Grant agreement no. 823712

CompBioMed2

Research and Innovation Action
H2020-INFRAEDI-2018-1
Topic: Centres of Excellence in computing applications

D3.2 Ethics Report

Work Package: 3

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Lead beneficiary for this deliverable: *USFD*
Contributors: *USFD, UVA, UCL, UOXF*

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Dissemination Level		
PU	Public	YES
CO	Confidential, only for members of the consortium (including the Commission Services)	
CI	Classified, as referred to in Commission Decision 2001/844/EC	

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1 Version Log

Version	Date	Released by	Nature of Change
V0.1	26/02/2020	A Narracott	First Draft, for USFD review
V0.2	27/03/2020	A Narracott	Draft including USFD comments
V0.3	03/03/2020	A Narracott	Draft approved by Ethics Panel for review
V0.4	23/03/2020	A Narracott	Update integrating additional partner responses and reviewer comments
V1.0	31/03/2020	E Lumley	Final Draft, submitted to the EC

2 Contributors

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Alfons Hoekstra	UVA	Contributor
Vicente Grau	UOXF	Contributor
Jonas Lätt	UNIGE	Reviewer
Irene Escolar Haro	ACE	Reviewer
Emily Lumley	UCL	Reviewer
Peter Coveney	UCL	Reviewer

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3 Definition and Acronyms

Acronyms	Definitions
CBM2	CompBioMed 2
CDT	Centre for Doctoral Training
CoE	Centre of Excellence
CV	Cardiovascular
EC	European Commission
EP	Ethics Panel
EU	European Union
HCM Registry	Hypertrophic Cardiomyopathy Registry
HPC	High Performance Computing
MSK	Musculoskeletal
NA	Not Applicable
UCL	University College London
UK	United Kingdom
UOXF	University of Oxford
USFD	University of Sheffield
UVA	University of Amsterdam
WP	Work Package

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4 Public Summary

The document reports the process for establishment of the CompBioMed2 Ethics Panel, production of an Ethics Questionnaire, and circulation of the questionnaire to project partners, and summarises the outcomes from this process. The outcomes of the questionnaire were used to produce this Ethics Report at M06 of project activity, which is provided in Section 9 of this document. Section 8.5 describes the process that will be used to ensure ongoing monitoring of the ethical status of CompBioMed2 research activity throughout the project and how this will be used to keep the Ethics Report up to date.

Where specific additional documentation has been identified to confirm the ethical status of research activity this will be reported in Deliverable D7.2.

5 Introduction

Appropriate handling of ethical issues associated with research activity is an important part of the CompBioMed2 (CBM2) Centre of Excellence (CoE), particularly due to the focus on biomedical applications. Some of these applications may involve access to anonymized, de-identified or personal data provided by participants within clinical or experimental research studies.

Ultimately, the responsibility for ensuring appropriate procedures have been followed in terms of ethical approvals and arrangements for data handling and management lies with the individual project partners. However, as a Centre of Excellence for Biomedical Research, the CBM2 consortium is mindful of the requirement to monitor such activities, to promote best practice and to ensure all project partners are taking appropriate measures to adhere to appropriate ethical frameworks and guidelines.

This document (D3.2: Ethics Report) is a live document and describes the process established within Task 3.7 (Ethics) of the CBM2 project to monitor the ethical aspects of the project. This includes the process for establishment of the CBM2 Ethics Panel (Section 6), production of an Ethics Questionnaire (Section 7), and circulation of the questionnaire to project partners and summarises the outcomes from this process.

The outcomes of the questionnaire were used to produce the Ethics Report at M06 of project activity, which is provided in Section 8.1 - 8.4 of this document. Section 8.5 describes the process that will be used to ensure ongoing monitoring of the ethical status of the research activity within the CoE and throughout the project and how this will be used to keep the Ethics Report up to date.

Where specific additional documentation has been identified to confirm the ethical status of research activity this will be reported in Deliverable D7.2.

