GCNC
MRI CORE FACILITY

Gerald Choa Neuroscience Centre MRI Core Facility

Policies for Research Users

香港中文大學
The Chinese University of Hong Kong

CU Medicine HONG KONG
Faculty of Medicine
The Chinese University of Hong Kong

CONTENTS

A. Background

Supported by CUHK's VC Discretionary Fund and Academic Equipment Grant, the Gerald Choa Neuroscience Centre (GCNC) MRI Core Facility is established in 2020. The most important piece of equipment in this Core Facility is the Siemens MAGNETOM Prisma 3T MRI Scanner (hereafter the "MRI Scanner"), which will be housed in the **MRI Suite, LG/F, Cancer Center, Prince of Wales Hospital, Shatin.**

The GCNC MRI Core Facility is a University-wide facility for the exclusive use of CUHK researchers across all faculties and research units. Researchers are expected to conduct interdisciplinary research projects that align with the University's strategic plan, including areas such as:

- Translational Medicine (Brain and Mind, Genetic, and Genomic and Precision Medicine)
- Information and Automation (Intelligent Reasoning and Cognition, and Robotics)
- Advanced Medical Neuroimaging

Equipment

- Siemens MAGNETOM Prisma 3T MRI Scanner
- Pediatric 16#3T (New 16-channel receive coil for head and neck imaging of newborns and children up to 18 months of age)
- 32-Channel Head Coil (iPAT-compatible coil for fast high-resolution and advanced neuro imaging)
- Visual and Audio Stimulation System for fMRI

Collaborating Partners

Department of Imaging and Interventional Radiology (DIIR) and the **Brain and Mind Institute (BMI)** are the major collaborating partners.

DIIR has contributed its CUHK-owned space at the Prince of Wales Hospital for the Core Facility, and BMI has contributed financially to fund matching.

B. MRI Committee

The GCNC MRI Core Facility will oversee the operation and usage application of the equipment and facilities of the Core Facility. The MRI Committee of the Core Facility will determine the specific pricing and usage guidelines of the scanner.

Members of MRI Committee are:

- Prof. Winnie Chu, Head of GCNC MRI Core Facility (Professor, Department of Imaging and Interventional Radiology)
- Prof. Patrick Wong (Associate Vice President, Research), (Director and Professor, Brain and Mind Institute)
- Prof. Vincent Mok (Professor, Division of Neurology, Department of Medicine and Therapeutics)

Meetings will also be held to assess usage applications based on (but not limited to) the following factors:

- Nature of the project (e.g. Consistent with CUHK's strategic interests, study feasibility and project sustainability)
- Funding source of the project: Internal / External funded with MRI being a budgeted item
- Levels of funding

- Ethics approval and MRI safety training (if applicable) obtained

In deciding the suitability of a usage application for the MRI Core Facility, the MRI Committee may seek the opinion from members of the MRI Usage Application Review Board. Membership of this Review Board is determined by the MRI Committee and is updated from time to time.

C. Booking Policy

1. Pricing (from 1st January – 31st December 2023)

<table>
<tr><th>Project</th><th>Standard Price (per hour)</th><th>Protocol Test *3</th><th>Pilot Research*4</th><th>Report issued by DIIR</th><th>Contrast*5 (per case)</th></tr>
<tr><td>CUHK Project*1 (CUHK staff as PI)</td><td>HK$4,800</td><td>Free</td><td>HK$1,000/hr</td><td rowspan="4">From HK$1,100# (per report)</td><td rowspan="4">HK$1,000 (Gadolinium Contrast Medium)</td></tr>
<tr><td>Non-CUHK Project with CUHK Co-I*2</td><td>HK$6,400</td><td>HK$3,000/hr</td><td>NA</td></tr>
<tr><td rowspan="2">Commercial sponsored projects (CUHK staff as PI)</td><td>From HK$8,000#</td><td>HK$3,000/hr</td><td>NA</td></tr>
<tr><td colspan="3">Image upload to sponsor’s system: HK$300/ scan</td></tr>
<tr><td>Sundays Surcharge</td><td colspan="5">$1,500 / hour, at least 3 consecutive hours^</td></tr>
</table>

Remarks

*1. A CUHK project is defined by one that has a CUHK project account where a CUHK staff member serves as the budget holder and the sole PI or subproject PI (for large-scale projects with multiple PIs). All payments should be made via CUHK interdepartmental transfer.

