCLH Biomedical Research Centre renewal (BRC4) in October 2022. We have proposed a Women's Health theme based around the UK government DHSC Women's Health strategic priorities to discuss with BRC leads. Long term, IfWH requires a transformative consolidation of research, administrative, teaching and public space to truly deliver the Institute's potential as one of the world's leading centres for women's health. We have launched our fundraising Case for Support with support from the UCL Office of Vice Provost Advancement (OVPA)) and await the outcome of the UCL Strategy review before we hope to work with OVPA further to develop a fundraising initiative around new IfWH space.

1 year focus:

Senior succession planning:

1. Appoint a Professor/Associate Professor of Gynaecological Cancer (50:50 clinical/academic) to regenerate the Department of Women's Cancer and lead investment and grant funding initiatives for research, scientific discovery, and translation in the speciality (business case approved Feb 2021).
2. Appoint 1 x Associate Professor in Women's Cancer Science to capitalise on the legacy generated by the late John Timms and his Proteomics group (business case approved Feb 2021 and following discussions with FHPS Dean July 2022).
3. Secure a proleptic appointment for an Associate Professor in Neonatology (Hon Consultant at UCLH) to be interviewed in Nov 2022.
4. To appoint an Associate Professor in Reproductive Health to replace upcoming retirement.

Funding:

1. Successful application for IfWH to be part of the new Tommy's Charity Centre for Preterm Birth (interview Nov 2022). This would bring in £800k to the Institute, linking with 3 other London institutions (KCL, QMUL & Imperial), strengthen our reputation and unique skills in pre-clinical & early phase pregnancy clinical trials in preterm birth & placental insufficiency, and neonatal outcome assessment.
2. Launch a midwifery fellowship scheme in preterm birth using the Annie McCall UCL Legacy. This will provide up to £50k for 2 rounds of one year fellowships to invest in development of midwifery clinical academics.
3. Build better links with ICTM and CCTU with regard to clinical trials in women's health, and research evidence synthesis to increase amount of funding coming to UCL and success in trial applications.

4. Application for a Reproductive Health Policy Research Unit made in October 2022.
5. Maintain current Eve Appeal funding for Professor Widschwendter's Women's Cancer team to support research into risk prediction and prevention of Women's cancers.

Our five years strategic priority aims are listed under the relevant sections below.

Due to the extraordinary year we have had in 2020 we did not have an Away Day to follow upon our 2019 focus points, but we plan a Strategy review and refresh in Q1 2023 once the UCL and FPHS Strategies are published.

The main focus points for 2019 following the Away Day were:

- **Improve the communication of our strategic vision** to all Institute and UCLH Women's Health staff, funders, the public and potential donors around which the IfWH can develop their fundraising initiative for consolidated space. We launched our Fundraising Case for Support with OVPA at our 2020 Extraordinary Meeting in December 2020.
- **Develop our Global Health research and education focus in women's and newborn health** by linking with other Institutes within FPHS and externally (eg LSHTM) with a view to improving the health of women and their families in low-and middle income countries. Recent updates include the following:
Education: We have developed teaching collaborations between IfWH and IGH including:
 - An IfWH staff member who co-leads the Global Maternal and Child Health module with an IGH staff member.
 - We have explored opening this module to the Women's Health iBSc but as this course has no optional modules this has not yet been possible.
 - IfWH staff members are supporting teaching on IGH modules such as Gender and Health
 - There are a number of IfWH modules that are open to IGH students and vice versa.Research: We have regular meetings between IfWH and IGH to discuss research interests and consider joint grant applications.
 - Capacity for collaborative grant applications with LMIC institutions has not been possible during COVID but there is appetite to work together. The reduction in ODA funding is likely to reduce success rates. Work is ongoing to help mitigate effects. Team members from IfWH (Hall and Hillman) has been engaging with members from the UCL Research Services Team and funding bodies (Medical Research Council) to investigate potential strategies to secure funding.

Other international activities and partnerships will be outlined in the relevant section.

- **Enhance the postgraduate research structure for nursing and midwifery** by developing closer links with the UCLH Centre for Nursing and Midwifery Research (CNMAR). In October 2020, a CNMAR funded Lecturer in Midwifery based at UCLH and IfWH (Dr James Harris) was recruited to Chelsea & Westminster Hospital/Imperial College as a Senior Clinical Lecturer in Evidence Based Midwifery. Since then Rachel Taylor, Director, CNMAR, Honorary Associate Professor at IfWH has been supporting midwives and nurses to apply to the NIHR for Predoctoral Clinical Academic Fellowships as a route to successful PhD fellowship applications. We are currently investigating legacy funding to UCL IfWH to support a women's health nursing and midwifery PhD program to push this agenda forward.

Achievements from 2019

Education: Research student numbers have steadily grown in spite of the phasing out of the MD(Res) from the end of 2019. Currently we have 55 Postgraduate Research students. The start of the Early Career Research group in 2020 has enhanced the activities and training for Research students in the institute. Opportunities for students to do activities with peers in the institute has been important to make students feel part of a cohort especially when the IfWH lacks a single site building.

We now run 4 MSc programmes, currently 89 students and one MRES with 14 students (September 2022). An innovative successful new MSc in Obstetric Ultrasound was set up by Dr Raffaele Napolitano, UCLH Fetal Medicine Consultant and Hon Associate Professor in Obstetrics in collaboration with UCLH and the second cohort of students started in September 2022.

Our IBSc programme currently has 30 students to include 5 external students, the programme started in 2016 with 13 students.

A UCL-led national training programme in bereavement care has been successfully piloted with two courses running at UCL since November 2021.

We run a MOOC (Making Babies in the 21st Century) which is available to the public as well as a student only version for our MSc students.

