Ethics UID:	H13483
Title:	The chemistry of latent fingermarks and their detection
CI/PS:	Chris Lennard
Student:	

Please refer to the guidance document titled, *Guidance on Receiving and Responding to Ethics Committee Assessor Comments*, when formulating your response.

Please include the actual text of the changes you have made in any of the documents where relevant, as well as any justification needed to assist the committee in understanding your response i.e. It is not sufficient to say "see HREA form", actual text of your response must be included.

Summary of Application Issues and Responses

Issue Type	General Comment
Issue Description	Thank you for submitting a beautifully crafted, well written and well thought out proposal. This is an excellent example of an umbrella project application. The committee has only minor feedback and your response can be reviewed by the Executive committee at weekly meeting. The committee noted that each new subproject will be submitted to the HREC via an amendment.
Researcher Response	We thank the Committee for the positive feedback. The minor issues raised by the HREC have been addressed as indicated below.
Review Comments	

Issue Type	General comment
Issue Description	Consent Please ensure that all information about the extended use of the data is consistent across the application. Eg the PIS states that the samples will not be used in other projects, but this inconsistent with the idea of extended consent.
Researcher Response	The wording in the PIS has been changed to be consistent with the wording in the Consent Form.
Review Comments	

Issue Type	Project Description
Issue Description	4.3: The list of aims looks like a list of projects. Please provide an overarching aim for the program of research.
Researcher Response	This has been addressed in the resubmission. An overarching aim has been provided, with the initial list of aims now indicated as sub-aims.
Review Comments	

Issue Type	Project Description
Issue Description	7.6: there is not specification of the number of participants that might be needed for the staff group. Please justify the number of fingerprints collected from the students
Researcher Response	Under 7.5, we have specified 10-50 participants for staff (Group 1) and 10-50 participants for students (Group 2). This is to achieve a broad spread of donor age across the two groups. For each group, the expected number of participants has been justified as follows: "The expected number of participants in this group as indicated above is justified based on the research guidelines published by the International Fingerprint Research Group (IFRG, 2014). The number of individual fingermark donors employed for each discrete project – sufficient to answer the research question posed – will be in accordance with these research guidelines (IFRG, 2014) and specified in associated ethics amendment requests."
Review Comments	

Issue Type	Project Description and HREA P5.1
Issue Description	7.9: Given the nature of the researchers with the students it would be best that someone other than the research team conduct the recruitment. Could this be considered?
Researcher Response	This has been considered and the advice taken on board. The application now specifies that recruitment will be undertaken by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus (or any individual acting in this role). This person will have no direct involvement in this program of research.
Review Comments	

Issue Type	Project Description
Issue Description	7.1: the answer here doesn't seem to accord with the intention of follow up in section 7 and what is stated in the HREA about the de-identified nature of the specimens that will be stored.
Researcher Response	We assume that this comment actually relates to 7.11 (summary of consent process). Section 7.11 in the Project Description has been revised so that it now reflects what is stated in the HREA.
Review Comments	

Issue Type	HREA
Issue Description	Q3.3: Won't the data be collected in identifiable form and then de-identified later? Please revise. The use of codes needs to be reflected in the Project Description where relevant.
Researcher Response	The response to Q3.3 has been changed to "Individually identifiable information". The use of a "donor number" to code the collected fingermarks/fingerprints has been reflected in the revised Project Description.

Review Comments	

Issue Type	HREA
Issue Description	Q 3.16.1.1. – how will they be given the option of receiving the outcomes from the study? Is this feasible given that the finger prints could be used for more than one study? Please reconsider.
Researcher Response	Based on this feedback, the outcomes of this program of research will not be disseminated to the participants. Indeed, disseminating relevant research reports may be problematic if the collected fingermarks/fingerprints have been used across multiple projects. The HREA and the Participant Information Sheet have been modified accordingly.
Review Comments	

Issue Type	Participant Information Sheet(s)
Issue Description	The PIS mentions that de-identified fingerprints will be stored; 7.8 in the Project Description mentions that there might be some follow up of participants. How will this be done if the fingerprints are collected with no additional identifying information?
Researcher Response	Collected fingermarks/fingerprints will be labelled with a donor number. The retained participant consent forms will associate a particular participant with their donor number. These consent forms will be securely stored by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus, *not by one of the nominated researchers (or any associated research student)*. As such, while the collected samples do not directly identify the donor, the association can still be made by the Technical Team Leader by consulting the retained consent forms. Therefore, any required follow-up with a particular participant can be arranged by the Technical Team Leader (or, in their absence, the person acting in that role). This proposed arrangement has been clarified in the Project Description and in the HREA.
Review Comments	

REDI RESEARCH | ENGAGEMENT | DEVELOPMENT | INNOVATION

RESEARCH ETHICS AND INTEGRITY
Human Research Ethics

Project Description

To be submitted with a human research ethics application (HREA)

IMPORTANT

You must e-mail your complete ethics application to humanethics@westernsydney.edu.au after uploading it to the HREA website.

The Project Description is a mandatory component of an ethics submission using the HREA. Western Sydney University researchers should use this template to develop their Project Description, unless the project is a clinical trial. Clinical trial proposals may complete this form including Section 11, or may provide an alternate protocol template and associated documents.

The Project Description will be the first document read by the reviewers and should provide a succinct overview of the project. Its purpose is to provide the scientific and academic background and context of the project. It should be written in language that is comprehensible for a non-technical reviewer and for most applications should be no more than 6 pages in length.

A guidance document has been developed to assist in completing this form.

Please contact the Human Research Ethics Officers if you are unsure about your requirements humanethics@westernsydney.edu.au

If you are unable to use the tick boxes on this template, please delete the option/s which do not apply.

Section 1: Overview

1.1. Project Title: ***The chemistry of latent fingermarks and their detection***
1.2. Project Acronym or short title (if applicable):
1.3. Version Number: 1

Section 2: Western Sydney University School or Institute approval

2.1. Which Institute/School/Centre/Group will be administering this project? School of Science and Health
(Note: School of Science from 1 January 2020)
2.2. Does your School or Institute have a requirement that human research projects are agreed to before an ethics application comes to the ethics committee? ☐ Yes ☒ No
See Guidance sheet for more information.

Section 3: Project Team Named in the HREA

(Provide names only. Additional details should be included in HREA Q1.9)

3.1. Chief Investigator / Principal Supervisor: Professor Chris Lennard
3.2. Chief Student (if applicable): N/A
3.3. Other Investigators/Supervisors: Dr Val Spikmans, Dr Rob Ebeyan, Dr Brenden Riley
3.4. Other Students: N/A
3.5. Role/s yet to be assigned (e.g. future RA; as yet unknown students): future Masters and PhD students

Section 4: Background (Limit to 4,000 characters for all of section 4)

4.1. Literature Review (include citation details):

Latent fingermarks are the deposits that are left on smooth surfaces when they are touched with bare hands. Such deposits consist of natural secretions plus contaminants picked up from the environment. The forensic significance of these deposits is that they can be revealed, recorded, and potentially identified – i.e., they can be used to identify the individual responsible for their deposition. This is done through a comparison of the ridge detail in a questioned fingermark with the ridge detail in a reference fingerprint – a print collected from a known person (Champod et al., 2016).

The chemical composition of latent fingermarks can vary significantly depending on various factors including the age, gender, health, diet and metabolism of the fingermark donor, as well as recent activities – such as exercise, manual labour, hand washing, touching the face, etc. – the nature of the substrate, and environmental factors. Fingermark deposits have been the subject of chemical analysis by different research groups around the world (Croxton et al., 2010; Girod et al. 2012). However, only limited research in this area has been undertaken in Australia.

Latent fingermark deposits are generally invisible (hence the term "latent") and require some form of optical, physical or chemical treatment for their detection and recording. Such detection methods exploit the physical and chemical properties of fingermark deposits. The goal from a forensic investigation perspective is to capture the detail contained within the ridge patterns in these deposits so that this can be used for the potential identification of the donor. This latter forensic identification process requires the comparison of a recorded latent fingermark with reference fingerprints from known individuals. (Note, however, that fingermark identification is not the focus of the proposed study.)

There is ongoing research worldwide looking at aspects of fingerprint chemistry and the development of more sensitive fingermark detection methods. The evidence for this includes current literature and presentations delivered at biennial meetings of the International Fingerprint Research Group (IFRG; https://ips-labs.unil.ch/ifrg/), of which the named Chief Investigator is an active contributor and former Steering Committee member (Lennard, 2018). Due to the complex nature of latent fingermarks and the need for more effective detection methods, further studies are required if operational success rates are to be improved.

Ongoing research is required to develop methods that can (Champod et al., 2004):

- Offer increased sensitivity and signal-to-noise ratio;
- Be readily deployed at crime scenes;
- Be introduced in sequences of detection techniques or in sequence with other forensic investigation methods;
- Simplify the detection process by reducing the number of steps or allowing automation;
- Reduce the overall cost of fingerprint processing; and
- Avoid the use of hazardous chemicals.

One of the operational challenges for fingermark detection is the ever-increasing range of proposed detection methods that can make method selection problematic. Arguably, applied research in this field should focus on more effective methods rather than on a greater selection of methods (Champod et al., 2016). As such, a reduced number of optimised and validated techniques – that can be readily applied in actual casework – is a priority.

References:

Champod, C., Lennard, C., Margot, P., & Stoilovic, M., *Fingerprints and Other Ridge Skin Impressions*, 2004, CRC Press (Boca Raton).

Champod, C., Lennard, C., Margot, P., & Stoilovic, M., *Fingerprints and Other Ridge Skin Impressions*, Second Edition, 2016, CRC Press (Boca Raton).

Croxton, R.S., Baron, M.G., Butler, D., Kent, T., Sears, V.G. Variation in Amino Acid and Lipid Composition of Latent Fingerprints, *Forensic Science International*, 2010, 199, 93–102.

Girod, A., Ramotowski, R., Weyermann, C., Composition of Fingermark Residue: A Qualitative and Quantitative Review, *Forensic Science International*, 2012, 223, 10–24.

Lennard, C., Fingermark Detection and Identification: Current Research Efforts, *Australian Journal of Forensic Sciences*, 2018, DOI 10.1080/00450618.2018.1474948.

4.2. Rationale/Justification (i.e. how the research will fill any gaps, contribute to the field of research or contribute to existing or improved practice):

Despite significant progress over the last 20 years with respect to improved fingermark detection methods, various studies have indicated that a large proportion of available fingermarks in any particular forensic investigation go undetected (Chadwick et al., 2018). In order to gain a better understanding of detection techniques, to better evaluate new methods, and to obtain more accurate estimates of detection rates, more research needs to be performed examining the fundamentals of fingermark development. This can include the chemical analysis of fingermark deposits, a consideration of how these deposits interact with different substrates, and how the deposits break down over time. To improve fingermark detection success rates in operational forensic casework, there is an ongoing need to improve the sensitivity of existing methods and/or develop new approaches. The assessment of new or modified fingermark detection methods must be done in accordance with relevant guidelines such as those published by the International Fingerprint Research Group (IFRG, 2014). These guidelines dictate that such evaluations need to be conducted on fingermarks collected from a broad range of donors and on operationally-relevant substrates. Prior to treatment, these fingermarks also need to be "aged" over different timeframes to simulate what is typically encountered in operational casework.

The proposed *program of research* will incorporate a number of discrete research student projects all focused on gaining a better understanding of latent fingermarks and their detection. This will require the collection of fingermark samples from a broad range of donors, on various substrates, and over different timeframes.

All new projects proposed under this *program of research* will be the subject of an ethics amendment request that will be submitted to the HREC for consideration. Associated research students and collaborating organisations will also be named in each request. Only projects approved by the HREC under the umbrella of this ethics clearance will be undertaken.

References:

Chadwick, S., Moret, S., Jayashanka, N., Lennard, C., Spindler, X., & Roux, C., "Investigation of Some of the Factors Influencing Fingermark Detection", *Forensic Science International*, 2018, 289, 381-389.