*2. An agreement should be signed with CUHK via ORKTS prior to scan application if payment is made via non-CUHK account, 15% handling charge will be requested by CUHK.

*3. Researchers are permitted to use the scanner free of charge in order to set up their scanning protocol, subject to scanner availability. If the scanner is booked after a researcher requested a protocol testing timeslot, the free timeslot will be cancelled. The protocol testing time is meant for the researchers to calibrate the instruments rather than scanning any consented research participants. A phantom can be made available. Free session for sequence trial is capped at 5 hours for each project.

*4. A special rate at HK$1,000 per hour will be offered for a maximum of 8 hours per project as trial run scan (including set up time).

*5. In line with HA requirement, CMS report is compulsory for the use of contrast. Reporting fee from HK$1,100 per case per report will be charged,

Cost will be reviewed case by case subject to sequence complexity.

^Bookings on Sundays would be available subject to HA radiographer and staff availability, booking of a minimum of 3 consecutive hours is required. Bookings on Saturdays and extended hours on weekdays are currently unavailable.

The above charges include machine time, operator support, consumables (i.e. ear plugs, hair net, hospital gowns). The rates above are subject to adjustments based on cost changes.

2. Scanning Time

Monday – Friday, 9:00 am - 5:00pm
Saturdays, Sundays and Public Holidays are closed. Core Facility will open on Sundays only upon request and subject to manpower availability. PIs should be responsible for any additional staff cost that is incurred outside of normal scanning time.

It is the responsibility of the Projects' Principle Investigators (PIs) or authorized research members to ensure that the scanning can be completed within the reserved time. Over-running is likely to result in the scan being cut short.

The researcher should ensure that the participant is ready to enter the MRI scanner at least 5 minutes before scan start. This includes screening form and consent form have been completed, and the experiment and scan procedure have been fully discussed with the participant.

3. Usage Application Procedures

3.1 Prior to Application

Prior to any approved scan, the following approval should be obtained:

- Research Ethics from Joint Chinese University of Hong Kong- New Territories East Cluster Clinical Research Ethics Committee (CREC), and any other ethics board as appropriate.
- Template of participant consent form (Please refer to Appendix 1 for the sample statements)

3.2 Application Submission

i. Documents

The PIs should complete the online application form. Each application shall include (but not limited to) the information required as listed below:

- Information of PI
- Project description
- MRI specifics and expected usage
- Funding source(s)
- Proof of approval of ethics protocol and template of participant consent form
- Proof of MRI safety training (if applicable)
- MRI data repository agreement

The Core Facility may request additional documents, information or clarification, and reserves the right to refuse performing an initial review if an application is incomplete and/or insufficient information is submitted to the Core Facility.

ii. Release of Result

Normally, the PI will be notified of the application result by email in ten working days upon complete application is received.

Upon application approval, the PI or research members should contact the Core Facility directly for scanning time booking.

3.3 Application Amendment

PIs and researchers have the responsibility to adhere to the scan protocol approved by the MRI Committee. No amendment or change to any approved scan protocol shall be implemented without the MRI Committee's approval, except:

(a) Where necessary to eliminate any immediate hazard to the participant; or
(b) If an amendment/change is only of an administrative or logistical nature (e.g. correction of typo errors).

i. Amendment of Scanning Protocol

In the event that any amendment or change needs to be made to any scanning protocol, the PI shall submit a request to the Core Facility with Proof of ethics approval of the amended study protocol (if applicable)

ii. Change of PI

The current PI should inform the Core Facility in the event of change of PI, and provide the following information:

- CV of the new PI
- Endorsement from the Department Head or Grant Authority
- Proof of MRI safety training of the new PI (if applicable)

All amendment request on scanning protocol will be reviewed by the MRI Committee.