Main achievements in Research (*full summaries can be found in the appendices*)

Maternal and Fetal Medicine

We have secured funding to research Extracellular Vesicles (EV) as a cell-free therapeutic and the use of genome editing for personalised medicine. This complements the gene and stem cell therapy programmes currently developing clinical trials for treatment of brittle bone disease and early onset fetal growth restriction. We have recently secured a Wellcome Leap grant collaboration with Dept Neonatology on optical imaging for stillbirth prevention. The MFM department works on the edge of discovery to develop innovative treatments to counteract gestational diabetes and prevent stillbirth (Dimitrios Siassakos, David Williams), preterm labour (Ashley Boyle, Donald Peebles, Anna David), placental and fetal cardiac dysfunction in obese women (Owen Vaughan), pre-eclampsia (Sara Hillman, David Williams), skeletal fragility (Pascale V Guillot), neonatal brain damage (Pascale V Guillot and Mariya Hristova), open and fetoscopic surgery for spina bifida (Anna David, Adalina Sacco), magnetic resonance imaging of the fetus and placenta (Roz Aghwane), Dravet syndrome (Rajvinder Karda), childhood inherited genetic diseases including Gaucher disease (Simon Waddington), acute fatty liver of pregnancy (David Williams), and bleeding disorders in women and neonates (Rezan Abdul-Kadur).

Reproductive Medicine

The Reproductive Health Department covers research that spans the lifecourse from gametes to menopause. The Sexual & Reproductive Health Research Group (led by Judith Stephenson) has led the field of pregnancy planning and preconception health through work with PHE, health visitors, primary care and others. The department successfully hosted the 5th European Conference on Preconception Health at UCL IfWH in September 2022. They also published the first national 'report card' to describe and monitor the state of preconception health in England. Jenny Hall, Bola Grace and Catherine Stewart have been funded by the UCL translational research office to develop a digital platform that brings together their work on pregnancy preferences / reproductive intentions. The group helped design and implement the CAP COVID study which has shown that women found it ten times harder to access contraception during the first lockdown (from late March 2020), resulting in at least a doubling of

unplanned pregnancies. The study went on to show a link between Sars-CoV2 infection in early pregnancy and an increased risk of miscarriage.

Eric Jauniaux is leading an international group investigating the pathophysiology of accreta placentation and improving the diagnosis and management of placenta accreta spectrum.

Paul Hardiman has been investigating arterial function in neonates born to mothers with polycystic ovary syndrome.

Joyce Harper is a key player in the development of the Human Fertilisation and Embryology web site on IVF add-ons and was a co-author of the consensus paper on add-ons. She has set up the International Fertility Education Initiative within ESHRE which aims to improve fertility and reproductive health awareness through education. She has also published her book 'Your Fertile Years'.

Zeynep Gurtin has been appointed as an Authority member of the Human Fertilisation and Embryology Authority by the Department of Health and Social Care.

Vansanti Jadva has introduced new research on social and psychological consequences for children of growing up in new family arrangements involving non-cohabiting co-parents, transgender parents, elective single fathers and identifiable egg donors.

Suzy Buckley has initiated work on solo mothers and also the removal of gamete donor anonymity.

Jackie Nichols is developing research on ways women's consent/choice-making is invisibilised in multiple ways.

The Preimplantation Genetics Group continued pioneering work started by Joy Delhanty on premeiotic aneuploidy in oocytes. Other work led by Sioban SenGupta on gene expression has identified markers of oocyte and embryo quality.

Helen O'Neill was awarded a UKRI Innovations Scholars Secondment award starting February 2021 for three years; project title: The Use of A Combined Clinical Symptom and Biomarker-Based Model to Predict Risk of Developing Reproductive Conditions and Fertility Potential. The vision of the project is to address two major challenges (1) the lack of access to reproductive testing and (2) the lack of diagnoses for common reproductive pathologies.

Melanie Davis is the CI on the NIHR BLUSH trial (OxyButynin for non-hormonal treatment of hot flashes) and POISE study (Premature Ovarian Insufficiency Study of Effectiveness of hormonal therapy).

Sohier ElNeil has been appointed Chair of NHSE Research and Education Committee in Mesh and Associated Pelvic Floor Disorders

Women's Cancer

Analyses of the large sample collection assembled during the H2020 FORECEE project have led to multiple publications (Barrett et al 2022a,b,c; Herzog et al, 2022). These publications include data for DNA methylation markers that can identify any of the four women's cancers (breast, ovarian, endometrial, cervical cancer) in a cervical liquid-based cytology sample. Preliminary data are also available to show that the markers can predict the development of cancer. A new study initiated in 2022 at UCLH, in collaboration with Professor Davor Jurkovic, is now comparing the performance of the DNA methylation markers with transvaginal ultrasound in the detection of endometrial cancer (EPI-SURE, ISRCTN16815568).

Data from the unique BRCA UNITE holistic sample collection in women who carry a BRCA mutation showed that that BRCA carriers have higher levels of progesterone and oestrogen exposure over the course of the menstrual cycle compared to women without the mutation (Bartlett et al, 2022). Assessment of daily hormonal profiles in women with a germline mutation have not been previously undertaken. The study also identified DNA methylation markers in breast cancer cells that could be modified by the antiprogestin mifepristone, suggesting that mifepristone could reduce the risk of triple negative breast cancer in women with an alteration of the BRCA1 gene.

Our UKFOCSS research team presented the primary analysis on the impact of screening for ovarian cancer in high risk women and published the paper in the Journal of Clinical Oncology. The successful completion of the trial was highly commended in the accompanying Editorial and presented at ASCO. The first ever NHS ovarian cancer early detection service pilot completed in 2020. Led by Adam Rosenthal, the UCLH Cancer Collaborative launched the pilot project of an NHS ovarian cancer surveillance service for women who carry a faulty BRCA gene and have chosen not to have their ovaries and fallopian tubes removed. The pilot, known as the ALDO project (Avoiding Late Diagnosis in Ovarian Cancer), recruited >800 women aged over 35 from across England between 2018 -2020 and used a blood test as part of an NHS service to detect ovarian cancer amongst BRCA-carriers before they have any symptoms. The project has just reported in the Journal of Medical Genetics and heralds a significant step towards meeting the recommendations in the National Cancer Strategy to improve early diagnosis. In a remarkable first for psycho-oncology, we initiated work with psychology colleagues in UCLH cancer services where we lead the UK training and research hub for the international clinical roll out of an expressive therapy designed specifically for advanced cancer patients. This is the only example of practitioners being systematically trained in an RCT evidenced talking therapy.

