What activities are currently underway within your Institute/School to promote Research Integrity?

To date there have been pockets of activity within HLS Institutes. These have included:

- Routine sign off of lab/research note books: This is already done in some areas of the Faculty, such as Life Sciences Undergraduate students, and with certain groups in areas of ITM (Molecular and Clinical Pharmacology).

- Institute away days have invited talks on research integrity and misconduct. For example, Pete Clegg presented at the IIB Institute Away Day in June 2019.

- Bill Greenhalf in the Institute of Systems, Molecular and Integrative Biology (ISMIB) has been nominated as the institutional lead for the UK Reproducibility Network with a dedicated FTE commitment of 0.2FTE. This project will aim to share best practice across the network; co-ordinate and harmonise training through a train the trainer programme; will link promotion criteria to integrity and research culture; and will devise KPIs for the impact of these initiatives.

- The Faculty has now formed a Research Integrity Strategy Group, consisting of the Executive Deans, members of the Research and Impact Directorate, Clinical Directorate, Faculty REF Environment Lead and the Dean for Postgraduate and International Affairs.

Given the Faculty have been transitioning into the new structure, governance arrangements are still catching up and these should be in place in the coming months to enable the Faculty to move ahead with the outlined proposals below. Governance arrangements now in place.
**What future plans do you have within your Institute/School for promoting Research Integrity?**

The Faculty are proposing some discreet activities. These can be summarised as follows:

*Faculty wide:*

1. **Research Integrity Statement of Expectations (Lead Paula Williamson):** The Faculty will produce a clear statement of expectations/guidelines for staff to ensure research integrity and the actions that they are reasonably expected to take. This should
   a) make reference to our commitment to the Concordat, but will extend beyond this to consider research integrity when working with patients and the public
   b) will draw on best practice from across the Reproducibility Network.

2. **Training for PhD students and post-docs (Lead Chris Sanderson):** Training for PhD students more generally will be driven through the new Postgraduate Executive Group. This will look to:
   a) revisit PhD student induction and information shared on the whistleblowing policy, as it appears that students remain reluctant to raise concerns.
   b) the Development Needs Analysis is a PGR requirement, and should reflect the requirement for training in relation to responsible research practices. The DNA should be used to record and monitor training and would be a good place to start.
   c) review the Epigeum training which is already available and consider whether this is sufficient and to develop a plan to roll out to all students and Post Docs. This is currently not mandatory and this needs to be re-considered.

**Update:** The Research Integrity training coordinated via the LDC will come into effect from Oct 21 (the new academic year). It will be mandatory for all students to complete and they will not be transferred to the next year of study if it is not completed. This will be managed centrally by LDC as part of the annual progress review (APR). The Epigeum Research Integrity Training made available to students will be the same as that available for staff (including PDRAs) i.e. it
is not specifically designed for PGRs. It has been discussed with Institute Directors of PGR and it has been agreed that we would ‘require' new students to complete this as part of their induction process. Discussions are ongoing about following this up with a forum focusing on specific issues in the context of HLS research activities. Any forum would be open to all PGRs but could be made more widely accessible. There will also be mandatory training for PGRs in research ethics, responsible innovation and data management.

The link to the Epigeum research ethics and integrity training can be found on the research integrity webpages, where there are also links to other sources of training and support (including links to the research data management webpages). The epigium modules will form the basis of the mandatory training. This is regularly communicated to PGRs centrally and via supervisors.

As part of the mandatory training there will be links to the Knowhow Research pages for PGRs. https://libguides.liverpool.ac.uk/researcherknowhow. There will be a page on the LDC PGR Canvas pages directing students. LDC are working with the Library to identify the appropriate sessions or modules to complement the Epigium modules. Central to this is what to do with research data produced during a PGR’s research, encouraging good data management practice with a mandate that there should be at least some form of secure data deposit at the end of a PGR’s research. A mechanism which limits the scope for the mismanagement or inadequate preservation of research data - be it mandatory MWS devices, or a requirement for postgraduate research data to be deposited in the Data Catalogue is currently under discussion. PGR Committee, Libraries and the Research Integrity Team are keen for this to be rolled out.

The third strand, in supporting RRI & Data Protection for PGRs is the laptop scheme. Laptops were offered to all 1st & 2nd year and will be offered to all 1st year PGRs from 2021 onwards. The issuing of CSD UoL laptop/PC is part of a medium/long term plan to move all staff and students to MWS device. CSD are acting on a Council-mandated directive that all UoL activities/research that requires Cyber-Essential certified equipment must use MWS machines. Appetite exists with senior leaders to restrict access to non-UoL MWS machines to ensure that cyber-essentials certification is met. Certification is now a pre-requisite for UKRI, MoD, NHS collaboration and funding. The PGR laptop scheme is seen as an important first step towards
a more comprehensive approach. Although we can’t mandate the use of centrally issued laptops our focus is to promote the PGR laptop scheme as a way to instil best practice, and remind PGR’s they should only be using University devices for their research. When PGRs request a laptop they sign an agreement on terms of usage and training available.