Please refer to Appendix 2 for the flow chart of Usage Application Procedures.

4. Orientation and Safety

Prior to scan booking, PIs and/or research team member(s) who will directly interact with participants during MRI scan are required to complete an orientation briefing and pass the online MRI safety test arranged by GCNC MRI Core Facility.

5. Scan Booking

Upon scan protocol is approved, PIs may contact the Core Facility for scan time booking. Scanning should commence within one year upon usage approval. Projects will be considered as withdrawal or completed if no scan has been arranged for one year. New application must be submitted for future use.

The Core Facility accepts bookings 4 months in advance for UGC-funded projects and 3 months in advance for other projects. To facilitate scan preparation and manpower arrangement, bookings submitted less than 7 working days before the proposed scan time will NOT be accepted. PIs are strongly advised to make pre-scheduled sessions. For special scan protocol and on rare occasions, special request with less than 7 working days notification will be reviewed on a case-by-case basis.

The minimum booking time for each reservation is 1 hour, and every 30 minutes afterwards. Any overrun of 15 minutes of the booking time will be charged as half hour, overrun of 30 minutes will be charged as a full hour. Overrun of scan is allowed only if there is no subsequent booking.

Ethics approval must be valid on scan date. Scan booking will be suspended should the ethics approval is expired. PIs should provide the updated / renewed ethics approval of the same project as soon as obtained.

Recurrent Bookings
PIs may request for recurrent bookings with a maximum of 2 timeslots per week or a maximum of 6 hours per week. Recurrent booking priority is reserved for UGC-funded projects.

6. Billing

Departmental transfer form will be sent to the users and fees will be collected via Finance Office twice a year in January and July, with scan cut-off on 31 December and 30 June respectively. Special interim payment could be requested for UGC or other grant accounts clearance. Interim payment request should be made at least one month in advance.

7. Cancellation

Requests for cancellations and changes to reservations on the MRI scanner should be sent to cumri@cuhk.edu.hk. Charges may incur for late cancellation and no-show cases.

Bookings cancelled less than 7 working days before the scan will be charged at 20% of the scan fee. Bookings cancelled less than 2 working days before the scan will be charged at 100% of the scan fee.

The following are also chargeable cancellations:

- Researcher failing to arrive or arriving late for the scanning session.
- Participants not passing MR screening (contra-indications should be checked prior to the participant arriving for a scan).
- Participants failing to meet any criteria for the experiment (e.g. failing a performance limit for a task).

No charges will be applied under the following circumstances:

- Core Facility closes due to severe weather conditions or unforeseen circumstances.
- Malfunctioning of standard equipment provided by the Core Facility.
- Illness and other unforeseen circumstances related to Core Facility staff.

8. Notes to Applicants

- No hardware changes are allowed.
- Changes to any standard scanner software configurations are not allowed.
- All other consumables not provided by the Core Facility should be obtained by the users.
- PIs or members of the research team are responsible to ensure the scan is conducted in compliance with the scan safety checklist and guidelines of the MRI Core Facility (Appendix 3).
- It is the responsibility of all PIs and research members conducting an imaging study or with responsibility within MRI facility at the time of operation, to ensure the health and safety of themselves, research participants, and visitors. PIs and research members will bear the responsibility to provide additional participant support to ensure safety whenever necessary.
- PIs and research members may be liable for the damages incurred by improper use of the scanner and other equipment.
- PI is responsible for providing research scanning protocol, including the fMRI task paradigm if fMRI is involved.