Neonatology

The department's pioneering internationally recognised neonatal neurology and pain research has continued to be successful along with the long established international excellence in neonatal neurodevelopmental follow up. In addition it has demonstrated particular strengths in acute care in neonatal neuroscience, advanced neuromonitoring, optical and MR imaging and neonatal respiratory and intensive care. The department has been very successful in pioneering novel therapeutics for acute neonatal encephalopathy (NE) and respiratory distress syndrome (RDS) and has pioneered the study of neonatal pain (Meek, Fitzgerald). Recent awards of a £2.9M MRC grant for the development of stem cell therapy for asphyxia (Robertson), a £1.5M award from the Bill and Melinda Gates Foundation (Robertson) and a £2.8M MRC grant for the development of recombinant surfactant protein D to prevent neonatal chronic lung disease (Clark) and over £1M in grants for pain research (Meek, Fitzgerald) mark out UCLH neonatal unit as an innovative pioneering centre in acute care of sick neonates. The research training supported by these awards includes training in commercialization of novel therapy with industrial [partnerships (eg Chiesi Farmacia, Vectura and Astra Zeneca) assisting in the translation of basic science findings from bench to bedside.

No other neonatal unit in the UK has the breadth of research addressing acute care for the sick neonate. Funding from the MRC - £2.8 M for novel therapeutics to develop new therapy to prevent neonatal lung disease (Clark), and £2.9 M to develop stem cell therapy for birth asphyxia (Robertson), based on laboratory models of respiratory (Clark) and neurological injury (Robertson, Gates Foundation, £1.5M) . Acute care is supported by novel technology in assessing fetal lung maturity (Clark, Co-I -EPSRC £1M) and pioneering the use of near infra red spectroscopy (NIRS) in clinical care of asphyxia (Wellcome Trust £1M, S Mitra). The unit at UCLH delivered the first ever cot side optical monitoring of brain metabolism in neonatal encephalopathy and neonatal seizures using broadband near infra-red spectroscopy (NIRS), the first ever 31P MR spectrum obtained from a human brain as early as 1983 (in a baby with neonatal encephalopathy) and identification of secondary energy failure in a baby following perinatal hypoxic ischaemic injury. Multidisciplinary collaboration with a team of medical physicists and biomedical engineers within UCL, have developed novel optical technologies to monitor neonatal brain and resulted in a state-of -the-art optical platform that can monitor brain haemodynamics and metabolism at the cot side. Together with EEG and multimodal monitoring of systemic parameters, this optical system promises a new era in acute neonatal neuromonitoring in neonatal intensive care. This is currently being used in the neonatal unit in UCLH for an early assessment of injury severity using optical biomarkers following neonatal encephalopathy and identification of real-time changes in brain physiology during neonatal seizures and the relationship to their future outcome.

The department at UCLH hosted the leading neurodevelopmental outcome research programme in the UK (Marlow, EPICURE over £9M from MRC,) Marlow now retired.

The current senior investigators on the UCLH Neonatal Unit combined have supervised 25 PhD and MD theses over the past 10 years and have authored over 500 research publications on neonatal topics.

Strategic Goals for Planning Cycle from 2021

Academic Strategy

Teaching

Our Institute continues to excel in education as reflected by the student barometer and overall student experience. Our MSc programmes have been running for over 20 years. Recruitment continues to be healthy without marketing but we have discussed marketing with UCL over the next five years to attract men to IfWH as part of our EDI strategy. Our MRes programme was launched in 2019 to allow greater laboratory time to postgraduate students who wish to undertake an in-depth research project. Although it was not open in 2020 due to COVID, we reopened the program in Q3 2021 with its largest student cohort to date.

We reorganised our Senior Education Team in 2021 with new co-Directors of Education and 4 new Programme Directors for the MSc and MRes programmes. At the same time, we have enlisted many new module co-leads to spread the workload of teaching more equitably throughout the department. These roles also allow junior and mid-career academics to gain experience of teaching and leadership roles for their promotion portfolios.

Like most departments, our PTES results for 2020/21 were poorer than in previous years due to the disrupted teaching during the COVID-19 pandemic. In addition, our response rate was lower than usual (34%) making it difficult to interpret too much from this data. Nevertheless, we achieved scores above the Faculty average in areas such as Teaching and Learning and Student Engagement. One notable area of relatively low scoring was Organisation and Management at least partly due to chronic under-staffing of our Teaching administration roles.

Since July 2022 IBSc, MSc and Research students administration have moved to the Faculty, this was the outcome of the Education, Administration and Student Experience Review (EASE). We retain 3 MBBS administrators.

Our Research Skills week was introduced in 2020 to provide iBSc and MSc/MRes students with information and skills relevant to their research projects. This blended week of face-to-face, live online and offline recorded resources has again received excellent feedback. We continue to deliver one of the most comprehensive careers and employability programmes in UCL over six sessions. Numerous alumni help with the delivery of these sessions and the feedback continues to be very positive.

We have continued to respond to student feedback regarding additional academic and pastoral guidance throughout the student journey. Programme Directors began weekly meetings with their cohorts during the first lockdown in 2020 and these have now become embedded in our educational practise. These sessions give students a frequent and informal place to bond with their peers, ask questions and discuss any concerns.

Our innovative new MSc in Obstetric Ultrasound in collaboration with UCLH started in Q3 2021 and successfully brings together academic excellence and specialist clinical training in fetal imaging to enhance employability to students who graduate from the course. This is the first such course launched in collaboration with UCLH. If successful we plan to investigate an MSc in Gynaecologic Ultrasound, another area with a lack of postgraduate training.

The iBSc has four set modules and no optional modules to ensure that we had adequate student numbers in the first few years. This academic year iBSc students from other medical schools are now eligible to enrol. We are developing a BSc programme in Global Women and Child Health (jointly between IGH, ICH and IfWH). It is envisaged that the BSc students may take the iBSc modules. In the long term, as student numbers increase on the four iBSc modules, we can introduce an optional module programme into the iBSc.

We are developing our life-long learning. As well as several face to face workshops, our first MOOC “Making Babies in the 21s Century” was launched in 2016. We aim to complement these courses with further distance learning and life learning courses.’

We have had great success with bringing in NIHR competition funded Academic Clinical Fellow (ACF) and Academic Clinical Lecturer (ACL) posts at IfWH, not only in O&G (1 UCL funded NIHR badged ACL 2020) but also in Sexual and Reproductive Health (SRH, 3 ACFs in 2019, 2020 and 2021) and in neonatology (1 ACL in 2022, the first such post at UCL).