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6 Establishment of the Ethics Panel

As described in the CBM2 Grant Agreement, an Ethics Panel (EP) was established, which includes representatives from partners UCL, UOXF, UVA, and USFD as contributors to Task 3.7 (Ethics). UCL will oversee applications in molecular medicine (including genomics), UOXF will oversee cardiac applications, UVA will oversee vascular applications and USFD will oversee musculoskeletal applications. Each partner was asked to nominate a team member to represent the partner as a member of the Ethics Panel. The specific contribution of the Ethics Panel members to the production of the Ethics Report is described in the remaining sections of this document.
The members of the Ethics Panel have been identified as follows:

UCL Jon McCullough

Post-Doctoral Research Associate at University College London since February 2019 with a focus on developing human-scale blood flow simulations. Dr McCullough has previously been involved in projects that have contained aspects of personal data management.

UOXF Vicente Grau

Professor of Biomedical Image Analysis at the Institute of Biomedical Engineering, Department of Engineering Science, University of Oxford. Prof Grau's research primarily focuses on the development of biomedical image analysis algorithms, for which he relies on close collaboration with colleagues in the life sciences and medical sciences, particularly at the John Radcliffe Hospital in Oxford. He has participated in multiple funded projects (including from the European Commission) dealing with the design of experiments in animals and humans. His current research uses a combination of large databases (e.g. UK Biobank, HCM Registry) and smaller ones from clinical trials. As part of this research, he has long-term experience in managing ethics requirements for data-driven projects.
Prof Grau has also been involved in several graduate training initiatives in biomedical engineering, including being the Director of the Centre for Doctoral Training (CDT) in Healthcare Innovation and an Associate Director of the Systems Approaches to Biomedical Sciences CDT. In this role, he has organised Ethics courses for graduate students.

UVA Alfons Hoekstra

Professor in Computational Science at the University of Amsterdam and the national research university ITMO, St Petersburg, Russia. His research focuses on multi-scale multi-science modelling, large-scale simulations, and high-performance computing, mainly in the biomedical domain and complex systems science. He has long-standing expertise in Computational Biomedicine, Complex Systems simulations, and high performance parallel and distributed computing. He has published over 250 research papers. He has extensive experience in participation and management of EU Framework projects. He was the project coordinator of the COAST project (FP6), the MAPPER, SOPHOCLES (FP7) and COMPAT (H2020) projects. He participated in more than 15 other EU funded projects.

USFD Xinshan Li

Senior Lecturer at the Department of Mechanical Engineering, University of Sheffield, and a member of the Insigneo Institute for *in silico* Medicine. Dr Li has been an ethics reviewer for the Department since 2016. Her main role is to review and approve ethics applications within the Department (mainly human data collection in engineering and cross-disciplinary applications). She has completed two ethics reviewer training in 2016 and 2019, organised by

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the University. Dr Li also has experience in managing projects that involve the use of personal data and anonymised medical images.

7 Ethics Questionnaire

Review of the ethical status of research within CBM2 was undertaken using a questionnaire distributed to all 16 project partners. The full questionnaire is provided for reference in Appendix 1.

The initial form of the questionnaire was prepared by USFD with reference to appropriate EC guidance documents ("Ethics and Data Protection" document) and the project Grant Agreement. This was then circulated to members of the Ethics Panel for comment and approval prior to circulation to project partners.

The questionnaire prompted each partner to identify all areas of distinct research activity that might raise ethical issues. Information from the project Grant Agreement was included to clarify the context of the questionnaire and a guidance document ("Ethics and Data Protection" EC H2020 guidance document, see bibliography) was circulated to partners to support completion of the questionnaire, and USFD provided specific support with additional queries by telephone and e-mail. Issues raised by the EC during ethical review of the project were also provided to partners to clarify specific areas for attention during completion of the questionnaire.

For each distinct research activity partners were asked to provide a brief description, the corresponding CBM2 Work Package/software tool, the application domain (CV-vascular / CV-heart / MSK / Molecular), whether data/material use has started, the future planned start date (if required) of data/material use, whether ethical approval has been obtained and the date the ethical approval was granted.

For each distinct research activity partners were then asked to clarify the status of the general ethical issues, according to the categories used in the Grant Agreement. Eight additional questions were then presented to allow further detail to be provided to clarify the specific arrangements in place for each distinct research activity. These questions were designed to map directly to the guidance document circulated with the questionnaire.