- MRI staff will install the protocol and make necessary modification to fit the model of the scanner.
- Post processing of MRI data will be handled by the PI and research members.
- MRI staff are only available to provide advice on using Siemens programme on the MRI console when there is no ongoing scanning within the MRI suite.
- It is the responsibility of the PI and research team to coordinate participant attendance and to ensure their punctuality.
- MRI staff are only responsible for operating the scanner and ensuring participant safety check on site.
- Repeated violations may lead to the suspension or permanent termination of the access to scanner

9. Technology Advancement

Idle times and non-office hours will be reserved for Core Facility maintenance, sequence testing and technological advancement, where human subjects may be scanned. Users should be responsible for the additional staff cost as it arises.

10. Severe Weather Arrangement

Tropical Cyclone Signal No. 8 or above/ Black Rainstorm Warning Signal

If the Tropical Cyclone Signal No. 8 or above / Black Rainstorm Warning Signal is hoisted, our service will be suspended. Services will be resumed in 2 hours if the signal(s) is removed before 2pm. If the signal(s) is removed at or after 2pm, our service will be closed for the whole day. No cancellation fee will be charged for cancellation under any of the severe weather conditions of the above. PIs / research staff should contact the Core Facility for rescheduling if necessary.

D. Incidental Findings in MRI Examination

Each project is required to incorporate statements on incidental findings procedures on the project's consent form. It is important to emphasize to the participants that the scans being obtained are NOT for medical purposes and are only for research. The scans will not be reviewed by a qualified Radiologist or other medical professionals.

E. MRI Data Repository Policy *(For projects approved on 1 January 2022 and onwards)*

As a condition of using the Core Facility, PIs are asked to deposit the MRI scans obtained from the Core Facility to a MRI Data Repository. During the ethics approval process, the PI must obtain approval to deposit the data and the participants must be consented accordingly (Appendix 1). We require the deposit of all anatomical (T1, T2, DTI, etc) and resting-state fMRI data, if acquired. The age (year, month, and day), gender, and disease status (if applied) of the subject will also be needed. The MRI Data Repository will only be accessed by CUHK investigators by submitting an application to the Core Facility. If further data sharing with investigators outside of CUHK is required, consent from the relevant PI will be obtained.

F. MRI Data Handling Policy

- Confidentiality
  Subject to the requirements of legislation, all information obtained about participants during a study is confidential unless otherwise agreed in advance. In order to protect an individual's identity during data analysis. Anonymization of MRI data will be performed by using coded information as the participant ID. The key to this code is only accessible to members of the research team using that information.

- Data Transfer
  After the scan sessions, data will be given to the research team. It is the PI's responsibility to back up their own data. PIs are strongly advised to review and analyze the data immediately each time upon image transferred. Please contact the MRI Core Facility to check or amend the scan parameter at once should any inconsistency is identified.

- Data Analysis
  The Core Facility does not provide any MRI data analysis services. It is the responsibility of the PI to ascertain that their data are analyzed according to their scientific goals. No report will be provided, and images will not be formally reviewed by a radiologist. In case of important incidental findings, the referring clinicians / PIs will be informed for courtesy.

G. Acknowledgements and Citation

All published work resulting from data collected at the Core Facility must include a formal acknowledgement of the GCNC MRI Core Facility.

The following language should be quoted when acknowledging the Core Facility in all publications.

"This research was conducted in whole or in part at the Gerald Choa Neuroscience Centre MRI Core Facility which is supported by the Vice-Chancellor's One-off Discretionary Fund of The Chinese University of Hong Kong."

The aforementioned policy may be changed from time to time without prior notice. Please visit the Core Facility website (www.cuhk.edu.hk/centre/cumri) for the latest version.

Appendix 1: Sample Statements for Participant Consent Form

The PIs are required to obtain participants' consent regarding Risks and Discomforts, MRI Data Repository, and Incidental Findings Policy. Sample statements below are for PIs' adaptation and modification as deemed appropriate, and subject to ethics approval from CREC.