Two clinical ACF trainees were successful in MRC funded Clinical Training Fellowship applications for 3 years PhD funding on projects on ‘Stillbirth’ and ‘In utero stem cell transplantation’.

A business case was approved to transfer 2 PAs to a Honorary Senior Lecturer and Consultant in Reproductive Medicine at UCLH, due to the reduction in 2 PAs for an Associate Professor in Reproductive Medicine who had retired and returned and is due to fully retire in Nov 2022.

Vasanti Jadva has taken over the teaching load previously carried out by Helen O’Neill who is on secondment for 3 years.

As part of research into communication between doctors and parents on the neonatal unit we have developed a novel training package to improve mutual understanding and parent choice in making difficult decisions about their child. This will form an important cornerstone for teaching professional communication practice. This work led to the first 2-day communication workshop Jan 27-28 (Nottingham) focusing on post natal depression after loss of pregnancy/stillbirth and will continue annually. The importance of this work was flagged by an **NIHR Alert (NIHR Research) 2021**

Marlow N, Shaw C, Connabeer K, Aladangady N, Gallagher K, Drew P. End-of-life decisions in neonatal care: a conversation analysis analytical study. *Arch Dis Child Fetal Neonatal Ed.* 2021;106:184-188

Selected as an NIHR Alert: <https://evidence.nihr.ac.uk/alert/parents-meaningfully-involved-care-decisions-critically-ill-baby-when-given-options-not-recommendations>

We launched two new scholarships in 2021, a BAME MSc and a BAME PhD Scholarship award, the first MSc scholarship has been awarded to a student on the MSc Women’s Health programme. A second BAME scholarship was awarded to a student on the MSc Reproductive Science and Women’s Health in 2022.

The EGA Hospital Charity Trustees launched and awarded a Resesarch scholarship to fund PhD fees in 2022, the aim is to encourage clinicians and scientists to study at the Institute.

In 2023 we will launch across UCL Partner Hospitals a midwifery fellowship scheme using the Annie McCall UCL Legacy. This will provide up to £50k for 2 rounds of one year fellowships to invest in development of midwifery clinical academics.

Education 5 years strategic priorities 2022-2027

- Aim: to develop the next cadre of clinical academics in O&G, Neonatology and Sexual Reproductive Health by increasing our opportunities for Clinical Academic Trainees through consistent success in securing NIHR ACF and ACL posts at IfWH, and by generation of locally funded NIHR badged posts; conversion of these ACF and CLs into successful competitively awarded PhD fellowship applications.
- Aim: to grow our postgraduate taught programs in gynaecology through the development of an MSc Gynaecologic Ultrasound in collaboration with Women’s Health Division at UCLH, building on a successful MSc Obstetric Ultrasound launched in 2021.
- Aim: to develop our undergraduate taught programs through exploring a BSc programme in Global Women and Child Health (jointly between IGH, ICH and IfWH).

- Aim: to increase the under representation of BAME UK students on our programmes through the introduction of BAME scholarships which will provide mentored fellowship opportunities for students at Masters and PhD levels.

Research

Over the past 5 years the Institute has led on over 260 funding applications, achieving an average success rate of 30%, with a combined award value £23.2m.

In 2020/21 we were successful in having financial approval to recruit to a number of posts, 2 in Women's Cancer, one clinical professor and associate professor, a lecturer in Maternal and Fetal Medicine, a clinical lecturer in Neonatology and a 0.5fte grants costing officer.

We have also been awarded 5 NIHR trainees (2 Fellows and 3 Lecturers) to commence in 2021-3.

Maternal and Fetal Medicine Goals:

- Establish a new cell-free therapeutic using small extracellular vesicles (Evs) for the treatment of musculoskeletal diseases and cerebral pathologies.
- Develop personalised medicine for the treatment of the rare disease osteogenesis imperfecta including recruiting patients for a first-in-human clinical trial of in utero stem cell transplantation to treat osteogenesis imperfecta.
- Commence an MRC DPFS funded pre-clinical efficacy study of a novel maternal gene therapy for severe fetal growth restriction using adenovirus VEGF vector;
- Determine the mechanistic role of miR-142 and placental extracellular vesicles in preventing cardiac dysfunction in obese women.
- Establish fetoscopic surgery for spina bifida *in utero* at UCLH/UCL in collaboration with Professor Jan Deprest from KU Leuven, Belgium.
- Map the maternal-fetal interface at a single-cell resolution to interrogate the aetiology of severe pre-eclampsia and identify potential disease markers.
- Secure joint funding with American collaborators (UCSF) to investigate maternal fetal immune mechanisms (NIH funding).
- Sign off a joint PhD program between UCL IfWH and KU Leuven, Belgium in perinatal therapy.
- Secure a patent for preterm labour therapy; and complete proof of principle studies to determine whether AAV vector delivery of an antimicrobial peptide to the cervical epithelium can prevent ascending infection related preterm birth in pregnant mice, with PDRA support for Dr Ashley Boyle.
- Securing grant funding to assess the pre-clinical effectiveness of gene and stem cell therapy for congenital neurological disease and perinatal brain injury in particular research council, EC and Wellcome Trust funding;
- Develop gene editing for Gaucher Disease.
- Secure a patent for gene therapy for an inherited childhood mitochondrial disease, in collaboration with Nandaki Keshavan, Shamima Rahman, Rajvinder Karda and John Counsell.
- Launch a national global bereavement training course at UCL short course; and global care principles.
- Validate virtual joint UCL obstetric training package with University Dar es Salaam, Tanzania.
- Expand portfolio of diabetes-focussed stillbirth prevention research.
- Lead large women's health RCTs with funding from NIHR.
- Successfully apply to be part of the Tommy's Charity Centre for Preterm Birth (interview Nov 2022). This would bring in £800k to the Institute, linking with 3 other LondonLondon institutions,

strengthen our unique skills in pre-clinical & early phase pregnancy clinical trials in preterm birth & placental insufficiency, and neonatal outcome assessment.