8 Ethics report and review by the Ethics Panel

Partner responses from the questionnaire were collated by USFD and used to produce a first draft of the Ethics Report (the final version of which is provided in this section of the deliverable) for review by the Ethics Panel. Where required, partners were approached for additional information to clarify their responses. Relevant documentation was requested from partners to confirm appropriate ethical approvals were in place and arrangements for data management had been considered, this is provided as part of the reporting for deliverable 7.2 GEN – Requirement No. 2. This process was overseen by the Ethics Panel.

At the end of this process, the Ethics Report was approved by the Ethics Panel as a final version at M06 and integrated within this deliverable.

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8.1 Partner level summary

The CompBioMed Centre of Excellence involves research activity undertaken by the 16 project partners. An overview of the role of the partners within the CoE is provided in the table below. Table 1 below distinguishes partners with research areas which raised ethical issues, who will be investigated in the coming sections, and partners with no such research areas, who will not be mentioned any further in this report. Information in the following sections is only provided for Partners with a YES in the final column of Table 1.

Table 1: Summary of CompBioMed2 partners and areas of activity

Partner Name	Acad.	Ind.	HPC centre	Biomedical application developer	Ethical review required
UNIVERSITY COLLEGE LONDON (UCL)	Y	N	N	Y	YES
UNIVERSITEIT VAN AMSTERDAM (UvA FNWI)	Y	N	N	Y	YES
THE UNIVERSITY OF EDINBURGH (UEDIN)	Y	N	Y	N	NO
BARCELONA SUPERCOMPUTING CENTER - CENTRO NACIONAL DE SUPERCOMPUTACION (BSC)	Y	N	Y	Y	YES
SURFSARA BV (SURFSARA BV)	N	N	Y	N	NO
THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD (UOXF)	Y	N	N	Y	YES
UNIVERSITE DE GENEVE (UNIGE)	Y	N	N	Y	YES
THE UNIVERSITY OF SHEFFIELD (USFD)	Y	N	N	Y	YES
CBK SCI CON LIMITED (CBK)	N	Y	N	N	NO
UNIVERSIDAD POMPEU FABRA (UPF)	Y	N	N	Y	YES
BAYERISCHE AKADEMIE DER WISSENSCHAFTEN (BADW-LRZ)	Y	N	Y	N	NO
ACELLERA LABS SL (ACELLERA)	N	Y	N	Y	NO
EVOTEC (UK) LIMITED (EVO)	N	Y	N	Y	YES
BULL SAS (BULL)	N	Y	N	N	NO
JANSSEN PHARMACEUTICA NV (JANSSEN)	N	Y	N	Y	YES
ALMA MATER STUDIORUM - UNIVERSITA DI BOLOGNA (UNIBO)	Y	N	N	Y	YES

It is clear that, in general, ethical issues are primarily associated with partners who are directly involved in the development of biomedical applications. The process of review across the whole consortium acts as a valuable tool to ensure all partners are aware of the relevance of ethical issues to the CoE's research, particularly High Performance Computing (HPC) centres who may be involved in deploying applications and managing data provided by others, where ethical issues need to be considered.

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8.2 Application level summary

Partner responses to the Ethics Questionnaire identified 20 specific application areas where ethical review was appropriate. A summary of these 20 applications is provided in Table 2 below. Applications are identified in terms of the partner associated with the activity and the associated research domain. Partners have identified whether data/sample use has already started, along with an indicative date for commencement, the final column provides a statement of whether ethical approval has been obtained.

Table 2: Summary of application level responses to Ethics Questionnaire. Orange cells in "Partner Name" column indicate applications for which supplementary information was provided, as detailed in the following sections.