International Fingerprint Research Group (IFRG), "Guidelines for the Assessment of Fingermark Detection Techniques", *Journal of Forensic Identification*, 2014, 64, 174–200.

4.3. Research questions/aims/objectives/hypothesis:

The overarching aim of this program of research is to improve the detection and recording of latent fingermarks in forensic casework to assist in increasing operational success rates.

The sub-aims ~~of the research are as follows~~will include the following:

- collect latent fingermarks from a range of donors to obtain a representation of the variation in composition likely to be encountered in the general adult population;
- where relevant, analyse the chemical composition of these latent fingermarks using a range of analytical methods;
- also collect, from the same donors, reference fingerprints so that these can be used as a comparison point when the quality of recorded fingermarks is being assessed (i.e., the comparison is not for fingerprint identification purposes but to evaluate the quality of detected/enhanced fingermarks with respect to ridge clarity and the fidelity of ridge features);
- consider currently-available fingermark detection methods (optical, physical and chemical) and optimise selected methods for application on various substrates;
- develop novel methods for fingermark detection; and
- undertake a detailed evaluation of any proposed new methodologies to compare their performance against that of routine, conventional methods.

Any other aims will be specified in associated ethics amendment requests that will be submitted for each discrete project. Note that all projects within this *program of research* will be undertaken in accordance with the guidelines published by the IFRG in 2014. These guidelines represent "best practice" for research in this field.

Note that this ethics application is essentially the same as the one that was lodged and approved in 2014 (H10909, "The chemistry of latent fingermarks and their detection"; expires 2 February 2020). No issues were encountered over the course of this approval, and associated research projects resulted in a number of conference presentations and peer-reviewed journal articles that included the following:

- Attard, C., & Lennard, C., "Use of Gelatin Lifters and Episcopic Coaxial Illumination for the Recovery and Imaging of Latent Fingermarks from Various Surfaces", *Journal of Forensic Identification*, 2018, 68, 171-185.
- Moret, S., Lee, P.L.T., de la Hunty, M., Spindler, X., Lennard, C., & Roux, R., "Single Metal Deposition Versus Physical Developer: A Comparison Between Two Advanced Fingermark Detection Techniques", *Forensic Science International*, 2019, 294, 103-112.
- Lee, P.L.T., Kanodarwala, F.K., Lennard, C., Spindler, X., Spikmans, V., Roux, C., & Moret, S., "Latent Fingermark Detection Using Functionalised Silicon Oxide Nanoparticles: Method Optimisation and Evaluation", *Forensic Science International*, 2019, DOI 10.1016/j.forsciint.2019.02.038.
- McCabe, R., Spikmans, V., Wuhrer, R., Spindler, X., & Lennard, C., "Evaluation of Indanedione Application Methods for Fingermark Detection on Paper: Conventional Treatment, Vacuum Development and Dry-Transfer", *Journal of Forensic Identification*, 2019, in press.

This provides some insight into the types of projects that will be incorporated into the new program of research that is the subject of this application.

Reference:

International Fingerprint Research Group (IFRG), "Guidelines for the Assessment of Fingermark Detection Techniques", *Journal of Forensic Identification*, 2014, 64, 174–200.

4.4. Expected Outcomes:

A better understanding of latent fingermarks, their composition and how they behave on various surfaces over time can inform research into more sensitive detection methods. Improved fingermark detection methods, in turn, will lead to higher success rates with respect to the detection of fingermarks in criminal investigations. As fingerprints are one of the best forms of forensic evidence, improved detection methods will generate better evidence leading to the earlier identification of potential offenders, shorter court proceedings (saving significant amounts of money and reducing backlogs), and higher crime clear-up rates. Higher crime clear-up rates are an increased deterrence for potential criminals, remove identified offenders from the general population, and improve safety, security and wellbeing across the general population.

Section 5: Sites and Methodology (Limit to 2000 characters for all of section 5)

5.1. List the *specific* sites based on your answers to HREA Q1.4. (e.g. *which* Universities, workplaces, schools or public places?):

The fingermarks required for this program of research will be collected from volunteer staff and students located at **WSU's Hawkesbury Campus**. *The collection process itself will only occur on this campus.* However, the collected fingermarks will be examined, analysed and imaged at various locations – depending on the particular project – that will potentially include the following:

- Laboratories and examination areas located in buildings K12, K16 and H16 on WSU's Hawkesbury Campus;
- In a mobile forensic laboratory parked on WSU's Hawkesbury Campus and at off-campus locations (yet to be defined);
- At the Advanced Materials Characterisation Facility (AMCF) on WSU's Parramatta South Campus; and
- In laboratories and examination areas located with partner organisations (with these locations to be specified in associated ethics amendment requests for each discrete project).

5.2. The HREA lists the following methodological approach(es). From the list below, delete the options which are not applicable, and explain why you selected the remaining approach(es). Refer HREA Q1.17:

Biospecimen Analysis

The latent fingermarks collected from volunteers will contain biological material, including skin cells and natural secretions. However, *no biological analyses will be conducted on these deposits*. While the deposits may be subjected to chemical analysis to determine general chemical composition, the main focus will be on optical, physical and chemical methods for revealing and recording the ridge detail in these fingermarks.

Section 6: Invasive Procedures

6.1. Does the study or research require any invasive procedure (please note the definition below) to be undertaken by a registered medical practitioner or other registered qualified health service provider?
☐ Yes ☒ No

Definition of "invasive procedure": any procedure involving ingestion, application (including application of laser therapy) or admission of any substance or material onto or into a human's body.
Invasive procedure does not include:
(i) ingestion of drinks, food or fluids which are commercially available in the market place at the time of the ingestion; or
(ii) taking of blood samples.

Section 7: Active Participant Details (copy questions 7.2. to 7.11. for each participant group)

Delete this Section if you will not be collecting data from participants via active participation.

7.1. How many participant groups will be in this project?

Two – (1) university staff and (2) university students based at WSU's Hawkesbury Campus

Participant Group 1 – University staff based on WSU's Hawkesbury Campus

Overview

7.2. Name for this participant group: University staff based at WSU's Hawkesbury Campus
7.3. Describe the group and explain why these characteristics are relevant to the aims of the project.

The staff population at Hawkesbury will represent an age range from relatively young (mid- to late-twenties) through to retirement age. It is known that there is high variability in fingermark quality and composition from donors across different age groups. A broad range of donors is required to assess this variability.

7.4. Inclusion and exclusion criteria: N/A
7.5. Expected number and age range of participants in this group: 10–50 participants, aged 24–60
7.6. Sample size and statistical power issues (if appropriate to the research methodology): The expected number of participants in this group as indicated above is justified based on the research guidelines published by the International Fingerprint Research Group (IFRG, 2014).

The number of individual fingermark donors employed for each discrete project – sufficient to answer the research question posed – will be in accordance with these research guidelines (IFRG, 2014) and specified in associated ethics amendment requests~~*The number of individual fingermark donors employed for each discrete project will be in accordance with research guidelines published by the International Fingerprint Research Group (IFRG, 2014)*~~.

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Participant Engagement

7.7. Describe what these participants will be asked to do:

For the collection of latent fingermarks, participants will be asked to rub their hands together and then place their fingers on test substrates (which may be paper or plastic strips, for example) using a similar pressure to what would be applied to an object being handled in a normal manner (e.g., drinking glass). Full instructions will be provided to guide the participant. The purpose is to deposit latent fingermarks that can later be the subject of chemical analysis and/or the application of a specific fingermark detection method.

The collection of reference fingerprints will be performed using inkless fingerprint pads and/or an optical scanner ("livescan" system). Inkless fingerprint pads can be used to record a reference fingerprint on plain white paper without

leaving any coloured residues on the finger. Fingers are placed on the pad then on a sheet of paper to record the impressions. An example of such pads is available on the following web site:

http://www.safariland.com/products/forensics/fingerprinting/fingerprint-pads/touch-signature-pads-1.5-inch-round-pack-of-6-F_185.html

These pads use non-toxic, pharmaceutical grade chemicals that are not corrosive and are not classified as a skin irritant. Donors will be asked to wash their hands with soap and water after using the pads to remove any residues that might remain on the skin surface.

The alternative collection method for reference fingerprints will be to ask the donor to place their fingers on an optical scanner. Both collection methods are quick and easy to perform, with no discomfort for the participant.

The whole process is expected to take around 15 min for one set of fingermarks/fingerprints. However, the same donors may be approached on multiple occasions to collect additional sets of fingermarks, depending on the project. Each participant will be assigned a unique donor number and this number will be specified on the associated signed consent form. These consent forms will be securely stored by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus, *not by one of the nominated researchers (or any associated research student)*. All collected samples will be labelled with the corresponding donor number.

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7.8. Are there any plans to follow up with participants?

Some participants may be asked to deposit fingermarks on multiple occasions to assess variations in fingermark quality/composition over time. Where necessary, follow-up with a particular participant will be arranged by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus (or any individual acting in this role).

Recruitment – relates to HREA Q2.1.1

7.9. Explain how you will identify and recruit participants for your research. Include whether screening takes place before or after consent; who will initially approach the participants; how participants will receive the recruitment documentation; how much time a potential participant will have to consider participation.

Information will be circulated via email to staff based at Hawkesbury by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus (or any individual acting in this role). ~~Information will be circulated to staff based at Hawkesbury via email from one of the researchers named in this application.~~ Anyone interested in participating will be asked to initially confirm this by return email. If an individual indicates a willingness to be involved, a face-to-face meeting will be arranged with the associated research student and hard-copy documents provided (participant information sheet and consent form). The individual can then take whatever time they require to consider this information and formally confirm their participation through completion of the consent form.

Consent – relates to HREA Q2.2.

7.10. What is the approach to consent for this group?

☒ Written ☐ Verbal ☐ Implied ☐ Assent ☐ Waiver ☐ Opt-out

7.11. Briefly summarise the consent process for this group including, where applicable, the processes for confirming or re-negotiating consent.

Participants will be provided with background information on the proposed program of research, the need for the collection of fingermark samples, and the procedure to be employed for the collection of these samples. It will be stressed that the fingermarks themselves will only be kept for the specified purpose; i.e., ~~–~~ chemical analysis and/or assessment of fingermark detection methods, not for identification purposes. In most cases, collected fingermarks will be destroyed after analysis (however, associated analytical data and recorded fingermark/fingerprint images will be retained in a de-identified form). However, it will be made clear that some samples (all de-identified for analysis purposes; labelled with a donor number only) may be retained for future use to test the performance of fingermark detection methods on aged samples – for example, fingermarks aged for more than 5 years. ~~– and that these will be destroyed after analysis (however, associated analytical data and recorded fingermark/fingerprint images will be retained in a de-identified form).~~ Participants will be informed that they can withdraw their consent at any time and that, if consent is withdrawn, all collected fingermark/fingerprint samples – identified via their donor number – will be destroyed.

Participant Group 2 – University students based on WSU's Hawkesbury Campus

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Overview

7.2. Name for this participant group: University students based at WSU's Hawkesbury Campus

7.3. Describe the group and explain why these characteristics are relevant to the aims of the project.

The student population at Hawkesbury will represent young adults in an age range from late teens to mid-twenties. It is known that there is high variability in fingermark quality and composition from donors across different age groups. A broad range of donors is required to assess this variability.

7.4. Inclusion and exclusion criteria: N/A

7.5. Expected number and age range of participants in this group: 10–50 participants, aged 18–24

7.6. Sample size and statistical power issues (if appropriate to the research methodology): The expected number of participants in this group as indicated above is justified based on the research guidelines published by the International Fingerprint Research Group (IFRG, 2014).

The number of individual fingermark donors employed for each discrete project – sufficient to answer the research question posed – will be in accordance with these research guidelines (IFRG, 2014) and specified in associated ethics amendment requests.