Neonatology Goals:

Acute Respiratory Care of the Newborn and Infants

- Orphan Drug Designation has been obtained for Recombinant human SP-D as a treatment for neonatal RDS to prevent the development of neonatal lung disease.
- Aim to execute a phase 1 safety trial of rfhSP-D in neonatal lung disease.
- Results from phase 1 safety trial likely to be available by end of 2022- plan for further DPFS application July 2022 for phase 2a trial of rfhSP-D to assess efficacy.
- Complete a mechanistic study of surfactant metabolism along with the RCT of surfactant therapy 2022/3 in ventilated infants with bronchiolitis (NIHR funding- £374k).
- Participate in new trial of nebulised surfactant for treatment of neonatal RDS in collaboration with Aerogen therapeutics.

Staffing:

To secure a proleptic appointment for Dr Subhabrata Mitra as Associate Professor in Neonatology (currently on a Wellcome Trust 4 year Clinical Research Career Development Fellowship, 'Investigating the impact of seizures on newborn brain').

To appoint an Academic Clinical Lecturer in Neonatology (funding secured already).

Preclinical Neuroprotection Studies (Nikki Robertson)

- To deepen collaborations related to pre-clinical neuroprotection studies with the Roslyn institute, University of Edinburgh.
- To assess efficacy of an optimised dosing schedule of melatonin for augmenting hypothermic brain protection based on prior PK data and determine whether early clinical trials warranted.
- Continue to pursue DPFS funding (>£5m) for multi centre trial of melatonin in neonatal encephalopathy – ACUMEN study.

Near infrared spectroscopy (Subha Mitra, Nikki Robertson (neuro) Howard Clark, Jens Madsen (resp)

- To assess cerebral metabolism in relation to development of brain injury in preterm infants early in life.
- To investigate the complexity and variability in systemic and near infrared signals following perinatal brain injury in relation to outcome.
- To develop further optic near infra red and Raman spectroscopy as a rapid meansexplore application of assessment of fetal lung maturity (EPSRC Funded).

Capacity Building and Training

- To appoint NIRS to the ACL post-fetal brain in Neonatology after badging as NIHR late gestation and labour.
- To support development of nursing led academic programme in the neonatal unit.

Reproductive Health Goals:

Our strategy is to be recognised for world class research in reproductive health through, clinical, epidemiological ,qualitative and basic science approaches. Setting up strong collaborations with primary

care, IVF units, diagnostic centres, the HFEA and other organisations will help move research forward. Our research goals include:

Staffing:

Succession planning to appoint an Associate Professor in Reproductive Health to replace an Associate Professor who will retire in November 2022.

Reproductive Science and genetics:

- Securing grant funding for the reproductive science and genetics groups.
- Establishment of social science projects including social egg freezing, motherhood over 40, childlessness over 50, and how do parents tell their children about donor conception?
- Development of a new area of research - FemTech – to include work with app companies and research into menstrual cycle, fertility and pregnancy apps.
- Social science research on menopause
- Develop research on fertility education.
- To expand the scope of preimplantation genetics research to disease prediction in later life.
- Follow up work on the use of add-ons in IVF.

Gynaecology Research:

- Successful conclusion of the NIHR VESPA study.
- Developing new clinical and basic science protocol on the pathophysiology on the effect of uterine scarring on implantation and placentation.
- To develop research related to the work being carried out in the London Complex Mesh Centre

Pregnancy prevention, planning and preparation:

- Apply for NIHR Research Professorship for a current Associate Professor to implement and evaluate ways to normalise conversations about pregnancy planning to reduce unplanned pregnancies and adverse pregnancy outcomes.
- Successful application to NIHR for a Policy Research Group in Reproductive Health.
- Appoint a post-doc Fellow to work on linkage of national datasets in order to build reproductive health trajectories and support research to improve pregnancy planning and birth outcomes.
- Obtain funding to expand the work and impact of the UK Preconception Partnership (chaired by J Stephenson).
- Gain approval for the implementation of a validated measure of unplanned pregnancy (LMUP) into routine antenatal care nationally (over 600,000 births pa in England).
- Validate new measures of future pregnancy preferences and reproductive autonomy with non-pregnant women in the UK.
- Establish a future funding model for a popular interactive website to aid women's choice of contraceptive method, developed at IfWH www.contraceptionchoices.org
- Apply for funding to investigate new areas, including the relation between preconception vaginal microbiome, pregnancy and birth outcomes; and the relationship between folic acid and tongue tie.
- Take on two new PhD students with interests aligned to our research programme.

Women's cancer Goals:

To maintain and expand our productivity and our keen-edged research focus on predication, early detection and prevention of women's cancers we need to:

- Appoint a Professor/Associate Professor of Gynaecological Cancer (50:50 clinical/academic) to regenerate the Department and lead investment and grant funding initiatives for research, scientific discovery, and translation in the speciality.
- Appoint 2 x Associate Professors in Women's Cancer Science to capitalise on the legacy generated by the late John Timms and his Proteomics group.
- Play a central role in UCL's highly prioritised Mass Spectrometry Science Technology Platform (MS STP) through the development of a MS STP IfWH hub for which central strategic support will be required.
- Appoint a Grade 9 Statistician/Data Scientist to the MS STP IfWH hub who would bring valuable expertise in the development of novel AI approaches for the analysis of complex longitudinal multi-dimensional data that is of high importance for women's health and UCL's MS community.
- Maintain the momentum and high-volume productivity of the Computational Biology Group and appoint a lead Computational Biologist.
- Expand on a dedicated research clinic that allows us to offer personalised screening and prevention trials.
- Continue to contribute to prevention across women's cancer.
- Continue to translate our validated early detection biomarker panels in ovarian, pancreatic and colorectal cancer into more rapid diagnostic pathways.
- Continue to develop new data analysis methodologies for integrative analysis of multi-omic data to identify longitudinal, network and deep biomarkers on the basis of longitudinal, network, ensemble and artificial intelligence algorithms.
- Synchronize mining of new data and construction of data bases with methodologies under development to provide optimal analysis of data.
- Submit several major grants (CRUK, MRC). We expect that a mixture of potential funding sources i.e. The Eve Appeal Charityconsultancy-activity of the incoming Gynaecological Oncology Associate Professor, income /consultancy and core funding will be able to generate sufficient funding.
- Conduct judicious succession planning for the patient experience/quality of life dimension of developments in the field of women's cancers.
- Expand our doctoral student community by supporting Fellowship applications.