Partner Name	Description	Domain	Data use started?	Planned start date	Ethical approval obtained
UCL	Molecular modelling - DNA studies	**Molecular**	**Y**	Oct, 2019	**NA**
UNIBO	In Sillico trials simulator : existing local processing	**MSK**	**Y**	Jan, 2020	**NA**
BSC	Cardiovascular simulations	**CV-heart**	**Y**	June, 2019	**Y**
UCL	Development of HemeLB for human-scale blood flow simulation	**CV-vascular, CV-heart**	**Y**	Oct, 2019	**NA**
USFD	1D modelling of blood flow in network of elastic arteries	**CV-vascular**	**Y**	Oct, 2019	**NA**
Evotec	Tool for hierarchical modeling of GPCRs	**Molecular**	**Y**	Oct, 2019	**NA**
USFD	Multiscale model of hip fracture	**MSK**	**Y**	Oct, 2019	**Y**
UVA	Investigation of transport properties or chemically aged red blood cells (a model for diabetic cells)	**CV-vascular**	**Y**		**NA**
UVA	Investigation of the initial phase of thrombus formation	**CV-vascular**	**Y**		**NA**
UOXF	Analysis of sputum samples from TB subjects	**Molecular**	**Y**		**NA**
UNIGE	Investigation of mechanical properties of red blood cells	**CV-vascular / MSK**	**Y**		**Y**
UOXF	Cardiovascular exemplar - data analysis and modelling (UK Biobank)	**CV-heart**	**N**	Apr, 2020	**Y**
UNIBO	In Sillico trials simulator : public release of data	**MSK**	**N**	Jan, 2021	**N**
UOXF	Cardiovascular exemplar - data analysis and modelling (Individual patients)	**CV-heart**	**N**	Feb, 2021	**N**
UCL	Molecular modelling - Drug discovery	**Molecular**	**N**	Jan, 2021	**NA**
JANSSEN	Machine learning approaches on large chemical libraries	**Molecular**	**N**	Q1 2021	**NA**
JANSSEN	Quantitative binding energy predictions on large scale	**Molecular**	**N**	Q2 2021	**NA**
JANSSEN	Data mining pre-clinical drug protein interaction energies	**Molecular**	**N**	Q3/Q4 2020	**NA**
USFD	Elastic image registration using parallel computing	**MSK**	**N**		**NA**
UPF	Machine-learning based Coarse-grained potential for molecular simulations	**Molecular**	**N**		**NA**

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For 13 of these 20 applications additional information was provided (see orange cells in the "Partner Name" column of Table 2). For the remaining 7 applications no ethical issues were identified following partner review of the application.

8.3 Supplementary application level information

For the 13 applications identified in section 8.2, the application-specific tab of the Excel questionnaire (see Appendix 1) was completed to identify the source of ethical issues and describe processes in place to ensure appropriate handling of ethical issues. None of these applications raised any ethical issues across six of the categories identified in the standard EC review template (Human embryos/foetuses, Environment & health and safety, Dual use, Exclusive focus on civil applications, Misuse & Other Ethics Issues). Issues were identified in five following categories; Humans, Human cells/tissues, Personal Data, Animals & Third Countries. However, within these categories no issues were identified associated with Physical interventions (Humans), Tracking or observation (Personal Data) or Risk to individuals (Third Countries).

Table 3: Summary of specific application level ethical issues identified for subset of applications highlighted orange in Table 2.

	UOXF : CV exemplar UK Biobank	UOXF : CV exemplar : Inidividual patients	UOXF : TB samples	BSC : CV simulations	UCL : HemeLB	UCL : Drug Discovery	UCL : DNA studies	USFD : Hip fracture	UNIBO : IST for bone drugs	UVA : RBC transport	UVA : Thrombus formation	UNIGE : RBC properties
Does your research involve human participants?				YES								
Does your research involve human cells or tissues (other than from Human Embryos/Foetuses, i.e. section 1)?										YES		
Does your research involve personal data collection and/or processing?									YES			YES
Does it involve the collection and/or processing of sensitive personal data (e.g: health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)?								YES	YES			
Does it involve processing of genetic information?						YES						
Does your research involve further processing of previously collected personal data (secondary use)?	YES	YES			YES	YES		YES	YES			
Does your research involve animals?				YES							YES	
Do you plan to use local resources (e.g. animal and/or human tissue samples, genetic material, live animals, human remains, materials of historical value, endangered fauna or flora samples, etc.)?										YES	YES	
Do you plan to import any material - including personal data - from non-EU countries into the EU?												
Do you plan to export any material - including personal data - from the EU to non-EU countries?												

An additional 10 questions were also provided (see Appendix 1) to allow partners to further clarify the context of their specific research activity. Three of these questions did not apply to any of the applications ("Higher Risk" activities, Data Protection Impact Assessment & Issues associated with automated decision making/big data). Table 4 provides a summary of the responses to the six other yes/no questions.

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Table 4: Summary of responses to additional application-specific questions.