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~~*The number of individual fingermark donors employed for each discrete project will be in accordance with research guidelines published by the International Fingerprint Research Group (IFRG, 2014).*~~

Participant Engagement

7.7. Describe what these participants will be asked to do:

For the collection of latent fingermarks, participants will be asked to rub their hands together and then place their fingers on test substrates (which may be paper or plastic strips, for example) using a similar pressure to what would be applied to an object being handled in a normal manner (e.g., drinking glass). Full instructions will be provided to guide the participant. The purpose is to deposit latent fingermarks that can later be the subject of chemical analysis and/or the application of a specific fingermark detection method.

The collection of reference fingerprints will be performed using inkless fingerprint pads and/or an optical scanner ("livescan" system). Inkless fingerprint pads can be used to record a reference fingerprint on plain white paper without leaving any coloured residues on the finger. Fingers are placed on the pad then on a sheet of paper to record the impressions. An example of such pads is available on the following web site:

http://www.safariland.com/products/forensics/fingerprinting/fingerprint-pads/touch-signature-pads-1.5-inch-round-pack-of-6-F_185.html

These pads use non-toxic, pharmaceutical grade chemicals that are not corrosive and are not classified as a skin irritant. Donors will be asked to wash their hands with soap and water after using the pads to remove any residues that might remain on the skin surface.

The alternative collection method for reference fingerprints will be to ask the donor to place their fingers on an optical scanner. Both collection methods are quick and easy to perform, with no discomfort for the participant.

The whole process is expected to take around 15 min for one set of fingermarks/fingerprints. However, the same donors may be approached on multiple occasions to collect additional sets of fingermarks, depending on the project. Each participant will be assigned a unique donor number and this number will be specified on the associated signed consent form. These consent forms will be securely stored by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus, *not by one of the nominated researchers (or any associated research student)*. All collected samples will be labelled with the corresponding donor number.

7.8. Are there any plans to follow up with participants?

Some participants may be asked to deposit fingermarks on multiple occasions to assess variations in fingermark quality/composition over time. Where necessary, follow-up with a particular participant will be arranged by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus (or any individual acting in this role).

Recruitment – relates to HREA Q2.1.1

7.9. Explain how you will identify and recruit participants for your research. Include whether screening takes place before or after consent; who will initially approach the participants; how participants will receive the recruitment documentation; how much time a potential participant will have to consider participation.

Information will be circulated via email to students based at Hawkesbury by the ~~via email~~ Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus (or any individual acting in this role).~~from one of the researchers named in this application.~~ Anyone interested in participating will be asked to initially confirm this by return email. If an individual indicates a willingness to be involved, a face-to-face meeting will be arranged with the associated research student and hard-copy documents provided (participant information sheet and consent form). The individual can then take whatever time they require to consider this information and formally confirm their participation through completion of the consent form.

Consent – relates to HREA Q2.2.

7.10. What is the approach to consent for this group?

☒ Written ☐ Verbal ☐ Implied ☐ Assent ☐ Waiver ☐ Opt-out

7.11. Briefly summarise the consent process for this group including, where applicable, the processes for confirming or re-negotiating consent.

Participants will be provided with background information on the proposed program of research, the need for the collection of fingermark samples, and the procedure to be employed for the collection of these samples. It will be stressed that the fingermarks themselves will only be kept for the specified purpose; i.e., chemical analysis and/or assessment of fingermark detection methods, not for identification purposes. In most cases, collected fingermarks will be destroyed after analysis (however, associated analytical data and recorded fingermark/fingerprint images will be retained in a de-identified form). However, it will be made clear that some samples (all de-identified for analysis purposes; labelled with a donor number only) may be retained for future use to test the performance of fingermark detection methods on aged samples – for example, fingermarks aged for more than 5 years. Participants will be informed that they can withdraw their consent at any time and that, if consent is withdrawn, all collected fingermark/fingerprint samples – identified via their donor number – will be destroyed.~~Participants will be provided with background information on the proposed program of research, the need for the collection of fingermark samples, and the procedure to be employed for the collection of these samples. It will be stressed that the fingermarks themselves will only be kept for the specified purpose – chemical analysis and/or assessment of fingermark detection methods, not for identification purposes – and that these will be destroyed after analysis (however, associated analytical data and recorded fingermark/fingerprint images will be retained in a de-identified form). Participants will be informed that they can withdraw their consent at any time and that, if consent is withdrawn, all collected fingermark/fingerprint samples will be destroyed.~~

Section 8: Use of Pre-existing Data

Delete this section if not applicable

This section is not relevant.

Section 9: Data

9.1. For prospective data collection, what information are you going to collect/gather?

Aside from the collection of latent fingermarks and reference fingerprints, the only information that will be collected from each participant will be gender, age and occupation. No other information is required for the projects that will make up this program of research. Gender, age and occupation are parameters of interest as it is known that these can impact on the quality and composition of latent fingermark deposits.

Collected fingermarks/fingerprints will be labelled with a donor number. The retained participant consent forms will associate a particular participant with their donor number. These consent forms will be securely stored by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus, *not by one of the nominated researchers (or any associated research student)*. As such, while the collected samples do not directly identify the donor, the association can still be made by the Technical Team Leader by consulting the retained consent forms.

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Therefore, any required follow-up with a particular participant can be arranged by the Technical Team Leader (or, in their absence, the person acting in that role).

9.2. If using an existing dataset, what are the variables you want to extract for this project? N/A

9.3. How will you measure, manipulate and/or analyse the information that you collect/gather? When relevant include matching and sampling strategies; accounting for potential bias, confounding factors and missing information.

The information collected (gender, age and occupation) will be used to define the pool of donors used in each specific project. For example, when a fingermark detection study is published, it is common practice to specify the age range, gender mix, and occupations represented in the fingermark donor pool.

The collected latent fingermarks may be subjected to chemical analysis but, otherwise, will be examined and processed using fingermark detection methods. Detected fingermarks will then be recorded as digital images. These recorded images will be compared to collected reference fingerprints as a means of assessing detection quality (e.g., relative detail and contrast in detected fingermarks compared to what is observed in the reference fingerprints).

9.4. Are any Data Linkages planned or anticipated? No

Section 10: Results, Outcomes and Future Plans

10.1. Will the results of the research be returned to participants?

☐☒ Yes - how? ~~Participants will be given the option of requesting a copy of the final research report (e.g., thesis or journal publication) or a one-page abstract/executive summary written in lay terms and outlining the key findings.~~

☒☐ No – why not? The dissemination of project outcomes to participants is not feasible given that collected fingermarks/fingerprints may be employed across multiple projects and some samples may be retained for an extended period for potential future projects.

10.2. Has a data management plan been completed via the 'Manage your data' tab in ResearchDirect to comply with the University's Policy? This process will connect you to relevant services and data storage options.

☒ Yes ☐ No

http://library.westernsydney.edu.au/main/researchers/data-management

See Guidance sheet for more information.

10.3. Will the researchers be archiving the dataset in ResearchDirect on completion of the project?

☒ Yes ☐ No

See Guidance sheet for more information.

What are your plans for the following activities?

10.4. Dissemination and publication of project outcomes (e.g. thesis, journals, ResearchDirect)

This program of research will be undertaken by Masters and PhD students (yet to be recruited) under the direct supervision of the researchers identified on this application. As such, the primary means of dissemination of the outcomes will be via research student theses that will be lodged, by default, with ResearchDirect. Where possible and where appropriate, outcomes will also be disseminated via conference presentations and peer-reviewed journal articles.

10.5. Other potential uses of the data at the end of the project:

N/A

10.6. Sharing and/or future use of data and/or follow up research

Some of the fingermarks collected for this program of study may be retained for an extended period (up to 10 years) so that they can be used in future projects where the assessment of detection method of significantly aged fingermarks may be required.

As indicated above, all collected samples will be identified via a donor number. The correlation between donor number and each participant will be via the signed consent forms that will be retained by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus, *not by one of the nominated researchers (or any associated research student)*. As such, while the collected samples do not directly identify the donor, the association can still be made by the Technical Team Leader by consulting the retained consent forms. Therefore, any required follow-up with a particular participant can be arranged by the Technical Team Leader (or, in their absence, the person acting in that role).

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10.7. Anticipated secondary use of data:

N/A

Attachment Checklist

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The Project Description must be sent with the HREA form. Your application package may also need:

- Participant information sheet(s) - Western Sydney template at https://www.westernsydney.edu.au/research/forms
- Participant consent form(s) - Western Sydney template at https://www.westernsydney.edu.au/research/forms
- Recruitment text/script/flyer
- An age appropriate dialogue text for children's assent
- Copies of the documents you will use to collect the data eg survey, interview questions
- An e-mail confirming you have completed the Confirmation of Candidature (MPhil, PhD) or Presentation of Proposal (MRes) process
- Permission to access participants or a site or an existing dataset

Submit this form as part of the HREA human research ethics application process.

Human Research Ethics Application

Application Management Information
Application ID: CL03301
Created date: 08/10/2019
Originating Application ID:
**This is the earliest application from which this application (CL03301) was copied.*
Parent Application ID:
**This is the immediate predecessor from which this application (CL03301) was copied.*
Version Number: 3
Application submitted to: Western Sydney University; Western Sydney University Human Research Ethics Committee.

The applicant has requested that this ethics application be considered under the Negligible risk review pathway.

Section 1 – Core Information

Pre-application conditions

The applicant/s have acknowledged that:

1. The HREA has been designed for ethics review of human research, as defined in the National Statement.
2. Adequate resources must be available to conduct this research project.
3. All relevant institutional polices pertaining to the conduct of this research project should be considered and adhered to.
4. Research activities must not commence until ethics approval (and site authorisation, if appropriate) has been provided.

Project Overview

Q1.1 Project Title:

The chemistry of latent fingermarks and their detection

Q1.2 Summary of the research project:

Latent fingermarks are the deposits that are left on a surface when touched with bare hands. The chemical composition of these fingermarks can vary significantly depending on a number of factors including the age, sex, health, diet and metabolism of the fingermark donor, as well as recent activities, the substrate, and environmental factors. Latent fingermark deposits are generally invisible (hence the term “latent”) and require some form of optical, physical or chemical treatment for their detection and recording. The proposed program of research will be limited to analysing the chemical composition of fingermark deposits and the evaluation of various fingermark detection and enhancement methods. These studies require the collection of fingermarks from a range of donors so that variability in quality and chemical composition can be assessed. The fingermarks will be collected on various substrates over different time frames. The overall aim is to improve current fingermark detection methods.

Q1.3 Which category/ies of research best describes the project?

The individual projects that will make up this *program of research* will apply various optical, physical

and chemical methods for the analysis, detection, enhancement and recording of latent fingermarks deposited on various surfaces. The relevant categories of research will therefore include Physical Sciences (02) and Chemical Sciences (03).

Q1.4 In what environments will the research be conducted?

- o Clinic(s)
- o Community centre(s)
- o Cultural/religious organisation(s)
- o Hospital(s)
- o Online
- o Private residence(s)
- o Professional organisation(s)
- o Public place(s)
- o Research institute(s)
- o School system(s)
- **University(ies)**
- o Workplace(s)

Q1.5 What organisation/entity has overall responsibility for this project?

Western Sydney University

Q1.6 Describe how this research project is currently, or will be, funded.

This *program of research* will consist of various student projects funded from various sources. This will include internal funding (from the University or School, including funding typically allocated for student research funding) and may include funding from external sources such as the ARC. Internal funding is confirmed for student research projects; however, the amount can vary from year-to-year.

Q1.7 Anticipated starting date of the research project:

3/02/2020 12:00:00 AM

Q1.8 Anticipated duration of the research project:

5 Years

Project Team

Name: **Professor Chris Lennard**

Q1.9.4 Email Address:

c.lennard@westernsydney.edu.au

Q1.9.5 Is this person the contact person for this application?