Research - 5 years strategic priorities 2022-2027

- Aim: to become the leading UK centre for pre-clinical & early phase pregnancy clinical trials in, for example, obstetric surgery, preterm birth, fetal growth restriction & placental insufficiency. To translate into the clinic prenatal and neonatal stem cell, gene therapy, extracellular vesicles and nanoparticle treatment of inherited and acquired paediatric pathologies, neonatal pre-clinical and phase I-III neuroprotection trials for neonatal encephalopathy and neonatal outcome assessment.
Through this we will make a significant contribution to the field of stem cell and gene therapy translational medicine, transform child health, deepen our understanding of stem cell biology, develop personalised cell therapy, and engineer innovative clinical grade therapeutics with commercialisation potential.
- Aim: to make a key contribution to Preconception/Interconception Health through securing programme/grant funding, making strong links with stakeholders especially primary care partners to deliver a new national policy of investment in pre-pregnancy health for women and men and create strong links with FemTech, to improve education and personalised knowledge of menstrual health, fertility, and pregnancy.

- Aim: to consolidate our expertise in non-cancer gynaecology clinical trials in endometriosis, urogynaecology/mesh surgery, paediatric adolescent gynaecology and menopause through evidence synthesis, and close collaboration with UCL Clinical Trials Units.
- Aim: to make North Central London a hub for excellence in the development and implementation of women's cancer prediction tools, clinical trials and personalised medicine to potentially include breast cancer as well as ovarian, uterine, vulval and vaginal cancers.

Overall Issues

The Institute space is spread across 8 buildings and our long-term ambition is to have one space to bring together our staff and students from across the sites.

Although there has been improvements and refurbishment of the ground floor laboratory space at Chenies Mews, the other laboratory space in the building is not of the standard expected for the quality research taking place and the vision for the Institute.

Our longstanding issue with space at the Royal Free Hospital will cease in 2022 with the retirement of Associate Professor Paul Hardiman. The Neonatal Neuroscience Group will need to leave the space at Queen Square in 2024 due to its redevelopment, bringing to an end the longterm use of the laboratory space in the basement. Professor Robinson is in discussion with another Institution to see if her pre-clinical lab can be housed there.

Enterprise and Knowledge Transfer (Impact)

Enterprise

We will continue to explore engagement with industry to develop therapies for use in women's health.

A major advance in prenatal therapy has been through the development of the first terminology for maternal and fetal adverse events in clinical trials, led by Anna David through the EVERREST consortium and international partners. The Medical Dictionary for Regulatory Affairs, MedDRA adopted all the proposed new terms (12 maternal, 19 fetal) in March 2016, and a Delphi process begun in 2017 has now completed, with publication in a leading international journal. Regulatory authorities (MHRA, FDA, EMA) are working with Prof David to disseminate this new Maternal Fetal Adverse Event Terminology (MFAET version 1.0) through international meetings, FDA publications and workshops.

Prof David is Co-Chair of Maternal Health Project Group of ABPI (The Association of British Pharmaceutical Industry) and is also a member of the Policy Commission on Effective, Safe and Accessible Medicines in Pregnancy, University of Birmingham lead by Professor Peter Brocklehurst and Dame Eliza Manningham-Buller.

Prof David consults for an industry funded trial of a novel intra-amniotic protein therapy for a congenital single gene disorder.

Prof David and Prof Siassakos are co-applying for patents with engineers, aiming to bring innovation from the lab to bedside care for obstetric surgery.

Simon Waddington's group is involved in the following:

1) We have an ongoing and highly productive collaboration with AskBio Therapeutics (formerly Synpromics). A member of their staff (Hayder Abdul-Razak) worked in our team and received training for two years. They funded an Impact PhD studentship for one of our students, Riccardo Privolizzi. Dr Jo Ng has been working with them to draft a new project consultancy with them.

2) Jo Ng & Raj Karda worked with a large gene therapy company to embark upon a two year project consultancy to develop gene therapy for an inherited epilepsy.

3) Simon Waddington has been working with Manju Kurian, Paul Gissen (GOS ICH) and Ahad Rahim at the School of Pharmacy, and have founded Bloomsbury Genetic Therapies to progress four gene therapy programs to the clinic - the company attracted £5 million seed funding from the UCL Tech Fund/Albion VC, and was launched October 2022.

In neonatology (HC) acts as a Consultant for Chiesi Farmaceutici and Astra Zeneca. The commercialisation of rhSP-D as an anti-inflammatory therapy is being pursued in tandem by Trimunocor Ltd a start up company founded by HC.

Helen O'Neill was awarded a UKRI Innovations Scholars Secondment award starting February 2021 for three years; project title: The Use of A Combined Clinical Symptom and Biomarker-Based Model to Predict Risk of Developing Reproductive Conditions and Fertility Potential. The vision of the project is to address two major challenges (1) the lack of access to reproductive testing and (2) the lack of diagnoses for common reproductive pathologies.

Our academics' engagement with UCL Consultancy has increased from £134k in 2018 to a combined total of £1,562k between November 2020 to date.

Enterprise - 5 years strategic priorities 2022-2027

- Aim: To successfully spin out a company based upon five gene therapy projects, through collaboration between Gene Transfer Technology Group, GOS ICH and UCL School of Pharmacy.
- Aim: To bring innovation from UCL Healthcare Engineering to bedside care for obstetric surgery through development and patenting of novel oxygen and pressure sensing and operative imaging devices to improve maternal and neonatal outcome in labour and operative birth.

Aim: To progress commercialisation of novel drug development for neonatal chronic lung disease initially through further DPFS funding for phase 2 trials of recombinant human SP-D and subsequent commercial sponsorship.