	UOXF : CV exemplar UK Biobank	UOXF : CV exemplar : Inidividual patients	UOXF : TB samples	BSC : CV simulations	UCL : HemeLB	UCL : Drug Discovery	UCL : DNA studies	USFD : Hip fracture	UNIBO : IST for bone drugs	UVA : RBC transport	UVA : Thrombus formation	UNIGE : RBC properties
Does the application involve processing of;												
Personal Data								YES	YES			
Pseudonymised Data		YES		YES								
Anonymised Data	YES		YES		YES	YES		YES	YES			YES
Has informed consent been obtained from the research participants?	YES	YES	YES	YES	YES	YES		YES	YES	YES		YES
Does this activity involve secondary use of data previously collected as part of another research activity?	YES	YES	YES		YES	YES		YES	YES			
Will the activity involve transfer of data in/out of the EU?					YES	YES	YES					

Additional narrative details were provided for specific applications, these are grouped by the response topic in tables 5 to 8 below.

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Table 5: If data is Pseudonymous or Anonymous, provide statement on risk of re-identification;

UOXF	CV exemplar: UK Biobank	The data is fully anonymised using the UK Biobank procedures. UK Biobank has only provided access to data that would not allow identification in any case (for example, we know the region where the subjects reside but not the postcode.) The images we have only cover the area of the torso, so there is no possibility of reconstructing the subject's face from them.
UOXF	CV exemplar: Individual patients	The data to be used here is yet to be identified. As in our multiple previous collaborations, we will use data collected from our clinical collaborators in their own trials. These will be anonymised prior to leaving the clinical centre.
UOXF	TB samples	The data from the project comes from sputum samples of TB subjects. All the human information from the patients is removed before we receive the data. We get only the genomes of pathogens which are not considered identifiable information (and all human and HIV reads are routinely and automatically removed).
BSC	CV simulations	BSC as a partner has no access to any patient information and No risk is present regarding patient re-identification.
UCL	HemeLB	Data being studied in this application is geometry data pertaining to blood vessel structure. Surface data of the body was provided as part of the data package that, in principle, could allow someone who knew the individual to identify them. This data however is not being processed or analysed as part of this research and will not be disseminated. Identification risk from data being studied is deemed very low. This dataset was originally obtained from a deceased individual who donated their body to the original project. No new personal data is generated by this application.
UCL	Drug Discovery	Data would be obtained from publically accessible databases meaning that UCL would not have information regarding the individuals providing the data. Identification risk is deemed very low. No new personal data is generated by this application.
UCL	DNA studies	NA
USFD	Hip fracture	The risk of re-identification is very low as the only personal data we use for analysis is age, body weight and height. The medical images are anonymised in the hospitals before passed onto the research team.
UNIBO	IST for bone drugs	The risk of re-identification is very low as the only personal data we use for analysis is age, body weight and height. The medical images are anonymised in the hospitals before passed onto the research team.
UVA	RBC transport	NA
UVA	Thrombus formation	NA
UNIGE	Palabos	Data is properly anonymized, as validated by the ethics committee of the Université Libre de Bruxelles.

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Table 6: If activity involves secondary use, provide details of how this is handled;

UOXF	CV exemplar: UK Biobank	We are provided data by UK Biobank after full anonymisation at their side.
UOXF	CV exemplar: Individual patients	The data we will use here will come from research projects by our clinical collaborators. All patients give informed consent for the specific aims of the project and for secondary use, covering CompBioMed2.
UOXF	TB samples	NA
BSC	CV simulations	NA
UCL	HemeLB	Research involves simulation of blood flow through vascular geometries generated as part of previous Korean/Swiss research projects. These came from cadavers donated to the original project for the purpose of creating a digital representation of a body for biomedical research.
UCL	Drug Discovery	Genetic data would be sourced from publically accessible databases which have been generated for the purpose of facilitating further research.
UCL	DNA studies	NA
USFD	Hip fracture	This activity uses data previously collected from two cohorts: Yang et al (2014) and the MultiSim cohorts. Local ethics were obtained for both and participants received informed consent. Participants have consented for secondary use for research purposes in Sheffield.
UNIBO	IST for bone drugs	Existing CT scan data were collected under an informed consent that authorised secondary use for research purposes. We will process locally all non-anonymised data. For a subset of patients who are now deceased, we are asking the permission to our local ethical committee to release in open access the fully anonymised data of those patients, projected to start in January 2021.
UVA	RBC transport	NA
UVA	Thrombus formation	NA
UNIGE	Palabos	NA