Yes

Q1.9.5.1 Email Address:	c.lennard@westernsydney.edu.au
Q1.9.5.2 Telephone Number:	0412 824 937
Q1.9.5.3 Mailing Address	Western Sydney University, School of Science and Health (Hawkesbury Campus), Locked Bag 1797, Penrith NSW 2751

Q1.9.6 Is this person a student on this project?

No

Q1.9.7 Institutional affiliation and position:

Western Sydney University, Professor of Forensic Science

Q1.9.8 Staff ID *(optional)***:**

30040137

Q1.9.9 ORCID Identifier *(optional)***:**

Q1.9.10 Position on the research project:

Chief Investigator/Researcher

Q1.9.11 Does this person have authorisation to sign the application on behalf of all members of the research team?

No

Q1.9.12 Research activities Professor Chris Lennard will be responsible for:

Direct supervision of research students undertaking sample collection and analysis

Q1.9.13 Expertise relevant to the research activity:

Professor Lennard has a PhD in Chemistry (Forensic Science) from the Australian National University for research conducted in the area of fingermark detection techniques. Since then, he has been actively involved in fingerprint-related research at the University of Lausanne (Switzerland), the Australian Federal Police, the University of Canberra, and Western Sydney University. He has published several book chapters and over 130 articles in international peer-reviewed journals, and he is a co-author of the textbook "Fingerprints and Other Ridge Skin Impressions" (CRC Press, 2nd edition published in 2016). He is a member of the International Fingerprint Research Group (IFRG) and played a major role in the development of research guidelines for the evaluation of fingermark detection methods. Over his career, he has supervised a significant number of university-based research projects in this field. As such, he is well-placed to

perform this role in relation to this application.

Name: **Dr Val Spikmans**

Q1.9.4 Email Address:

v.spikmans@westernsydney.edu.au

Q1.9.5 Is this person the contact person for this application?

No

Q1.9.6 Is this person a student on this project?

No

Q1.9.7 Institutional affiliation and position:

Western Sydney University, Senior Lecturer in Forensic Science

Q1.9.8 Staff ID *(optional)***:**

30033185

Q1.9.9 ORCID Identifier *(optional)***:**

Q1.9.10 Position on the research project:

Investigator/Researcher

Q1.9.11 Does this person have authorisation to sign the application on behalf of all members of the research team?

No

Q1.9.12 Research activities Dr Val Spikmans will be responsible for:

Direct supervision of research students undertaking sample collection and analysis

Q1.9.13 Expertise relevant to the research activity:

Dr Val Spikmans has a PhD in Analytical Chemistry from Imperial College, London, and has significant expertise across a range of analytical methods that can be used for the chemical profiling of materials of forensic interest, including latent fingermarks. His role in fingerprint research will therefore involve the provision of advice on the application of analytical methods for the chemical profiling of these deposits. Dr Spikmans has significant HDR supervisory experience and will also assist through the supervision of research students. He is currently a co-supervisor on a PhD project that aims to develop and evaluate a novel nanotechnology-based fingermark detection method.

Name: **Dr Rob Ebeyan**

Q1.9.4 Email Address:

r.ebeyan@westernsydney.edu.au

Q1.9.5 Is this person the contact person for this application?

No

Q1.9.6 Is this person a student on this project?

No

Q1.9.7 Institutional affiliation and position:

Western Sydney University, Lecturer in Forensic Science

Q1.9.8 Staff ID *(optional)***:**

30030976

Q1.9.9 ORCID Identifier *(optional)***:**

Q1.9.10 Position on the research project:

Investigator/Researcher

Q1.9.11 Does this person have authorisation to sign the application on behalf of all members of the research team?

No

Q1.9.12 Research activities Dr Rob Ebeyan will be responsible for:

Direct supervision of research students undertaking sample collection and analysis

Q1.9.13 Expertise relevant to the research activity:

Dr Ebeyan has an honours degree and a PhD in forensic science. His honours research involved the photographic recovery of fingermark impressions and his PhD investigated aspects of photographic image interpretation. Rob's involvement in forensic science research and teaching, and his close interaction with experienced academics involved in the area of forensic fingerprint research, has provided him with the necessary knowledge and ethical understanding to perform the specified role in relation to this application.

Name: **Dr Brenden Riley**

Q1.9.4 Email Address:

b.riley@westernsydney.edu.au

Q1.9.5 Is this person the contact person for this application?

No

Q1.9.6 Is this person a student on this project?

No

Q1.9.7 Institutional affiliation and position:

Western Sydney University, Lecturer in Forensic Science

Q1.9.8 Staff ID *(optional)***:**

30033967

Q1.9.9 ORCID Identifier *(optional)***:**

Q1.9.10 Position on the research project:

Investigator/Researcher

Q1.9.11 Does this person have authorisation to sign the application on behalf of all members of the research team?

No

Q1.9.12 Research activities Dr Brenden Riley will be responsible for:

Direct supervision of research students undertaking sample collection and analysis

Q1.9.13 Expertise relevant to the research activity:

Dr Riley has a PhD in Chemistry from Western Sydney University for research conducted in the area of environmental forensic chemistry. He has worked with the New South Wales Police Force for two years as a Fingerprint Technician at Fingerprint Operations Branch, Forensic Evidence & Technical Services Command. Since then, he has commenced working as a lecturer in forensic science at Western Sydney University and has an active interest in fingerprint detection and enhancement research. As such, he is appropriate for the designated role in relation to this proposed project.

Disclosure of interests

Q1.10 Do any members of the research team (including persons not listed in this application), have any financial or non-financial interests related to this research?

No

Restrictions

Q1.11 Are there any restrictions or limits on publication of data or dissemination of research outcomes of this project?

No

Evaluations

Q1.12 Has the scientific or academic merit of the research project been evaluated?

No

Q1.13 Has this research project had prior ethics review?

No

Q1.14 Will any further or additional specialised review of this application be sought?

No

Setting of research

Q1.15 Will this project be conducted at multiple sites?

Yes

Q1.16 Will separate institutional approvals or authorisations be required prior to commencing research at each site?

No

Section 2 – Research Details and Participants

Q1.17 The following research methods will be used in the research project:

Research Method	Status
Action research	✗
Biospecimen analysis research	✓
Data linkage research	✗
Ethnographic research	✗
Epidemiological research	✗
Interventional/Clinical Trials research	✗
Observational research	✗
Survey/Interview/Focus Group research	✗
Textual analysis research	✗
None of the above	✗

Q1.18 The research will be conducted with the following:

Participation	Status
Human beings (via active participation), including their associated biospecimens and/or data.	✓
Human biospecimens only	✗
Data associated with human beings only (i.e. as the primary object of research)	✗

Q1.19 The research will involve the following participants:

Participants	Status
Women who are pregnant and the human fetus	✗
Children and young people	✗
People highly dependent on medical care who may be unable to give consent	✗
People with a cognitive impairment, intellectual disability or mental illness	✗
People in dependent or unequal relationships	✓
People who may be involved in illegal activities	✗
People in other countries	✗
Aboriginal and Torres Strait Islander peoples	✗

Method Specific Questions

Biospecimen Analysis Research

M2.1 What type/s of human biospecimen/s will be collected and used?

Fingermark deposits will be collected from volunteers. These deposits are made up of the natural secretions and environmental contaminants naturally found on the skin surface. Volunteers will be asked to place their fingers on various surfaces. This will result in fingermarks being deposited on these surfaces. Reference fingerprints will also be collected using inkless fingerprint pads and/or an optical scanner.

M2.2 Will you be collecting biospecimens prospectively?

Yes

M2.2.1 How, and from whom, will you be obtaining these biospecimens?

Staff and students based at Hawkesbury Campus, Western Sydney University, will be asked to volunteer as fingermark donors. Each donor will be asked to place their fingers down on various substrates (e.g., strips of paper or plastic). This will deposit fingermarks on these substrates. Reference fingerprints will also be collected using inkless fingerprint pads and/or an optical scanner. All samples collected will be de-identified for analysis purposes (i.e., labelled with a donor number only).

M2.3 Will you be using biospecimens from one or more existing archives or biobanks?

No

M2.4 Will you be importing and/or exporting biospecimens internationally?

Neither importing or exporting biospecimens

M2.5 Will you be obtaining post-mortem biospecimens?

No

M2.6 Will you be performing any genetic or genomic testing, investigation or analysis of the biospecimens?

No

M2.7 Will the biospecimens be destroyed at the conclusion of the project or will they be retained for future use?

- Biospecimens will be destroyed.
- Biospecimens will be retained for future use.

M2.7.1.1 How will the biospecimens be destroyed?

The majority of the collected samples will be destroyed after examination/analysis. This

destruction will be via normal waste disposal processes at Western Sydney University. There are no associated biological or chemical hazards associated with these samples. Some of the collected samples may be retained for future use; however, this will be project-dependent and will be detailed in the associated ethics amendment request. Collected fingermarks/fingerprints would only be retained if a project required the examination/analysis of fingermarks that had been aged for a significant period of time (e.g., more than 5 years).

M2.7.2.1 Describe which biospecimens will be retained, any intended future use/s and any arrangements for future access to the biospecimens?

Some samples (all de-identified for analysis purposes; labelled with a donor number only) may be retained for future use to test the performance of fingermark detection methods on aged samples - for example, fingermarks aged for more than 5 years. Any retained samples will be securely stored at Western Sydney University (Hawkesbury Campus) by one of the named investigators.

M2.8 Having regard to the answers to the above questions, describe any ethical considerations related to your collection, use and analysis of biospecimens, with specific attention to consent, management of findings and future use of the biospecimens.

All collected fingermark/fingerprint samples will be de-identified (labelled with a donor number only) prior to being used for research purposes. The only donor information that will be collected and retained with the samples will be the individual's gender, age and occupation (as these three factors can have an impact on the composition of latent fingermarks). The study will relate to the chemical composition of these fingermarks and their ability to be detected and recorded using various optical, physical and chemical methods. None of the findings will have any health significance to participants. The fingermarks will only be used in a way that is consistent with the consent obtained at the time of collection (e.g., not used for identification purposes). There are no issues related to the retention and future use of samples beyond the end of the research project as all samples will be coded (labelled with a donor number only). The only information retained for analysis purposes will be the gender, age and occupation of each donor.

Participant Specific Questions

People in dependent or unequal relationships

P5.1 Describe any potentially detrimental effects on people in dependent or unequal relationships who may participate in your research, and how will you manage them.

Some of the participants will be university students based at Western Sydney's Hawkesbury Campus. As the research team includes university lecturers, this constitutes a dependent or unequal relationship. University students - particularly those within the forensic science program - may feel pressured to participate in the research, fearing that non-participation may impact on how their university performance is assessed. To minimise the impact of this dependency, the recruitment of participants will not be undertaken by the researchers themselves. Recruitment of participants and retention of signed consent forms will be managed by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus (or any individual acting in this role). This person will have no direct involvement in this program of research.

Recruitment Questions

Q2.1.1 Indicate how you will identify and recruit participants for your research, referencing any relevant sections of your Project Description/Protocol as appropriate.

No screening of potential volunteers will take place. Participants will be recruited from the pool of staff and students located at Western Sydney University's Hawkesbury Campus. Potential participants will be initially contacted, as a group, via an email sent by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus (or any individual acting in this role). Individuals interested in participating in the research will be invited to respond to this email. Individuals who choose not to participate will not be required to respond.
If an individual responds expressing an interest in being involved in the research, then a face-to-face meeting will be arranged with either a member of the research team or an associated research student. At this meeting, further information will be provided, including a hard-copy of the participant information sheet. The potential participant can then take whatever time they need to consider this information before agreeing to or declining the request to participate.

Q2.1.2 How will your recruitment strategy take account of the ethical considerations relevant to the specific people you are recruiting?