International Activities and Partnerships

Our Ongoing collaborations include the following:

- Dr Hillman (IfWH) and Dr Saville (IGH) on work in Nepal and India.
- Dr Hall and Dr Osrin on LMUP work in India and with Dr Hall and Dr Saville on LMUP work in Nepal

- Dr Helen Harris-Fry LSHTM and Dr Hillman (Nutritional status of pregnant women India).
- Dr Hall and Dr Barrett collaborate with research groups across the world working on the measurement of pregnancy intention, in particular research in Brazil with Dr Ana Borges of the University of Sao Paulo.
- Prof David, Dr Hillman are setting up a SCALE program with Uganda (The Strengthening Health Workforce Through Global Learning) for UCL/UCLH to support their Maternal Fetal Medicine program. The SCALE program is a national initiative to support their clinical speciality. The SCALE team will link up with the IfWh MSc in obstetric ultrasound to train healthcare professionals (experienced obstetricians and midwives) from Uganda to deliver fetal medicine care, both ultrasound and management so that they can develop their specialty in Uganda.
- Dr Terence Leung Medical Physics and Biomedical Engineering developing non-invasive smartphone technology to detect anaemia in pregnant women (with Dr Sara Hillman) and to screen newborns for jaundice (with Dr Judith Meek).
- Medical Education work in LMIC including Development and delivery of remote training course for Obstetric Haemorrhage between clinicians at UCLH and health workers in Mbeya hospitals, Tanzania and fetal echocardiography training courses in India with team members from the UCLH Fetal Medicine Unit.
- Professor Ahmed Hussein from Cairo University, Egypt works with Prof Eric Jauniaux on Abnormally Invasive Placenta and Caesarean section.
- Professor D Siassakos (IfWH) with the Mediterranean University (Egypt) on a joint PhD programme focusing on polycystic ovary syndrome and pregnancy outcome; and with the University of Athens (Greece) on establishing a national training programme in obstetric emergencies.
- Professor D Siassakos (IfWH) with members of the International Stillbirth Alliance from >30 countries working on improving global standards in care for parents with perinatal death.
- We are involved in Medical Education work in LMIC including Development and delivery of remote training course for Obstetric Haemorrhage between clinicians at UCH and health workers in Mbeya hospitals, Tanzania.
- REACH Alliance with University of Toronto- UCL identified as key partner. IfWH centrally placed within roll out program. Dr Hillman, alongside Dr Roll (Institute for Innovation and Public Purpose) and Dr Sarah Quinell (Institute Science Technology Engineering and Public Policy) have adapted the REACH design to fit UCL students.
- Dr PV Guillot with the Hospital Robert Debre, Paris France (Professor P Gressens), neonatology.
- In education, we continue to work with colleagues in Paris Descartes University in an exchange programme for medical students and trainees in addition to expanding research collaborations in prenatal therapy. To date we have received four students from Paris and have sent three. The programme was paused in 2020 and 2021 due to Covid but the plan would be to restart for 2022.
- Professor Widschwendter's PhD student – Dr Ojone Illah – is setting up a collaboration with Nigerian partners to explore the utility of the Women's Cancer Risk Identification index for CIN3+ in African women. This research has received funding from UCL Global Engagement Partnerships.
- Professor Widschwendter and Ms Adeola Olaitan are working together to set up a collaboration with Ghanaian partners to explore the utility of the Women's Cancer Risk Identification index for endometrial cancer in African women.

Global Engagement and strategic partnerships- 5 years priorities 2022-2027

- Aim: to develop global reach in Medical Education in low-and-middle-income countries for obstetric emergencies and Fetal Medicine improving links between IfWH clinicians and local health care workers in India and Africa.
- Aim: to further enhance the impact of research on the measurement of pregnancy intention to research groups across the world in particular Central and South America and to develop

collaborations in preconception research, with a focus on evidence-based interventions in primary care and public health, with nascent groups in Australia.

- Aim: to translate novel diagnostic devices: non-invasive smartphone technology to detect anaemia in pregnant women and to screen newborns for jaundice, and pre-clinical neuroprotection studies to clinical neuroprotection trials in low-and-middle-income countries in collaboration with Bill and Melinda Gates Foundation.
- Aim: to have launched and part completed a major fundraising campaign to secure new consolidated space for IfWH within UCL Estate, making strong philanthropic links with OVPA donors and UCLH Charity.
- Aim: to establish and maintain strategic collaborations with academic universities in Egypt, Canada, Greece, Belgium and France to support research and education programmes. eg
 1. Mediterranean University (Egypt) are working on a joint PhD programme focusing on polycystic ovary syndrome and pregnancy outcome.
 2. University of Cairo (Egypt) on better care for women with placenta accreta spectrum.
 3. University of Athens (Greece) on establishing a national training programme in obstetric emergencies.
 4. Establish the Joint Perinatal Research PhD programme with KU Leuven
 5. Fetal Growth Restriction collaboration and medical student exchange with Paris Descartes, France.
- Aim: to consolidate strategic collaborations with European academic institutions in Austria, Sweden and the Czech Republic for women's cancer prevention to position UCL in future Horizon Europe Mission Cancer calls.

Enabling Delivery of the Academic Strategy

Finance and KPIs

The Institute continues to maintain a contribution to the Centre of around £3m per year. Our business case proposal in early 2021 to recruit two senior staff in Women's Cancer, a lecturer in Maternal and Fetal Medicine and a clinical lecturer in Neonatology was successful.

Estates and Space Management

The Institute continues to struggle with a difficult estate situation. For a relatively modest sized Institute we occupy eight different locations, with no opportunity for informal interactions across the different research departments (and even within departments). The number of staff in the Institute has slightly decreased in 2022 (from 74 to 65) so there is no urgent need for additional space, we continue to need common space which is fit for purpose.

Our laboratories are based in Chenies Mews, Paul O'Gorman Building, Zayed Centre for Rare Disease, Cruciform and Queen Square. In 2019/20 we were successful in obtaining a SLMS small works grant to refurbish the ground floor lab on the ground floor Chenies Mews, this was welcome timing to accommodate our new staff in Neonatology. In 2022 we have lost significant space in Royal Free Hospital with the retirement of our Associate Professor in Reproductive Health

We submitted an Academic Proposal for space in 2019 and reviewed the cost of a previously developed architect plan for a new building sited in existing IfWH premises in Chenies Mews (86 – 96) and adjoining (98 Chenies Mews). No further action has been taken due to the pandemic and the incoming Provost who plans a UCL strategy review. We continue to highlight the need for consolidated space at the Faculty and central UCL level to realise our vision for the Institute and are keen to work to promote this in the new UCL strategy.

Philanthropy and Alumni

We are actively compiling vignettes of projects for philanthropic fundraising, from small projects (e.g. studentships) through to large initiatives (e.g. Research Centres). With The Office of the Vice-President Advancement (OVPA) we have developed a Donor Brochure to highlight the Institute's unique life-course approach and to provide various fundraising areas. We successfully sourced funding from the Mitchell Family Trust and the Portrack Trust to support a new study in stillbirth (£140,000). There are now discussions to have conversations with Weston Foundation.