Risks and Discomforts 潛在危險和副作用

The known risks or side effects associated with conventional MRI procedures are minimal, except for those people who have electrically, magnetically or mechanically activated implants (such as cardiac pacemakers) or those who have intracerebral vascular clips. The greatest risk is of a metallic object flying through the air toward the magnet and hitting you. To reduce this risk we require that all people involved with the study remove all ferrous metal from their clothing and pockets before entering the magnet room. No ferrous metal objects are allowed to be brought into the magnet room at any time, unless they are permanently installed.
除去那些身上裝有電子的、磁的或機械的設備（如心臟起博器）的人，已知的核磁共振成像對人的危害或副作用非常小。本研究的唯一已知的潛在的危險是金屬物體受磁場吸引並擊中您。為了減少這個潛在的威脅，我們要求所有參與研究的人，包括研究者，在進入試驗區之前除去所有的鐵質物品。在任何時候，所有金屬物件均不得帶進掃描室，永久裝置除外。

A magnetic resonance scan is not uncomfortable but if you are prone to claustrophobia (i.e., fear of enclosed spaces) you should notify the researcher in charge of the scan. You can expect to hear a knocking sound during the imaging; ear plugs will be provided so the sound should not be bothersome.
掃描成像不會帶來不適；但如果您不習慣留在一個封閉的空間，您應該在實驗前告訴主試。在實驗中，您會聽到敲擊的聲音。耳塞會提供給您以減少噪音強度。

It is important in these studies that you remain motionless. Subject to scan requirement, tools may be used to keep your body immobilized and in a relaxed position. Should you experience any discomfort during the scan, you should notify the researcher in charge of the scan. You are free to stop the study at any point if for any reason you do not wish to continue.
在實驗中保持靜止對本研究非常重要，我們或會使用輔助器材讓您保持靜止和舒適。如在掃描時感到任何不適，請立刻通知主試。同時，您可以在實驗的任何時候，無需任何理由終止實驗。

MRI Data Repository 數據保存

To benefit future research, all MRI scans from you will be deposited into the CUHK MRI Data Repository and share with CUHK collaborating partner(s) if necessary. For further analysis of your MRI data, your name will be removed from all scans. Only your gender, age, and disease status (if applied) at the time of scanning will be included.
所有於實驗中收集到的數據和影像都會保存於香港中文大學及相關合作伙伴的磁力共振數據庫，作日後科研用途。日後在研究您的掃描影像時，只會顯示您的性別和掃描時的年齡，而不會顯示您的名字。

Incidental Findings Policy 發現異常的處理 (Compulsory for studies WITHOUT HA clinical report / CMS report / report issued by a radiologist.)*