There are no inclusion/exclusion criteria other than the potential participants (university staff and students) being based at WSU's Hawkesbury Campus. The recruitment strategy will be simply to explain the basis behind the proposed research and the fingermark/fingerprint collection process itself. Potential participants will be free to make an informed decision regarding consent and will be under no obligation to be involved. The researchers will be respectful of an individual's decision not to be involved, regardless of the reason.
The research team will be mindful of the dependent/unequal relational they have with university students. As such, participant recruitment will be undertaken at "arm's length" by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus (or any individual acting in this role), *not by one of the nominated researchers (or any associated research student)*. No record will be kept of individuals who choose not to participate, and no reason needs to be provided to the research team if an individual chooses not to participate.

Consent Questions

Q2.2.1 Indicate by reference the relevant section/s of your Project Description/Protocol that address/es consent.

This is covered in Section 7 of the project description.

Q2.2.2 Will you be obtaining consent from some or all participants to participate in the research?

Yes for all participants

Q2.2.2.1 What is the scope of consent that you will be seeking?

- o Specific
- • Extended
- o Unspecified

Q2.2.2.2 How will consent be obtained?

- Written
  - Verbal
  - Implied

Q2.2.2.3 Are you proposing to obtain consent using limited disclosure?

No

Q2.2.3 Are family members, authorised representatives or any others involved in the participants' decision to participate in the research?

No

Q2.2.4 Will there be an opportunity to confirm or re-negotiate consent during the research project?

No

Q2.2.6 Describe any ethical considerations related to the approach to consent that you will be seeking and your strategies for addressing and managing these issues.

Only university staff and students based at WSU's Hawkesbury Campus will be approached as potential participants. As such, participants will have a high level of understanding of academic research and will have a level of English that will allow them to be well-informed on what donors will be required to do and what the collected samples will be used for. If a potential participant has cultural issues that prevent them from being a fingermark donor then they will be free to ignore the participation request sent via email by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus. If a participant subsequently retracts their consent to be involved then all collected information/samples - identified via donor number - will be destroyed.
Some of the participants will be university students based at Western Sydney's Hawkesbury Campus. As the research team includes university lecturers, this constitutes a dependent or unequal relationship. University students - particularly those within the forensic science program - may feel pressured to participate in the research, fearing that non-participation may impact on how their university performance is assessed. To minimise the impact of this dependency, the recruitment of participants will not be undertaken by the researchers themselves. Recruitment of participants and retention of signed consent forms will be managed by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus (or any individual acting in this role). This person will have no direct involvement in this program of research. It will be emphasised that consent to provide samples can be retracted at any time, without a reason needing to be given, and that all associated samples will be destroyed without question.

Q2.2.7 Are you proposing to use an opt-out approach with respect to some or all of the participants?

No

Q2.2.8 Are you requesting a waiver of the requirement for consent with respect to some or all participants?

No

Risk Questions

Q 2.3.1 Describe the risks and burdens associated with your research, referencing any relevant sections of your Project Description as appropriate.

The risk of harm or discomfort to participants is negligible. For the collection of latent fingermarks, they are simply being asked to place their fingers on test samples and indicate their age, gender and occupation. The collection of reference fingerprints will be performed using inkless fingerprint pads and/or an optical scanner. Inkless fingerprint pads can be used to record a reference fingerprint on plain white paper without leaving any coloured residues on the finger. Fingers are placed on the pad then on a sheet of paper to record the impressions. These pads use non-toxic, pharmaceutical grade chemicals that are not corrosive and are not classified as a skin irritant. Donors will be asked to wash their hands with soap and water after using the pads to remove any residues that might remain on the skin surface. The alternative is to ask the donor to place their fingers on an optical scanner to record their fingerprints. No physical or psychological harm is anticipated and there will be no sensitive personal information collected. The fingermark/fingerprint collection process is simple and not time-consuming. The whole process is expected to take around 15 min for one set of fingermarks/fingerprints. However, the same donors may be approached on multiple occasions to collect additional sets of fingermarks, depending on the project.
Collected fingermarks/fingerprints will be labelled with a donor number. The retained participant consent forms will associate a particular participant with their donor number. These consent forms will be securely stored by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus, *not by one of the nominated researchers (or any associated research student)*. As such, while the collected samples do not directly identify the donor, the association can still be made by the Technical Team Leader by consulting the retained consent forms. Therefore, any required follow-up with a particular participant can be arranged by the Technical Team Leader (or, in their absence, the person acting in that role).

Q 2.3.2 Describe how these risks will be mitigated and managed.

No risk mitigation will be required. Consequences are assessed as "minor", with a likelihood of "rare"; this gives an overall risk score of "very low".

(People in dependent or unequal relationships specific question)
Q 2.3.P5.1 How will you ensure that a person declining to participate in, or deciding to withdraw from, research will not suffer any negative consequences?

Using an opt-in approach, only individuals who respond to an initial email request (sent as "arm's length" by the Technical Team Leader, Applied and Analytical Sciences, Technical

Support Services, Hawkesbury Campus) expressing an interest in being involved will be contacted to confirm their participation. Individuals who choose not to participate are not required to respond to the email and no record will be kept on anyone declining to participate. A participant can withdraw their consent at any time without providing a reason and all information/samples collected will be destroyed at that point.
No record will be retained of anyone declining to participate in, or deciding to withdraw from, this research and this will ensure that they will not suffer any negative consequences.

Benefit Questions

Q2.4.1 Describe the benefits associated with your research, referencing any relevant sections of your Project Description as appropriate.

An increased knowledge of fingermark composition, how the composition varies across individuals, and how the composition changes over time (due to environmental factors) can provide valuable insights into how fingermark detection methods might be improved. A better understanding of latent fingermarks and how they behave on various surfaces can inform research into more sensitive detection methods.
Improved detection, enhancement and recording methods will lead to higher success rates with respect to the exploitation of fingerprint evidence in criminal casework. As fingerprints are one of the best forms of forensic evidence, improved detection methods will generate better evidence leading to the earlier identification of potential offenders, shorter court proceedings (saving significant amounts of money and reducing backlogs), and higher crime clear-up rates. Higher crime clear-up rates provide increased deterrence for potential criminals, removes certain criminals from the general population, and overall improves safety, security and wellbeing across the general population.

Q2.4.2 Explain how benefits of this research justify any risks or burdens associated with the research.

The risk of harm or discomfort to participants is negligible and the likely benefits, as indicated above, are substantial.

Q2.4.3 How will you manage participants' expectations of the perceived benefit of participating in the research?

There will be no direct perceived benefits to the participants themselves. The participants will simply be informed that associated research is being directed at a better understanding of latent fingermarks and to optimise their detection for forensic purposes.

Section 3 – Data and Privacy

Data Characteristics

Q3.1 Indicate the type of information/data you will be collecting for this project.

- [x] Personal information
- [ ] Sensitive information
- [ ] Health information
- [ ] Not personal information

Q3.2 Indicate the type of information/data you will be using in this project:

- [ ] Personal information
- [ ] Sensitive information
- [ ] Health information
- [x] Not personal information

Q3.3 Indicate the degree of identifiability of information/data you will be collecting for this project.

- [x] Individually identifiable information
- [ ] Re-identifiable (coded) information
- [ ] Non-identifiable information

Q3.4 Indicate the degree of identifiability of information/data you will be using in this project.

- [ ] Individually identifiable information
- [ ] Re-identifiable (coded) information
- [x] Non-identifiable information

Q3.5 Describe any ethical considerations relating to the collection and/or use of the information/data in this project.

The only information **collected** and associated with the results will be the gender, age and occupation of each participant. No other information will be relevant to this program of research in terms of assessment of the results.
Each participant will be associated with a unique *donor number* - with this number recorded on the corresponding consent form - and all of the fingermark/fingerprint samples collected from an individual will be labelled with this donor number. The association between each participant and their donor number will therefore be via the submitted consent forms that will be retained by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus. As such, the collected samples are *de-identified for analysis purposes* but are *re-identifiable* (coded). This is required in case a particular individual needs to be contacted for the collection of additional samples or withdraws their consent to participate.
While the collected samples do not directly identify the donor (being labelled with the donor number only), the association between donor number and participant can still be made by the Technical Team Leader by consulting the retained consent forms. Therefore, any required follow-up with a particular participant - or destruction of collected samples - can be arranged by the Technical Team Leader (or, in their absence, the person acting in that role).
The only information **generated** will be the chemical composition of a participant's fingermark (where this is determined) and any photographic images captured from reference fingerprints and processed fingermarks. These images are required to record and assess the detail observed in these impressions (i.e., ridge detail and ridge contrast). The information generated will only be associated with an individual of a particular gender, age and occupation. Samples

collected - latent fingermarks and reference fingerprints - will be associated with a particular donor number only from the time of collection. No other personal identifiers will be employed with the collected samples or generated information (e.g., digital images of developed fingermarks or reference fingerprints).

Q3.6 Identify the source/s of the information/data that you will be collecting and/or using in this project.

- Individual participants and/or relatives or associates of participants
  - Medical/health/mental health record
  - Electoral roll
  - Held by a law enforcement agency
  - Publicly held database (Commonwealth)
  - Publicly held database (State or local)
  - Privately held database

Q3.7 Describe any ethical considerations relating to the source of information/data as indicated in the response to the previous question.

The information about an individual (gender, age and occupation) will be sought from the individual themselves. If an individual chooses not to provide this information then they will not be considered as a potential participant in this study.

Q3.8 Was the information/data that you are using previously collected for a purpose other than research?

No

Activities Planned for/with Data

Q3.9 Do you plan to disclose any personal information/data in this project to a third party?

No

Q3.10 How will you protect the privacy of participants and non-participants in any notes and/or publications arising from your research?

Staff and students will be under no obligation to provide samples for this research. This will be made clear to the individuals so that they can make an informed decision regarding their participation. Participation will be entirely optional and no records will be kept regarding individuals who choose not to participate (i.e., there will be no record of non-participants). Each participant will be associated with a unique *donor number* - with this number recorded on the corresponding consent form - and all of the fingermark/fingerprint samples collected from an individual will be labelled with this donor number. The association between each participant and their donor number will therefore be via the submitted consent forms that will be retained by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus. As such, the collected samples are *de-identified for analysis purposes* but are *re-identifiable* (coded). This is required in case a particular individual needs to be contacted for the collection of additional samples or withdraws their consent to participate. While the collected samples do not directly identify the donor (being labelled with the donor number only), the association between donor number and participant can still be made by the

Technical Team Leader by consulting the retained consent forms. Therefore, any required follow-up with a particular participant - or destruction of collected samples - can be coordinated by the Technical Team Leader (or, in their absence, the person acting in that role). The Technical Team Leader will have no direct involvement in this program of research and this arrangement will ensure that the research team cannot directly identify a particular donor from their donor number.
The only donor information that will be disclosed in any notes, reports or publications arising from this research will be age, gender and occupation. Photographic images of certain fingermarks and information regarding chemical composition may be shared with research partners and published as research findings. However, it will not be possible to directly associate such images/data with any particular individual.

Q3.11 Are there any restrictions on your ability to assure the confidentiality of participants?

No

Q3.12 Do you plan to share any individual research results obtained during this research to the participants?

No

Q3.13 Describe how you will handle any secondary or incidental findings that arise from the analysis of personal information/data.

Due to the nature of this research, it is not expected that there will be any secondary or incidental findings that arise from the analysis of personal information/data.

Q3.14 Describe how the information/data will be stored, accessed, archived and/or destroyed.

Hard-copy donor information (i.e., signed consent forms) will be stored in a locked cabinet in the office of the principal researcher. This information will exist in hard-copy form only. Generated information (such as chemical compositions and fingermark images) is not considered to be personal in nature and, in any case, will be coded with the donor number only. All hard-copy and digital records related to this research-generated information will be stored, accessed, archived and/or destroyed in accordance with Western Sydney University procedures (internal policies) and with a data management plan submitted with this application.

Q3.15 Describe any ethical considerations relating to the storage of, access to or destruction of information/data in this project.