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Table 7: If activity involves transfer of data in/out of the EU, provide details of how this is handled;

UOXF	CV exemplar: UK Biobank	NA
UOXF	CV exemplar: Individual patients	NA
UOXF	TB samples	NA
BSC	CV simulations	NA
UCL	HemeLB	Geometry data from Swiss CompBioMed2 Associate Partner, IT'IS Foundation, to be used to run blood flow simulations. An NDA has been signed between UCL and IT'IS for this. These may be run on HPC facilities outside of the consortium/EU, but no current arrangements for this have been made. Should it become required, necessary authorisations will be sought. Given the data in question was gathered and is distributed for the purpose of biomedical simulation it is felt that any risks associated with this is minimal. No personal data will be analysed or transferred by this application.
UCL	Drug Discovery	Simulations may be run on HPC facilities outside of the consortium/EU, but no current arrangements for this have been made. Should it become required, any necessary authorisations will be sought. Given any data used in this application will be publically available for the purpose of ongoing research, it is felt that any risks associated with this is minimal. No personal data will be analysed or transferred by this application.
UCL	DNA studies	Simulations may be run on HPC facilities outside of the consortium/EU, but no current arrangements for this have been made. Should it become required, any necessary authorisations will be sought. Collaboration in this application is ongoing with CompBioMed2 Associate Partner Zayed University (UAE). Given no personal data is gathered or processed in this application, it is felt that any risks associated with this is minimal.
USFD	Hip fracture	NA
UNIBO	IST for bone drugs	NA
UVA	RBC transport	NA
UVA	Thrombus formation	NA
UNIGE	Palabos	NA

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Table 8: What are the arrangements for archiving/deletion of the data?

UOXF	CV exemplar: UK Biobank	All the data is provided to us under certain conditions by UK Biobank. They can only be used for the purposes declared in our research proposal (which, include, but are not limited to, the CompBiomed2 objectives), and they can be stored for the duration of the research, which is extended after regular reviews. We expect the research to last for longer than the duration of CompBiomed2, and the data will be fully deleted from our servers when the research has ended.
UOXF	CV exemplar: Individual patients	All the data will be fully deleted from our servers at the end of the research; the original data can be archived or deleted by the clinical institution where they originated, according to the conditions of the original research.
UOXF	TB samples	NA
BSC	CV simulations	Simulations will be archived in a secure location during the length of the study and will be deleted after the study is published.
UCL	HemeLB	The data used for this research was gathered and distributed for the purposes of biomedical simulation prior to the commencement of the CompBioMed2 project and will (likely) remain so beyond its completion. Geometry data held by UCL will be retained on locally backed up storage locations while blood flow simulations are ongoing. No personal data is gathered in this application.
UCL	Drug Discovery	Data held by UCL will be retained on backed up storage locations while simulations are ongoing. Again any source data would be obtained from publically accessible resources for the purpose of ongoing research. No personal data is gathered in this application.
UCL	DNA studies	No personal data was used for this research application. Data held by UCL will be retained on backed up storage locations while simulations are ongoing.
USFD	Hip fracture	Non-anonymised primary data will be stored and processed only on system behind the hospital firewall. Anonymised secondary data will be processed and stored at the University of Sheffield, for the duration of the project.
UNIBO	IST for bone drugs	Non-anonymised primary data will be stored and processed only on system behind the double firewall of the hospital where the data were generated. Anonymised secondary data will be processed at external HPC centres, but transferred back to the hospital storage, and deleted permanently from the HPC centre storage.
UVA	RBC transport	Fresh human blood is obtained from consenting donors via venipuncture. Blood draw protocols have been approved by the University of Michigan Internal Review Board (IRB-MED). No personal data is recorded during the experiments.
UVA	Thrombus formation	Animal (pig) blood is collected after the death of the animal (slaughter house). The handling of the blood happens according to the local protocols of Georgia Tech University. No personal data is involved. It is an animal based study.
UNIGE	Palabos	NA

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8.4 Summary and associated documentation

Of the 20 applications listed in Table 2, thirteen require no formal approval associated with data/sample handling (NA in final column of Table 2). Of the six remaining applications, two have yet to start, and appropriate ethical approval documentation will be provided by project partners to the coordinator, and circulated to the Ethics Panel, prior to commencement of the research activity associated with these applications. For the four applications where research activity has started and ethical approval is required the associated approval documents have been provided to the project coordinator and are submitted to satisfy the requirements for D7.2: GEN – Requirement No. 2.