3. Training and development (Lead Research and Impact Directorate): The Faculty will also develop a wider programme of relevant training and development for staff, postdocs and students and will co-ordinate this at Faculty level to avoid duplication of resource across institutes. The programme will include amongst other things Turnitin, to check for plagiarised text in theses and papers.

**Update:** The R&ID are currently mapping all relevant research training and development opportunities to better promote and signpost to staff / key groups. Through feedback from staff groups such as the ECR Leadership Network and discussions with colleagues at different career stages we also aim to understand where there are skills / knowledge gaps which need addressing. For example an inaugural development day for Academic Clinical Fellows is planned for October 2021 and a session on research integrity will be included in the programme.

3. Introduction of routine sign off of lab/ research note books by PIs & pre-publication repository for raw data (Lead Claire Eyers): The Faculty would set a clear expectation that PIs monitor the information of their students and Post Docs. Working with The Academy, Faculty would look to develop mandatory training for PIs to provide clear guidance on the importance of this and how to undertake this activity. A longer term aspiration would be to move to electronic lab books subject to feasibility. The use of One Note would be the first option to explore as this would present no additional cost to the institution. This would still require significant investment from the Faculty/University for the purchase of tablets for each group which might be difficult to secure in the current financial climate.

**Update:** The Faculty are currently piloting elab books with four groups across the Faculty (field, clinical, wet lab and dry). These are simple tablet devices using OneNote which will suit the needs of most of the Faculty and importantly are integrated with the support provided by
UoL CSD. The feedback from the pilot has been extraordinarily positive. We are sharing the key findings of the pilot with the Institutional Research Integrity working group chaired by Simeon Yates, and work is ongoing to determine the number of units required to roll out the pilot across the Faculty. This will require significant capital investment and will need to be completed in phases.

Faculty also propose to create local repositories within each Institute, requiring all PIs to deposit their contributory raw data and lab books. This would be for lab based research and would not be used for clinical trials. Following submission these files will be read only. It is acknowledged that this might be time consuming and a drain on PI time and as such Institutes may need to provide administrative support. In the absence of a bespoke technical solution for this, this could be a CSD controlled M-Drive.

4. Internal audit of individual PIs/groups on a rolling basis (Lead Claire Eyers): The Faculty propose an internal audit of individual PIs/groups on a rolling basis. CE will lead the development of the principles and proposed approach for the audit which will be completed within Institutes. The audit process would be light touch, asking a PI to show their primary data, a blot or where a graph came from, to identify any fabricated data or image manipulations. The auditor would also be asked to select a paper and the PI would be asked to provide all of the supporting data. This approach would replicate the approach taken by the MHRA. This random audit would be peer-led, much like the peer review of teaching, with involvement of Level 1 Heads of Departments, but ultimately under the responsibility of the Faculty Executive Deans. Independent oversight will be provided by the HLS Research and Impact Directorate (and Clinical Directorate for clinically related projects) which will maintain oversight to ensure consistency, compliance and impartiality.

Update: The HLS Research Integrity Audit Plan has now been drafted and was agreed by the Faculty Research and Impact Committee in May 2021. This will implement a rolling evaluation of PIs/research groups across the Faculty to go alongside enhanced training in research data integrity and existing sponsor audit of clinical trials/research. The purpose of this light touch audit is to be supportive, whilst helping to identify any areas of concern. It will ascertain general understanding of, and compliance with, research management and data
integrity practises across the Faculty. By evaluating current attitudes and practices of staff at all levels as well as postgraduate research students, we will have a better understanding of areas where we may potentially be at risk of another incidence of research misconduct, and improve research data management in general. More importantly, the enhanced training and awareness of data management and research integrity will also drive a positive culture change and highlight its importance within the Faculty and the importance we place on this to our funders.

Each HoD will be asked to nominate one research group for data integrity discussions per quarter. While these will nominally be random evaluations, it is at the HoD’s discretion to identify research groups/academics where there may be concerns or questions that would mean earlier evaluation would be preferable. Given the unique requirements and ethical issues associated with Clinical-based research, there are additional considerations for clinical academics and their research groups.

Please see Research Integrity Audit document for further information.

5. Departmental presentations (Lead Exec Deans): There will be an increased drive towards departmental presentations, asking researchers to present their work in front of those colleagues who have insight into what they have been doing. This is already being rolled out in IVES through quarterly Virtual Research Retreat with a presentation from each of the 7 departments. These will provide an opportunity to scrutinise group activity with a greater emphasis on data driven presentations and consideration will be paid to ensuring better attendance from departmental members.

Update: These are now starting to take place in events throughout the year, at the request of Executive Deans.