There are no perceived ethical considerations relating to the storage of, access to, or destruction of information/data in this project.

Q3.16 Will the outcomes of this project be disseminated to the participants?

No

Q3.16.2.1 Justify why the outcomes of this project will not be disseminated to the participants.

The dissemination of project outcomes to participants is not feasible given that collected fingermarks/fingerprints may be employed across multiple projects and some samples may be retained for an extended period for potential future projects.

Q3.17 Describe any foreseeable future activities for which information/data collected and/or used in this project may be made available.

There are no foreseeable future activities for which information/data collected and/or used in

this project may be made available. However, some of the fingermarks themselves may be retained for future studies so that the testing of aged fingermarks (e.g., fingermarks more than 5 years old) can be undertaken.

Q3.18 Describe any ethical considerations relating to the planned or possible future use of information/data in this project.

There are no perceived ethical considerations relating to the possible future use of information/data in this project.

Section 4 – Attachments and Declarations

Attachments

The following documents have been attached to this HREA.

Project Description/Protocol

See attachment *CL03301 - Project Description v7 (09Oct19).pdf*

Other attachments

Attachment File Name	Attachment Description
CL03301 - Recruitment Text v1 (30Aug19).pdf	Recruitment Text (initial email to potential participants)
CL03301 - Participant_Information_Sheet v5 (08Oct19).pdf	Participant Information Sheet
CL03301 - Consent_Form v4 (08Oct19).pdf	Participant Consent Form
CL03301 - Donor Record Sheet v1 (30Aug19).pdf	Donor Record Sheet
CL03301 - Data Management Plan (30Aug19).pdf	Data Management Plan

Investigator Team Declarations

The research team has certified that:

- All information in this application and supporting documentation is correct and as complete as possible;
- I have read and addressed in this application the requirements of the National Statement and any other relevant guidelines;
- I have familiarised myself with, considered and addressed in this application any relevant legislation, regulations, research guidelines and organisational policies;
- All relevant financial and non-financial interests of the project team have been disclosed; and
- In the capacity of a supervisor, as applicable, I have reviewed this application and I will provide appropriate supervision to the student(s) in accordance with the arrangements specified in this application and those associated with the student's educational program.

Professor Chris Lennard
See attachment *Signature.jpg*.

Dr Val Spikmans

Sign here:……

Dr Rob Ebeyan

Sign here:……

Dr Brenden Riley

Sign here:……

Human Research Ethics Application

Application Management Information
Application ID: CL03301
Created date: ~~31/08~~08/10/2019
Originating Application ID:
**This is the earliest application from which this application (CL03301) was copied.*
Parent Application ID:
**This is the immediate predecessor from which this application (CL03301) was copied.*
Version Number: ~~2~~3
Application submitted to: Western Sydney University; Western Sydney University Human Research Ethics Committee.

The applicant has requested that this ethics application be considered under the Negligible risk review pathway.

Section 1 – Core Information

Pre-application conditions

The applicant/s have acknowledged that:

1. The HREA has been designed for ethics review of human research, as defined in the National Statement.
2. Adequate resources must be available to conduct this research project.
3. All relevant institutional polices pertaining to the conduct of this research project should be considered and adhered to.
4. Research activities must not commence until ethics approval (and site authorisation, if appropriate) has been provided.

Project Overview

Q1.1 Project Title:

The chemistry of latent fingermarks and their detection

Q1.2 Summary of the research project:

Latent fingermarks are the deposits that are left on a surface when touched with bare hands. The chemical composition of these fingermarks can vary significantly depending on a number of factors including the age, sex, health, diet and metabolism of the fingermark donor, as well as recent activities, the substrate, and environmental factors. Latent fingermark deposits are generally invisible (hence the term “latent”) and require some form of optical, physical or chemical treatment for their detection and recording. The proposed program of research will be limited to analysing the chemical composition of fingermark deposits and the evaluation of various fingermark detection and enhancement methods. These studies require the collection of fingermarks from a range of donors so that variability in quality and chemical composition can be assessed. The fingermarks will be collected on various substrates over different time frames. The overall aim is to improve current fingermark detection methods.

Q1.3 Which category/ies of research best describes the project?

The individual projects that will make up this *program of research* will apply various optical, physical

and chemical methods for the analysis, detection, enhancement and recording of latent fingermarks deposited on various surfaces. The relevant categories of research will therefore include Physical Sciences (02) and Chemical Sciences (03).

Q1.4 In what environments will the research be conducted?

- ○ Clinic(s)
- ○ Community centre(s)
- ○ Cultural/religious organisation(s)
- ○ Hospital(s)
- ○ Online
- ○ Private residence(s)
- ○ Professional organisation(s)
- ○ Public place(s)
- ○ Research institute(s)
- ○ School system(s)
- 🕐 **University(ies)**
- ○ Workplace(s)

Q1.5 What organisation/entity has overall responsibility for this project?

Western Sydney University

Q1.6 Describe how this research project is currently, or will be, funded.

This *program of research* will consist of various student projects funded from various sources. This will include internal funding (from the University or School, including funding typically allocated for student research funding) and may include funding from external sources such as the ARC. Internal funding is confirmed for student research projects; however, the amount can vary from year-to-year.

Q1.7 Anticipated starting date of the research project:

3/02/2020 12:00:00 AM

Q1.8 Anticipated duration of the research project:

5 Years

Project Team

Name: **Professor Chris Lennard**

Q1.9.4 Email Address:

c.lennard@westernsydney.edu.au

Q1.9.5 Is this person the contact person for this application?

Yes

Q1.9.5.1 Email Address:	c.lennard@westernsydney.edu.au
Q1.9.5.2 Telephone Number:	0412 824 937
Q1.9.5.3 Mailing Address	Western Sydney University, School of Science and Health (Hawkesbury Campus), Locked Bag 1797, Penrith NSW 2751

Q1.9.6 Is this person a student on this project?

No

Q1.9.7 Institutional affiliation and position:

Western Sydney University, Professor of Forensic Science

Q1.9.8 Staff ID *(optional)*:

30040137

Q1.9.9 ORCID Identifier *(optional)*:

Q1.9.10 Position on the research project:

Chief Investigator/Researcher

Q1.9.11 Does this person have authorisation to sign the application on behalf of all members of the research team?

No

Q1.9.12 Research activities Professor Chris Lennard will be responsible for:

Direct supervision of research students undertaking sample collection and analysis

Q1.9.13 Expertise relevant to the research activity:

Professor Lennard has a PhD in Chemistry (Forensic Science) from the Australian National University for research conducted in the area of fingermark detection techniques. Since then, he has been actively involved in fingerprint-related research at the University of Lausanne (Switzerland), the Australian Federal Police, the University of Canberra, and Western Sydney University. He has published several book chapters and over 130 articles in international peer-reviewed journals, and he is a co-author of the textbook "Fingerprints and Other Ridge Skin Impressions" (CRC Press, 2nd edition published in 2016). He is a member of the International Fingerprint Research Group (IFRG) and played a major role in the development of research guidelines for the evaluation of fingermark detection methods. Over his career, he has supervised a significant number of university-based research projects in this field. As such, he is well-placed to

perform this role in relation to this application.

Name: **Dr Val Spikmans**

Q1.9.4 Email Address:

v.spikmans@westernsydney.edu.au

Q1.9.5 Is this person the contact person for this application?

No

Q1.9.6 Is this person a student on this project?

No

Q1.9.7 Institutional affiliation and position:

Western Sydney University, Senior Lecturer in Forensic Science

Q1.9.8 Staff ID *(optional)*:

30033185

Q1.9.9 ORCID Identifier *(optional)*:

Q1.9.10 Position on the research project:

Investigator/Researcher

Q1.9.11 Does this person have authorisation to sign the application on behalf of all members of the research team?

No

Q1.9.12 Research activities Dr Val Spikmans will be responsible for:

Direct supervision of research students undertaking sample collection and analysis

Q1.9.13 Expertise relevant to the research activity:

Dr Val Spikmans has a PhD in Analytical Chemistry from Imperial College, London, and has significant expertise across a range of analytical methods that can be used for the chemical profiling of materials of forensic interest, including latent fingermarks. His role in fingerprint research will therefore involve the provision of advice on the application of analytical methods for the chemical profiling of these deposits. Dr Spikmans has significant HDR supervisory experience and will also assist through the supervision of research students. He is currently a co-supervisor on a PhD project that aims to develop and evaluate a novel nanotechnology-based fingermark detection method.

Name: **Dr Rob Ebeyan**

Q1.9.4 Email Address:

r.ebeyan@westernsydney.edu.au

Q1.9.5 Is this person the contact person for this application?

No

Q1.9.6 Is this person a student on this project?

No

Q1.9.7 Institutional affiliation and position:

Western Sydney University, Lecturer in Forensic Science

Q1.9.8 Staff ID *(optional)*:

30030976

Q1.9.9 ORCID Identifier *(optional)*:

Q1.9.10 Position on the research project:

Investigator/Researcher

Q1.9.11 Does this person have authorisation to sign the application on behalf of all members of the research team?

No

Q1.9.12 Research activities Dr Rob Ebeyan will be responsible for:

Direct supervision of research students undertaking sample collection and analysis

Q1.9.13 Expertise relevant to the research activity:

Dr Ebeyan has an honours degree and a PhD in forensic science. His honours research involved the photographic recovery of fingermark impressions and his PhD investigated aspects of photographic image interpretation. Rob's involvement in forensic science research and teaching, and his close interaction with experienced academics involved in the area of forensic fingerprint research, has provided him with the necessary knowledge and ethical understanding to perform the specified role in relation to this application.

Name: **Dr Brenden Riley**

Q1.9.4 Email Address:

b.riley@westernsydney.edu.au

Q1.9.5 Is this person the contact person for this application?

No

Q1.9.6 Is this person a student on this project?

No

Q1.9.7 Institutional affiliation and position:

Western Sydney University, Lecturer in Forensic Science

Q1.9.8 Staff ID *(optional)*:

30033967

Q1.9.9 ORCID Identifier *(optional)*:

Q1.9.10 Position on the research project:

Investigator/Researcher

Q1.9.11 Does this person have authorisation to sign the application on behalf of all members of the research team?

No

Q1.9.12 Research activities Dr Brenden Riley will be responsible for:

Direct supervision of research students undertaking sample collection and analysis

Q1.9.13 Expertise relevant to the research activity:

Dr Riley has a PhD in Chemistry from Western Sydney University for research conducted in the area of environmental forensic chemistry. He has worked with the New South Wales Police Force for two years as a Fingerprint Technician at Fingerprint Operations Branch, Forensic Evidence & Technical Services Command. Since then, he has commenced working as a lecturer in forensic science at Western Sydney University and has an active interest in fingerprint detection and enhancement research. As such, he is appropriate for the designated role in relation to this proposed project.

Disclosure of interests

Q1.10 Do any members of the research team (including persons not listed in this application), have any financial or non-financial interests related to this research?

No

Restrictions

Q1.11 Are there any restrictions or limits on publication of data or dissemination of research outcomes of this project?

No

Evaluations

Q1.12 Has the scientific or academic merit of the research project been evaluated?

No

Q1.13 Has this research project had prior ethics review?

No

Q1.14 Will any further or additional specialised review of this application be sought?

No

Setting of research

Q1.15 Will this project be conducted at multiple sites?

Yes

Q1.16 Will separate institutional approvals or authorisations be required prior to commencing research at each site?