To ensure the overview of the ethical status of all applications remains up to date throughout the project period an ongoing process for monitoring this status is described in the following section.

8.5 Ongoing monitoring of ethics status during CompBioMed2

The responsibility for monitoring adherence to appropriate ethical frameworks resides with each project partner. This deliverable has defined a process and mechanism to report the ethical status of CompBioMed2 applications across the consortium, as it stands at M06. This consortium-wide approach allows the overall level of ethical scrutiny to be considered across all partners.

All partners will receive the final version of this deliverable to act as a reference document throughout the remaining project period. Any changes in the ethical status of research activities/applications should be reported by the partner to the project coordinator and to USFD to allow update of the Ethics Report (section 8.1 – 8.4 of this deliverable), which will be kept up-to-date throughout the project period. If either the coordinator or USFD consider these issues to result in a significant change in ethical status, they will be circulated to the Ethics Panel for comment at the time they are raised by the project partner. Any changes to the Ethics Report and the associated documentation (to be reported in D7.2, M12) will be highlighted as part of the project periodic reporting process and this document will be updated.

To ensure the importance of reporting changes in the ethical status of research activity remains transparent, this topic will be included as an agenda item on all WP2 and WP3 meetings, with associated reporting by WP leaders at the WP leader meetings. In addition, ethical issues will also be included as an agenda item on future face-to-face meetings, such as the All Hands Meeting.

Where general issues arise which may have implications across the consortium and influence the ethical status of ongoing and future research activity (e.g. UK/EU status and implication for data transfer in/out of the EU), USFD will collate this information from members of the Ethics Panel and/or individual partners to ensure it is circulated across the consortium. Where appropriate these topics will also be raised as part of WP3 face-to-face meetings and teleconferences.

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9 Conclusions

This document has described the process for monitoring the ethical status of CompBioMed2 research applications and has reported this status as it stands at M06 of project activity. The continued operation of this process throughout the project activity will ensure that ethical issues are identified in a timely manner and appropriate actions are taken to ensure all CompBioMed2 research is undertaken within a clear ethical framework.

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10 Bibliography/References

"Ethics and Data Protection" EC H2020 guidance document, available online: *https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/ethics/h2020_hi_ethics-data-protection_en.pdf [Accessed 27th Februray 2020]*

Yang L, Udall WJ, McCloskey EV, Eastell R (2014) *Distribution of bone density and cortical thickness in the proximal femur and their association with hip fracture in postmenopausal women: a quantitative computed tomography study*. Osteoporos Int 25: 251–263

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11 Annex 1: Ethics Questionnaire

Ethics Questionnaire – table 1 (complete once to cover all applications)

Please complete the table below to indicate all relevant activities envisaged within the current reporting period - even if they are yet to start

Partner Name								
USFD								
Distinct applications relevant to Ethical review								
Identifier	**Description**	**CBM2 WP2 tool(s)**	**Domain (delete as appropriate)**	**Task mapping**	**Data use started?**	**Planned start date**	**Ethical approval obtained**	**Date approval obtained**
1		e.g. OpenBF, HemeLB, ALYA etc.	**CV-vascular / CV-heart / MSK / Molecular**		**Y/N**		**Y/N/NA**	
2		e.g. OpenBF, HemeLB, ALYA etc.	**CV-vascular / CV-heart / MSK / Molecular**		**Y/N**		**Y/N/NA**	
3		e.g. OpenBF, HemeLB, ALYA etc.	**CV-vascular / CV-heart / MSK / Molecular**		**Y/N**		**Y/N/NA**	
4		e.g. OpenBF, HemeLB, ALYA etc.	**CV-vascular / CV-heart / MSK / Molecular**		**Y/N**		**Y/N/NA**	