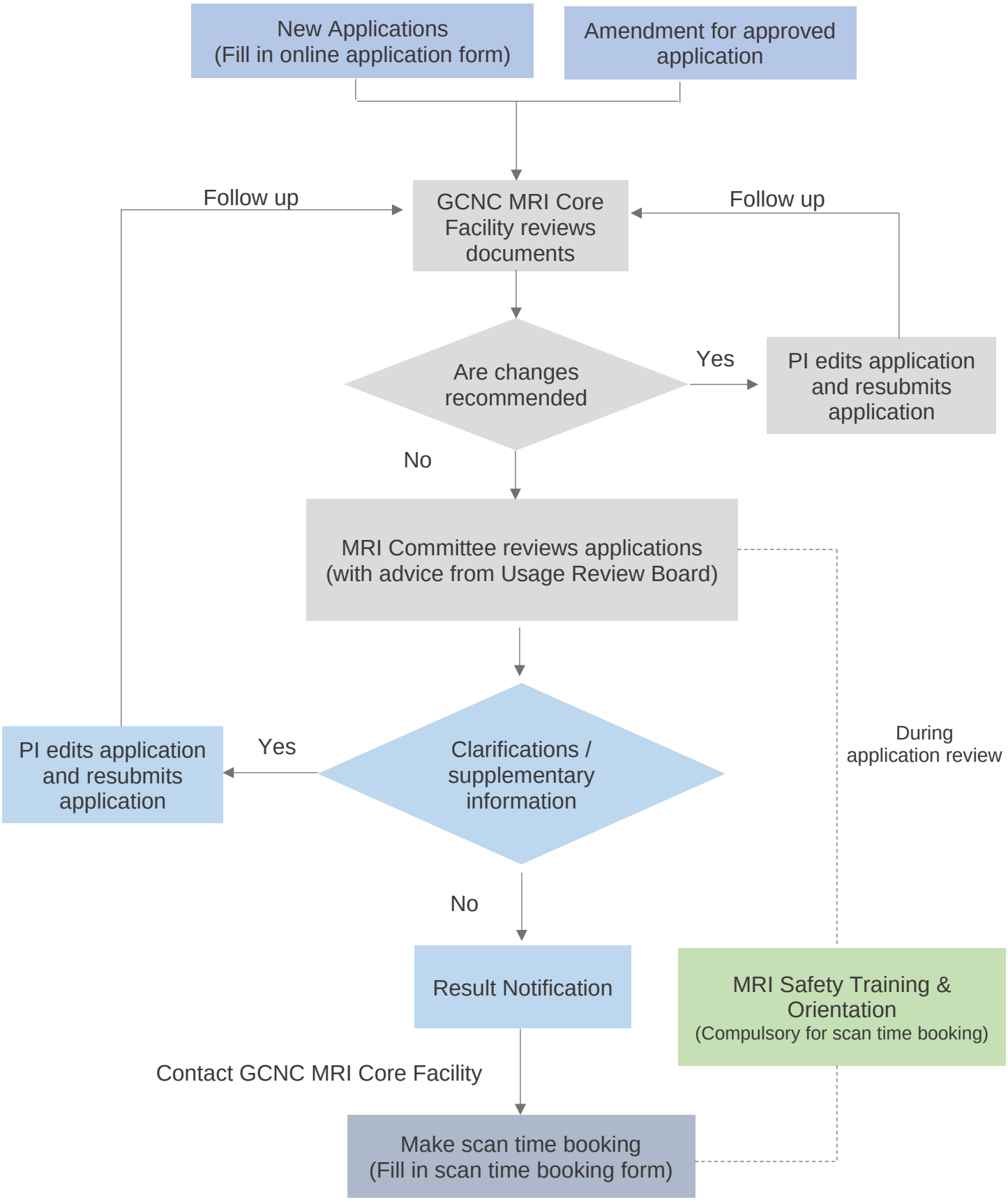
THIS IS NOT A MEDICAL OR DISEASE DIAGNOSTIC SCAN and will not be formally reviewed by a radiologist, and therefore your scan will not be examined for abnormalities. The scan will not benefit you directly, and does not form part of any medical diagnosis or treatment. However, if in the course of processing the research images, our research staff notices any abnormality that would be potentially relevant to your health, we will notify you and a physician you designate. Please note that the research staff is NOT qualified to assess the scans for medical purposes.

這不是一個醫療或病症診斷的掃描，本研究進行的掃描影像並不會由放射治療師審閱。您參加本研究對您本人並不帶來直接的利益，也不會構成任何醫學診斷和治療的部分。但是，如果主試在實驗中發現異常的東西，他們會通知您和您指定的醫生。研究人員不得以是次掃描作任何醫療用途。

** For studies aim to collect clinical scan data, PIs should arrange HA clinical reports / CMS reports/ reports issued by a radiologist. The reports should be reviewed by a qualified professional and reported to the subjects for any incidental findings.*

PIs are reminded to make pre-arrangement with the radiologist(s) or please contact GCNC MRI Core Facility for the arrangement. Department of Imaging and Interventional Radiology (DIIR) will be invited for report issuance. Reporting fee will apply and subject to scan sequence complexity.