No

Section 2 – Research Details and Participants

Q1.17 The following research methods will be used in the research project:

Research Method	Status
Action research	✗
Biospecimen analysis research	✓
Data linkage research	✗
Ethnographic research	✗
Epidemiological research	✗
Interventional/Clinical Trials research	✗
Observational research	✗
Survey/Interview/Focus Group research	✗
Textual analysis research	✗
None of the above	✗

Q1.18 The research will be conducted with the following:

Participation	Status
Human beings (via active participation), including their associated biospecimens and/or data.	✓
Human biospecimens only	✗
Data associated with human beings only (i.e. as the primary object of research)	✗

Q1.19 The research will involve the following participants:

Participants	Status
Women who are pregnant and the human fetus	✗
Children and young people	✗
People highly dependent on medical care who may be unable to give consent	✗
People with a cognitive impairment, intellectual disability or mental illness	✗
People in dependent or unequal relationships	✓
People who may be involved in illegal activities	✗
People in other countries	✗
Aboriginal and Torres Strait Islander peoples	✗

Method Specific Questions

Biospecimen Analysis Research

M2.1 What type/s of human biospecimen/s will be collected and used?

Fingermark deposits will be collected from volunteers. These deposits are made up of the natural secretions and environmental contaminants naturally found on the skin surface. Volunteers will be asked to place their fingers on various surfaces. This will result in fingermarks being deposited on these surfaces. Reference fingerprints will also be collected using inkless fingerprint pads and/or an optical scanner.

M2.2 Will you be collecting biospecimens prospectively?

Yes

M2.2.1 How, and from whom, will you be obtaining these biospecimens?

Staff and students based at Hawkesbury Campus, Western Sydney University, will be asked to volunteer as fingermark donors. Each donor will be asked to place their fingers down on various substrates (e.g., strips of paper or plastic). This will deposit fingermarks on these substrates. Reference fingerprints will also be collected using inkless fingerprint pads and/or an optical scanner. All samples collected will be de-identified for analysis purposes (i.e., labelled with a donor number only).

M2.3 Will you be using biospecimens from one or more existing archives or biobanks?

No

M2.4 Will you be importing and/or exporting biospecimens internationally?

Neither importing or exporting biospecimens

M2.5 Will you be obtaining post-mortem biospecimens?

No

M2.6 Will you be performing any genetic or genomic testing, investigation or analysis of the biospecimens?

No

M2.7 Will the biospecimens be destroyed at the conclusion of the project or will they be retained for future use?

- Biospecimens will be destroyed.
- Biospecimens will be retained for future use.

M2.7.1.1 How will the biospecimens be destroyed?

The majority of the collected samples will be destroyed after examination/analysis. This

destruction will be via normal waste disposal processes at Western Sydney University. There are no associated biological or chemical hazards associated with these samples. Some of the collected samples may be retained for future use; however, this will be project-dependent and will be detailed in the associated ethics amendment request. Collected fingermarks/fingerprints would only be retained if a project required the examination/analysis of fingermarks that had been aged for a significant period of time (e.g., more than 5 years).

M2.7.2.1 Describe which biospecimens will be retained, any intended future use/s and any arrangements for future access to the biospecimens?

Some samples (all de-identified for analysis purposes; labelled with a donor number only) may be retained for future use to test the performance of fingermark detection methods on aged samples - for example, fingermarks aged for more than 5 years. Any retained samples will be securely stored at Western Sydney University (Hawkesbury Campus) by one of the named investigators.

M2.8 Having regard to the answers to the above questions, describe any ethical considerations related to your collection, use and analysis of biospecimens, with specific attention to consent, management of findings and future use of the biospecimens.

All collected fingermark/fingerprint samples will be de-identified (labelled with a donor number only) prior to being used for research purposes. The only donor information that will be collected and retained with the samples will be the individual's gender, age and occupation (as these three factors can have an impact on the composition of latent fingermarks). The study will relate to the chemical composition of these fingermarks and their ability to be detected and recorded using various optical, physical and chemical methods. None of the findings will have any health significance to participants. The fingermarks will only be used in a way that is consistent with the consent obtained at the time of collection (e.g., not used for identification purposes). There are no issues related to the retention and future use of samples beyond the end of the research project as all samples will be coded (labelled with a donor number only). The only information retained for analysis purposes will be the gender, age and occupation of each donor.

Participant Specific Questions

People in dependent or unequal relationships

P5.1 Describe any potentially detrimental effects on people in dependent or unequal relationships who may participate in your research, and how will you manage them.

Some of the participants will be university students based at Western Sydney's Hawkesbury Campus. As the research team includes university lecturers, this constitutes a dependent or unequal relationship. University students - particularly those within the forensic science program - may feel pressured to participate in the research, fearing that non-participation may impact on how their university performance is assessed. ~~The research team will be mindful that this perception may exist and they will, at every step in the recruitment process, remind potential student volunteers that participation is entirely voluntary, that no record will be kept of students who choose not to participate, and that no reason needs to be provided to the research team if an individual chooses not to participate. In addition, it will be emphasised that consent to provide samples can be retracted at any time, without a reason needing to be given, and that all associated samples will be destroyed without question~~To minimise the impact of this dependency, the recruitment of participants will not be undertaken by the researchers themselves. Recruitment of participants and retention of signed consent forms will be managed by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus (or any individual acting in this role). This person will have no direct involvement in this program of research.

Recruitment Questions

Q2.1.1 Indicate how you will identify and recruit participants for your research, referencing any relevant sections of your Project Description/Protocol as appropriate.

No screening of potential volunteers will take place. Participants will be recruited from the pool of staff and students located at Western Sydney University's Hawkesbury Campus. Potential participants will be initially contacted, as a group, via an email sent by ~~a member of the research team~~the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus (or any individual acting in this role). Individuals interested in participating in the research will be invited to respond to this email. Individuals who choose not to participate will not be required to respond.
If an individual responds expressing an interest in being involved in the research, then a face-to-face meeting will be arranged with either a member of the research team or an associated research student. At this meeting, further information will be provided, including a hard-copy of the participant information sheet. The potential participant can then take whatever time they need to consider this information before agreeing to or declining the request to participate.

Q2.1.2 How will your recruitment strategy take account of the ethical considerations relevant to the specific people you are recruiting?

There are no inclusion/exclusion criteria other than the potential participants (university staff and students) being based at WSU's Hawkesbury Campus. The recruitment strategy will be simply to explain the basis behind the proposed research and the fingermark/fingerprint collection process itself. Potential participants will be free to make an informed decision regarding consent and will be under no obligation to be involved. The researchers will be respectful of an individual's decision not to be involved, regardless of the reason.
The research team will be mindful of the dependent/unequal relational they have with university students. As such, ~~and they will, at every step in the recruitment process, remind potential student volunteers that participation is entirely voluntary, that no~~participant recruitment will be undertaken at "arm's length" by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus (or any individual acting in this role), *not by one of the nominated researchers (or any associated research student)*. No record will be kept of ~~students~~individuals who choose not to participate, and ~~that~~ no reason needs to be provided to the research team if an individual chooses not to participate.

Consent Questions

Q2.2.1 Indicate by reference the relevant section/s of your Project Description/Protocol that address/es consent.

This is covered in Section 7 of the project description.

Q2.2.2 Will you be obtaining consent from some or all participants to participate in the research?

Yes for all participants

Q2.2.2.1 What is the scope of consent that you will be seeking?

- ○ Specific
- 🕐 Extended
- ○ Unspecified

Q2.2.2.2 How will consent be obtained?

- Written
- Verbal
- Implied

Q2.2.2.3 Are you proposing to obtain consent using limited disclosure?

No

Q2.2.3 Are family members, authorised representatives or any others involved in the participants' decision to participate in the research?

No

Q2.2.4 Will there be an opportunity to confirm or re-negotiate consent during the research project?

No

Q2.2.6 Describe any ethical considerations related to the approach to consent that you will be seeking and your strategies for addressing and managing these issues.

Only university staff and students based at WSU's Hawkesbury Campus will be approached as potential participants. As such, participants will have a high level of understanding of academic research and will have a level of English that will allow them to be well-informed on what donors will be required to do and what the collected samples will be used for. If a potential participant has cultural issues that prevent them from being a fingermark donor then they will be free to ignore the participation request sent via email by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus. If a participant subsequently retracts their consent to be involved then all collected information/samples - identified via donor number - will be destroyed.

Some of the participants will be university students based at Western Sydney's Hawkesbury Campus. As the research team includes university lecturers, this constitutes a dependent or unequal relationship. University students - particularly those within the forensic science program - may feel pressured to participate in the research, fearing that non-participation may impact on how their university performance is assessed. ~~The research team will be mindful that this perception may exist and they will, at every step in the recruitment process, remind potential student volunteers that participation is entirely voluntary, that no record will be kept of students who choose not to participate, and that no reason needs to be provided to the research team if an individual chooses not to participate. In addition, it~~To minimise the impact of this dependency, the recruitment of participants will not be undertaken by the researchers themselves. Recruitment of participants and retention of signed consent forms will be managed by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus (or any individual acting in this role). This person will have no direct involvement in this program of research. It will be emphasised that consent to provide samples can be retracted at any time, without a reason needing to be given, and that all associated samples will be destroyed without question.

Q2.2.7 Are you proposing to use an opt-out approach with respect to some or all of the participants?

No

Q2.2.8 Are you requesting a waiver of the requirement for consent with respect to some or all participants?

No

Risk Questions

Q 2.3.1 Describe the risks and burdens associated with your research, referencing any relevant sections of your Project Description as appropriate.

The risk of harm or discomfort to participants is negligible. For the collection of latent fingermarks, they are simply being asked to place their fingers on test samples and indicate their age, gender and occupation. The collection of reference fingerprints will be performed using inkless fingerprint pads and/or an optical scanner. Inkless fingerprint pads can be used to record a reference fingerprint on plain white paper without leaving any coloured residues on the finger. Fingers are placed on the pad then on a sheet of paper to record the impressions. These pads use non-toxic, pharmaceutical grade chemicals that are not corrosive and are not classified as a skin irritant. Donors will be asked to wash their hands with soap and water after using the pads to remove any residues that might remain on the skin surface. The alternative is to ask the donor to place their fingers on an optical scanner to record their fingerprints. No physical or psychological harm is anticipated and there will be no sensitive personal information collected. The fingermark/fingerprint collection process is simple and not time-consuming. The whole process is expected to take around 15 min for one set of fingermarks/fingerprints. However, the same donors may be approached on multiple occasions to collect additional sets of fingermarks, depending on the project.
Collected fingermarks/fingerprints will be labelled with a donor number. The retained participant consent forms will associate a particular participant with their donor number. These consent forms will be securely stored by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus, *not by one of the nominated researchers (or any associated research student)*. As such, while the collected samples do not directly identify the donor, the association can still be made by the Technical Team Leader by consulting the retained consent forms. Therefore, any required follow-up with a particular participant can be arranged by the Technical Team Leader (or, in their absence, the person acting in that role).

Q 2.3.2 Describe how these risks will be mitigated and managed.

No risk mitigation will be required. Consequences are assessed as "minor", with a likelihood of "rare"; this gives an overall risk score of "very low".

(People in dependent or unequal relationships specific question)

Q 2.3.P5.1 How will you ensure that a person declining to participate in, or deciding to withdraw from, research will not suffer any negative consequences?

Using an opt-in approach, only individuals who respond to an initial email request (sent as "arm's length" by the Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus) expressing an interest in being involved will be contacted to confirm their participation. Individuals who choose not to participate are not required to respond to the email and no record will be kept on anyone declining to participate. A participant can withdraw their consent at any time without providing a reason and all information/samples collected will be destroyed at that point.
No record will be retained of anyone declining to participate in, or deciding to withdraw from, this research and this will ensure that they will not suffer any negative consequences.

Benefit Questions

Q2.4.1 Describe the benefits associated with your research, referencing any relevant sections of your Project Description as appropriate.

An increased knowledge of fingermark composition, how the composition varies across individuals, and how the composition changes over time (due to environmental factors) can provide valuable insights into how fingermark detection methods might be improved. A better understanding of latent fingermarks and how they behave on various surfaces can inform research into more sensitive detection methods.
Improved detection, enhancement and recording methods will lead to higher success rates with respect to the exploitation of fingerprint evidence in criminal casework. As fingerprints are one of the best forms of forensic evidence, improved detection methods will generate better evidence leading to the earlier identification of potential offenders, shorter court proceedings (saving significant amounts of money and reducing backlogs), and higher crime clear-up rates. Higher crime clear-up rates provide increased deterrence for potential criminals, removes certain criminals from the general population, and overall improves safety, security and wellbeing across the general population.