Ethics Questionnaire – table 2 (complete for each application)

GENERAL ETHICAL ISSUES		
1. HUMAN EMBRYOS/FOETUSES	Delete as required	
Does your research involve Human Embryonic Stem Cells (hESCs)?	**YES**	**NO**
Does your research involve the use of human embryos?	**YES**	**NO**
Does your research involve the use of human foetal tissues / cells?	**YES**	**NO**
2. HUMANS		
Does your research involve human participants?	**YES**	**NO**
Does your research involve physical interventions on the study participants?	**YES**	**NO**
3. HUMAN CELLS / TISSUES		
Does your research involve human cells or tissues (other than from Human Embryos/Foetuses, i.e. section 1)?	**YES**	**NO**
4. PERSONAL DATA		
Does your research involve personal data collection and/or processing?	**YES**	**NO**
Does it involve the collection and/or processing of sensitive personal data (e.g: health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)?	**YES**	**NO**
Does it involve processing of genetic information?	**YES**	**NO**
Does it involve tracking or observation of participants?	**YES**	**NO**
Does your research involve further processing of previously collected personal data (secondary use)?	**YES**	**NO**
5. ANIMALS		
Does your research involve animals?	**YES**	**NO**
6. THIRD COUNTRIES		
In case non-EU countries are involved, do the research related activities undertaken in these countries raise potential ethics issues?	**YES**	**NO**
Do you plan to use local resources (e.g. animal and/or human tissue samples, genetic material, live animals, human remains, materials of historical value, endangered fauna or flora samples, etc.)?	**YES**	**NO**
Do you plan to import any material - including personal data - from non-EU countries into the EU?	**YES**	**NO**
Do you plan to export any material - including personal data - from the EU to non-EU countries?	**YES**	**NO**
In case your research involves low and/or lower middle income countries, are any benefits-sharing actions planned?	**YES**	**NO**
Could the situation in the country put the individuals taking part in the research at risk?	**YES**	**NO**
7. ENVIRONMENT & HEALTH and SAFETY		
Does your research involve the use of elements that may cause harm to the environment, to animals or plants?	**YES**	**NO**
Does your research deal with endangered fauna and/or flora and/or protected areas?	**YES**	**NO**
Does your research involve the use of elements that may cause harm to humans, including research staff?	**YES**	**NO**
8. DUAL USE		
Does your research involve dual-use items in the sense of Regulation 428/2009, or other items for which an authorisation is required?	**YES**	**NO**
9. EXCLUSIVE FOCUS ON CIVIL APPLICATIONS		
Could your research raise concerns regarding the exclusive focus on civil applications?	**YES**	**NO**
10. MISUSE		
Does your research have the potential for misuse of research results?	**YES**	**NO**
11. OTHER ETHICS ISSUES		
Are there any other ethics issues that should be taken into consideration? Please specify	**YES**	**NO**

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Ethics Questionnaire – table 3 (complete for each application)

Application-specific details			
Does the application involve any "higher risk" activities?	**YES**	**NO**	*See page 6 of guidance document*
If YES, provide details of how these issues will be mitigated:			
Does the application involve processing of;			
Personal Data	**YES**	**NO**	*See page 7/8 of guidance document*
Pseudonymised Data	**YES**	**NO**	*See page 7/8 of guidance document*
Anonymised Data	**YES**	**NO**	*See page 7/8 of guidance document*
If data is Pseudonymous or Anonymous, provide statement on risk of re-identification:			
Has informed consent been obtained from the research participants?	**YES**	**NO**	*See page 10/11 of guidance document*
Does this activity involve secondary use of data previously collected as part of another research activity?	**YES**	**NO**	*See page 12/13 of guidance document*
If yes, provide details of how this is handled:			
Has a DPIA been undertaken for the activity?	**YES**	**NO**	*See page 14/15 of guidance document*
If yes, provide summary of documentation assocoiated with this.			
Do the issues associated with automated decision-making / big data apply?	**YES**	**NO**	*See page 16 of guidance document*
If yes, provide details of how this is handled:			
Will the activity involve transfer of data in/out of the EU?	**YES**	**NO**	*See page 18/19 of guidance document*
If yes, provide details of how this is handled:			
What are the arrangements for archiving/deletion of the data? (see page 20)			

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