Appendix 2: Flow chart of Usage Application Procedures



Appendix 3: Scan Safety Checklist

MRI Fact Sheet and Safety Checklist

A. Participant Information

姓名(Name):_____日期(Date):_____ 性別(Gender):_____
出生日期(DOB):_____ 體重(Weight):_____

B. Pre-scan checklist

Please put a "✓" on the box(es) to indicate your implants or devices and conditions for our safety verification:

你是否(Have/Had you)

是 (Yes)	否 (No)	如果是，請解釋 (If Yes, please explain)
☐	☐	在金屬環境工作過？Work in Metal Environment
☐	☐	有幽閉恐懼症？Claustrophobia
☐	☐	患過腎炎或其它腎病？Nephritis or Nephropathy
☐	☐	曾經動過手術？Surgery
☐	☐	有頭部創傷？History of Head Trauma
☐	☐	患有美尼爾氏綜合症？Meniere's Disease
☐	☐	涉及金屬的受傷？Injury (Involving Metal)
☐	☐	曾中風/昏厥過？Stroke/Seizure

以下問題謹供女性參加者回答(The following questions are for female patients to answer)

☐ ☐ 處於懷孕或哺乳期或有可能懷孕？Being Pregnancy or Breast Feeding or suspect that you could be pregnant

上一次月經日期 Last menstrual period? (_____/_____/_____) dd/mm/yyyy

下列物品對磁共振圖像有影響並對你的安全不利，請檢查你是否有下列物品中的任何一種：(Following items would affect image quality and endanger your safety. Please check carefully if you have any one with you)

☐	心臟起博器(Cardiac Pacemaker)	☐	動脈瘤血管夾(Surgical Aneurysm Clips)
☐	神經刺激器(Neurostimulator)	☐	心臟瓣膜修復(Prosthetic Heart Valve)
☐	植入泵(Implanted Pumps)	☐	永久眼襯(Permanent Eyeliner)
☐	電子耳蝸(Cochlear Implants)	☐	助聽器(Hearing Aid)
☐	陰莖假體(Penile Implant)	☐	宮內節育器(IUD)
☐	紋身(Tattoos)	☐	腦夾(Brain Clips)
☐	主動脈夾(Aortic Clips)	☐	頸動脈夾(Carotid Clips)
☐	分流裝置(Shunts)	☐	胰島素泵(Insulin Pump)
☐	電極(Electrodes)	☐	人工關節(Joint Replacements)
☐	骨或關節針(Bone or Joint Pins)	☐	金屬網眼(Metal Mesh)
☐	施接普內耳膜(Shrapnel)	☐	金屬杆、盤、螺絲等(Metal Rods, Plates, Screws)
☐	血管內彈簧圈 (Intravascular coil)	☐	宮內節育器 (Intra-uterine contraceptive device)
☐	眼內金屬異物 (Metallic foreign body in eyes)	☐	支架/血管夾 (Stent/ Vascular clip)
☐	假體（如假牙、假眼、假肢等 Prostheses include dentures, artificial eyeballs, artificial limbs, etc.)		

MRI does not involve ionizing radiation. It utilizes a strong magnetic field and radio waves to produce images. Although the long term biological effects on the human body are still not fully understood, it has been in widespread clinical use for over twenty years and, to date, no known side effects have been reported in used appropriately. However, if you go into the MRI environment with an unverified device, strong interaction may cause your device malfunction and / or body injury.

磁力共振並不涉及游離輻射，它利用強磁場和無線電波來產生圖像，已在臨床上廣泛使用了 20 多年，迄今為止，尚無適當使用下而產生副作用的報導。但是，如果您使用未經驗證的設備進入磁力共振環境，可能會導致設備故障和/或身體受傷。

志願者簽名(Participant Signature)　　日期Date

以下由研究者填寫Office Use Only

檢查類型(Type of Exam)

主要研究者簽名(Principal Investigator Signature)