In order to improve communication of our strategic vision to a wider audience to include the public and potential donors we have developed a long fundraising document.

The Institute Director and Deputy are working with the new Clinical Director Dr Stuart Lavery and Divisional Manager to ensure collaborative working to secure major donations and a newly launched UCLH Charity remit to fundraise around women's health.

The EGA Hospital Charity Trustees has launched a PhD fees funding scheme for prospective IfWH postgraduate students to encourage clinicians and scientists to study at the Institute.

In academic year 2020/21, we launched two BAME scholarships, one MSc and one PhD. To date two MSc scholarships have been awarded but we have not yet awarded the PhD scholarship. has not yet been awarded,

We are currently drafting a proposal for our Annie McCall Midwifery PhD scholarship using a UCL endowment / legacy fund, to support midwives to develop research proposals across UCL Partners Hospitals, to launch Q2 2023/2023.

Our 15 year IfWH Report published in 2020 celebrates the work we have achieved across the Lifecourse of Women, from early development to menopause since the launch of the Institute in 2004. The report highlights the major impacts the Institute has had on women's lives.

We continue to have an active alumni Facebook page, and we invite alumni to an annual networking event. We have prepared material for fund-raising from our alumni (initially to raise funds for our education activities). In 2019 we prepared a video celebrating 20 years of our MSc programmes.

People

As of 20th October 2022 our current staff number is at 65, due a number of leavers, however we have up to 8 recruitments in progress and this number will result in increased staff numbers by January 2023.

We submitted our renewal for Athena SWAN Gold in November 2020 and this was awarded in April 2021. We have sustained impact in the following areas:

Completion of both IfWH and UCL surveys have increased consistently over the past 5 years with an average of 74% completion and over 80% of staff consistently agree that IfWH promotes gender equality with an average of 79% feel a strong sense of belonging to both IfWH and UCL.

We have achieved gender balance at senior levels by encouraging active participation on leadership courses for female academics and improving promotion procedures ensuring equity of opportunity.

We have normalised flexible working which is taken up by staff of all grades.

Our Appraisal completion rate has remained consistently good over the past 3 years at almost 100% although this dipped slightly during 2020, in 2021 our completion rate was 75% and in 2022 (October) it is 97%.

Our Career surgeries were successful with all staff who wanted a consultation was accommodated. This will soon be relaunched after COVID to ensure new staff and early career researchers are given this opportunity.

In 2020 we introduced a Promotion review system where each member of staff is reviewed annually by their HoD for consideration of promotion prospects or accelerated increment application call. This has resulted in successful increment and promotions applications for staff who were previously not being considered.

Equality and diversity - 5 years strategic priorities 2022-2027

- Aim: to successfully renew our Athena Swan Gold Award in 2024 demonstrating our ongoing commitment to EDI including disability and race.

- Aim: to address our gender imbalance in IfWH (only 30% of our research staff are male and >90% of our students are female) through developing a marketing strategy with UCL over the next five years to attract men to IfWH and to increase take up of male students on our education programmes.

UCL Professional Services (Support Functions)

Opportunities for creating more effective, responsive and efficient support services

The Institute is supported by our Professional Services (PS) Team, namely 11 administrative staff (9.1fte) and 4 technicians on research grants. The Postgraduate Teaching Manager and IBSc Administrator (1.5fte). transferred to the Faculty following the outcome of the Education Administration Student Experience Review (EASE)project The 3 MBBS administrators will remain in the Institute until such time as the Medical School carry out their own Review.

The Professional Services staff has continued to support the Institute's delivering on it's mission and objectives by effectively supporting the work of our academic and research staff. The team has kept pace with the changes of the last two years and rose above the challenges of the pandemic when we had to revert to working fully from home.

There has been two major system changes in the last 3 years, namely MyHR which is still not as efficient as it could be, causing unnecessary workload and this month October 2022, will see the launch of Talentlink which will replace the recruitment system ROME. This is supposed to reduce duplication on MyHR and save time but it is agreed by a high percentage of PS staff that MyHR is still not fit for purpose.

The Institute is in need of a part-time Communications Officer, currently overseeing of our digital platforms, updating of websites, and managing social media, falls on the Executive Assistant and Institute Administrator as an additional role and we could use social media far more effectively to promote our work and courses if there was a more dedicated resource. We are currently promoting our short courses with UCLH and have no dedicated resource to run these. Only one HoRD has any administration support and all other support comes from the core team.

Risk Management

In addition to the risks and mitigation strategies set out in the School Risk Register, please list any additional major risks that are specific to divisions / institutes which need management.

Key risks and mitigating actions

1. *Risk:* Failure to attract an internationally recognised clinical academic in gynaecologic oncology to our Associate Professor of Women's Cancer post. Failure to secure sufficient clinical PAs (5 needed) to support the new post at UCLH.

Mitigation: close working with Women's Cancer clinical team at UCLH to identify potential candidates; informal discussions between IfWH senior staff; input from Cancer Institute senior staff; business case to support additional clinical PAs provided to Stuart Lavery to request from UCLH Charity (UCLH Specialist Hospitals Board have advised this course of action).

2. *Risk:* Difficulty in recruiting a clinical academic in Department of Reproductive Science with no replacement in sight to provide clinical input to this research area.

Mitigation: Support NIHR fellowship application for an ACL and Reproductive Medicine Subspecialty trainee and apply for business case to appoint as Assoc Prof Feb 2023.

3. *Risk:* Dependence of large funding opportunities on a handful of senior clinical academic/academic staff with planned retirement of at least 3 in the next 3 years (DoWC, DRS, DMFM).

Mitigation: long term strategy to apply for NIHR competitive funding for ACF and ACL posts; IfWH wide Early Career Researcher network established; formal process to review fellowship and grant applications (chalkboard initiative similar to that at GOS ICH). A NIHR Fellowship was awarded to Dr Katie Gallagher (neonatal nurse) in 2022.

4. *Risk:* Difficulty recruiting or poor student experience in the new MSc in Obstetric Ultrasound which requires significant combined teaching input from WH Division staff at UCLH and IfWH.

Mitigation: regular and intense support for new MSc lead Dr Raffaele Napolitano from Education Directors and MFM clinical academic staff.