6. Greater oversight of material storage (Lead Technical, Infrastructure and Environment Directorate): Institutes will be encouraged to maintain a greater degree of oversight of materials being stored, not only from a research integrity perspective, but also as space and equipment budgets become increasingly stretched. The Technical Infrastructure
and Environment Directorate, working closely with other directorates and institutes, will take the lead on drafting a policy for institute implementation which will outline the minimum expectations for freezer cataloguing, disposing of material that is not linked to a PI, and processes for dealing with material which is poorly labelled. This will need to link significantly to HTA, but will go beyond just HTA scope. Institutes will be encouraged to keep a record of all samples kept in all freezers, with all samples recorded as owned by a current PI. When PIs leave, they will be required to either take their samples, transfer them to a different UoL PI, or they are disposed of. It is recognised that this is a significant project at a time when new technical teams are bedding into the new structure. This initial audit will therefore take place over the coming year.

### How is the Faculty following the UKRI Research Integrity Assurance?

The Faculty have identified three pillars of activity which are:

- a) Deriving collective responsibility to improve research quality
- b) Addressing detrimental research practices
- c) Investigating research misconduct

The Faculty comply with institutional processes to deal with alleged research misconduct cases, which are aligned with the UKRI Research Integrity Assurance, and are administered through the Integrity Office.

Moving forward the Faculty will focus efforts on the first two pillars to drive culture change through a bottom up approach. This is recognition that detrimental research practices are almost never intended but rather occur as a result of lack of training or negligence and are therefore more prevalent with wider implications. As outlined in the UKRI Research Integrity Assurance, the Faculty’s starting point is that all staff and students “are expected to observe the highest standards of integrity, honesty and professionalism and to embed good practice in every aspect of their work. This includes the interpretation and presentation of research results and contributions to the peer review process and the training of new researchers, staff
and students as well as the conduct of the research itself. That is, individual actions must comply with the principles of honesty, openness, transparency and research rigour.” This will be represented in the Faculty’s statement of expectations and guidance which is referred to above.

How have the Faculty been following the latest Concordat to Support Research Integrity and its 5 Commitments?

1. Upholding the highest standards of rigour and integrity in all aspects of research
2. Ensuring that research is conducted according to appropriate ethical, legal and professional frameworks, obligations and standards
3. Supporting a research environment that is underpinned by a culture of integrity and based on good governance, best practice, and support for the development of researchers
4. Using transparent, timely, robust and fair processes to deal with allegations of research misconduct should they arise
5. Working together to strengthen the integrity of research and to review progress regularly and openly

The Faculty of Health and Life Sciences is fully committed to the advancement of high quality academic research, and to ensuring that all research activities uphold the highest standards of rigour and integrity. The Faculty works very closely with the ethics and sponsorship committees to ensure that our research involving human participants is undertaken in a way that safeguards the dignity, rights, health, safety, and privacy of those involved. Studies requiring ethical review must not commence without ethical approval from a University research ethics committee.

The Faculty are currently re-organising their ethical committees to take account of the new faculty structure and also to address workload issues with the previous committee structure. The Faculty will move to a 3 committee structure (IVES; IPH; and a combined committee for ILCaMS & ISMIB). The Committees will report directly to the Committee on Research Ethics through the Faculty Lead for Research Ethics - Professor Jim Gallagher. This will ensure a single reporting line to the Committee on Research Ethics, preventing important
communications being channelled sideways and then lost. The Chair of the Committee on Research Ethics sits on the Research Integrity and Governance Committee, chaired by Professor Anthony Hollander and attended by Professor Malcolm Jackson; and so any issues can be dealt with through both those committees. Professor Jim Gallagher, as the Faculty Lead for Research Ethics, will also sit on the Faculty’s Research and Impact Committee, which will act as a main driver for continuing to develop a culture of integrity based on good governance, best practice, and support for the development of researchers. Over the coming year Executive Deans will also be asked to find additional reviewers.

**Update:** New ethics committee structure now operational. New Faculty Ethics Lead currently being recruited to. Faculty wide call for additional reviewers has also been sent out. The Faculty Research and Impact Committee now meets monthly with Research Integrity as a frequent agenda item.

The Faculty are also fully compliant with the MHRA data integrity standards which can be found here: [https://www.gov.uk/government/publications/guidance-on-gxp-data-integrity](https://www.gov.uk/government/publications/guidance-on-gxp-data-integrity). Liverpool Clinical Trials Centre take the lead in ensuring compliance. Liverpool Health Partners have also recently agreed to fund a post to provide additional resource for the set up and ongoing review of such studies. The Faculty works with Research Support Office to ensure that applications for clinical research involving NHS staff, patients (national or international) or their data have been processed through the LHP SPARK Sponsorship Committee. The Faculty also takes responsibility for ensuring all research in the UK, or of healthcare patients recruited at International Sites, is conducted according to appropriate ethical, legal and professional frameworks, obligations and standards.