Q2.4.2 Explain how benefits of this research justify any risks or burdens associated with the research.

The risk of harm or discomfort to participants is negligible and the likely benefits, as indicated above, are substantial.

Q2.4.3 How will you manage participants' expectations of the perceived benefit of participating in the research?

There will be no direct perceived benefits to the participants themselves. The participants will simply be informed that associated research is being directed at a better understanding of latent fingermarks and to optimise their detection for forensic purposes.

Section 3 – Data and Privacy

Data Characteristics

Q3.1 Indicate the type of information/data you will be collecting for this project.

- [x] Personal information
- [ ] Sensitive information
- [ ] Health information
- [ ] Not personal information

Q3.2 Indicate the type of information/data you will be using in this project:

- [ ] Personal information
- [ ] Sensitive information
- [ ] Health information
- [x] Not personal information

Q3.3 Indicate the degree of identifiability of information/data you will be collecting for this project.

- [x] Individually identifiable information
- [ ] Re-identifiable (coded) information
- [ ] Non-identifiable information

Q3.4 Indicate the degree of identifiability of information/data you will be using in this project.

- [ ] Individually identifiable information
- [ ] Re-identifiable (coded) information
- [x] Non-identifiable information

Q3.5 Describe any ethical considerations relating to the collection and/or use of the information/data in this project.

The only information **collected** and associated with the results will be the gender, age and occupation of each participant. No other information will be relevant to this program of research in terms of assessment of the results.
Each participant will be associated with a unique *donor number* - with this number recorded on the corresponding consent form - and all of the fingermark/fingerprint samples collected from an individual will be labelled with this donor number. The association between each participant and their donor number will therefore be via the submitted consent forms that will be retained by the ~~chief investigator in a locked filing cabinet located in a locked office on Hawkesbury Campus (and only accessible to the chief investigator)~~Technical Team Leader, Applied and Analytical Sciences, Technical Support Services, Hawkesbury Campus. As such, the collected samples are *de-identified for analysis purposes* but are *re-identifiable* (coded). This is required in case a particular individual needs to be contacted for the collection of additional samples or withdraws their consent to participate. ~~At that point, the chief investigator will determine this individual's donor number (by referring to the corresponding consent form) and then ensure that all collected samples carrying this donor number are destroyed~~
While the collected samples do not directly identify the donor (being labelled with the donor number only), the association between donor number and participant can still be made by the Technical Team Leader by consulting the retained consent forms. Therefore, any required follow-up with a particular participant - or destruction of collected samples - can be arranged by the Technical Team Leader (or, in their absence, the person acting in that role).
The only information **generated** will be the chemical composition of a participant's fingermark

(where this is determined) and any photographic images captured from reference fingerprints and processed fingermarks. These images are required to record and assess the detail observed in these impressions (i.e., ridge detail and ridge contrast). The information generated will only be associated with an individual of a particular gender, age and occupation. Samples collected - latent fingermarks and reference fingerprints - will be associated with a particular donor number only from the time of collection. No other personal identifiers will be employed with the collected samples or generated information (e.g., digital images of developed fingermarks or reference fingerprints).

Q3.6 Identify the source/s of the information/data that you will be collecting and/or using in this project.

- [x] Individual participants and/or relatives or associates of participants
- [ ] Medical/health/mental health record
- [ ] Electoral roll
- [ ] Held by a law enforcement agency
- [ ] Publicly held database (Commonwealth)
- [ ] Publicly held database (State or local)
- [ ] Privately held database

Q3.7 Describe any ethical considerations relating to the source of information/data as indicated in the response to the previous question.

The information about an individual (gender, age and occupation) will be sought from the individual themselves. If an individual chooses not to provide this information then they will not be considered as a potential participant in this study.

Q3.8 Was the information/data that you are using previously collected for a purpose other than research?

No

Activities Planned for/with Data

Q3.9 Do you plan to disclose any personal information/data in this project to a third party?

No

Q3.10 How will you protect the privacy of participants and non-participants in any notes and/or publications arising from your research?

Staff and students will be under no obligation to provide samples for this research. This will be made clear to the individuals so that they can make an informed decision regarding their participation. Participation will be entirely optional and no records will be kept regarding individuals who choose not to participate (i.e., there will be no record of non-participants). Each participant will be associated with a unique *donor number* - with this number recorded on the corresponding consent form - and all of the fingermark/fingerprint samples collected from an individual will be labelled with this donor number. The association between each participant and their donor number will therefore be via the submitted consent forms that will be retained by the ~~chief investigator in a locked filing cabinet located in a locked office on Hawkesbury Campus (and only accessible to the chief investigator)~~Technical Team Leader, Applied and

Analytical Sciences, Technical Support Services, Hawkesbury Campus. As such, the collected samples are *de-identified for analysis purposes* but are *re-identifiable* (coded). This is required in case a particular individual needs to be contacted for the collection of additional samples or withdraws their consent to participate. ~~At that point, the chief investigator will determine this individual's donor number (by referring to the corresponding consent form) and then ensure that all collected samples carrying this donor number are destroyed~~
While the collected samples do not directly identify the donor (being labelled with the donor number only), the association between donor number and participant can still be made by the Technical Team Leader by consulting the retained consent forms. Therefore, any required follow-up with a particular participant - or destruction of collected samples - can be coordinated by the Technical Team Leader (or, in their absence, the person acting in that role). The Technical Team Leader will have no direct involvement in this program of research and this arrangement will ensure that the research team cannot directly identify a particular donor from their donor number.
The only donor information that will be disclosed in any notes, reports or publications arising from this research will be age, gender and occupation. Photographic images of certain fingermarks and information regarding chemical composition may be shared with research partners and published as research findings. However, it will not be possible to directly associate such images/data with any particular individual.

Q3.11 Are there any restrictions on your ability to assure the confidentiality of participants?

No

Q3.12 Do you plan to share any individual research results obtained during this research to the participants?

No

Q3.13 Describe how you will handle any secondary or incidental findings that arise from the analysis of personal information/data.

Due to the nature of this research, it is not expected that there will be any secondary or incidental findings that arise from the analysis of personal information/data.

Q3.14 Describe how the information/data will be stored, accessed, archived and/or destroyed.

Hard-copy donor information (i.e., signed consent forms) will be stored in a locked cabinet in the office of the principal researcher. This information will exist in hard-copy form only. Generated information (such as chemical compositions and fingermark images) is not considered to be personal in nature and, in any case, will be coded with the donor number only. All hard-copy and digital records related to this research-generated information will be stored, accessed, archived and/or destroyed in accordance with Western Sydney University procedures (internal policies) and with a data management plan submitted with this application.

Q3.15 Describe any ethical considerations relating to the storage of, access to or destruction of information/data in this project.

There are no perceived ethical considerations relating to the storage of, access to, or destruction of information/data in this project.

Q3.16 Will the outcomes of this project be disseminated to the participants?

~~Yes~~No

Q3.16.~~1~~2.1 ~~Describe how~~Justify why the outcomes of ~~the~~this project will not be disseminated ~~to the participants, or refer to the relevant section/s of your Project Description/Protocol which deals with this matter.~~

~~As part of the background information provided to participants, they will each be given the option of receiving any final reports (research thesis or publication) generated during the study or receiving a one-page abstract/executive summary written in lay terms and outlining the key findings.~~

~~**Q3.16.1.2 Describe any ethical considerations relating to any dissemination of outcomes**~~ **to the participants.**

~~There are no perceived ethical considerations in this regard. No individual will be identified in any of the reports or project summaries disseminated to the participants. Research results will only be associated with particular donor types (i.e., based on gender, age and occupation)~~The dissemination of project outcomes to participants is not feasible given that collected fingermarks/fingerprints may be employed across multiple projects and some samples may be retained for an extended period for potential future projects.

Q3.17 Describe any foreseeable future activities for which information/data collected and/or used in this project may be made available.

There are no foreseeable future activities for which information/data collected and/or used in this project may be made available. However, some of the fingermarks themselves may be retained for future studies so that the testing of aged fingermarks (e.g., fingermarks more than 5 years old) can be undertaken.

Q3.18 Describe any ethical considerations relating to the planned or possible future use of information/data in this project.

There are no perceived ethical considerations relating to the possible future use of information/data in this project.

Section 4 – Attachments and Declarations

Attachments

The following documents have been attached to this HREA.

Project Description/Protocol

See attachment *CL03301 - Project Description v~~5~~7 (~~30Aug~~09Oct19).pdf*

Other attachments

Attachment File Name	Attachment Description
CL03301 - Recruitment Text v1 (30Aug19).pdf	Recruitment Text (initial email to potential participants)
CL03301 - Participant_Information_Sheet v~~4~~5 (~~30Aug~~08Oct19).pdf	Participant Information Sheet
CL03301 - Consent_Form v~~3~~4 (08Oct1~~Sep19).docx~~9).pdf	Participant Consent Form
CL03301 - Donor Record Sheet v1 (30Aug19).pdf	Donor Record Sheet
CL03301 - Data Management Plan (30Aug19).pdf	Data Management Plan

Investigator Team Declarations

The research team has certified that:

- All information in this application and supporting documentation is correct and as complete as possible;
- I have read and addressed in this application the requirements of the National Statement and any other relevant guidelines;
- I have familiarised myself with, considered and addressed in this application any relevant legislation, regulations, research guidelines and organisational policies;
- All relevant financial and non-financial interests of the project team have been disclosed; and
- In the capacity of a supervisor, as applicable, I have reviewed this application and I will provide appropriate supervision to the student(s) in accordance with the arrangements specified in this application and those associated with the student's educational program.

Professor Chris Lennard
See attachment *Signature.jpg*.

Dr Val Spikmans

Sign here:……

Dr Rob Ebeyan

Sign here:……

Dr Brenden Riley

Sign here:……

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Professor Chris Lennard See attachment *Signature.jpg.*	 9 October 2019

Dr Val Spikmans

Sign here:.....

Dr Rob Ebeyan

Sign here:.....

Dr Brenden Riley

Sign here:.....

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Participant Information Sheet

Project Title: ***The chemistry of latent fingermarks and their detection***

Project Summary: This program of research is aimed at investigating various aspects of latent fingermarks, including an evaluation of detection and enhancement techniques that can be applied on various surfaces. The goal is to obtain a better understanding of fingermark deposits and their detection so that improvements can be made to how this form of forensic evidence is exploited in criminal investigations.

You are invited to participate in a research study being conducted by a number of research students under the direct supervision of the Forensic Science team at Western Sydney's Hawkesbury campus (Professor Chris Lennard, Dr Val Spikmans, Dr Rob Ebeyan and Dr Brenden Riley). The focus of the study is on the detection of deposited fingermarks – *the collected fingermarks will not be used for identification purposes.*

How is the study being paid for?

The program of research is sponsored by the School of Science and Health, Western Sydney University.

What will I be asked to do?

You will be asked to rub your hands together and then place your fingers on test substrates (which may be paper or plastic strips, for example) using a similar pressure to what would be applied to an object being handled in a normal manner (e.g., drinking glass). The purpose is to deposit latent fingermarks that can later be the subject of chemical analysis and/or the application of specific fingermark detection methods.

In addition, reference fingerprints will be collected as a means of assessing the quality of developed fingermarks. This will be performed using inkless fingerprint pads and/or an optical scanner. Inkless fingerprint pads can be used to record a reference fingerprint on plain white paper without leaving any coloured residues on the finger. Fingers are placed on the pad then on a sheet of paper to record the impressions. The inkless pads use non-toxic, non-irritant materials; however, you should wash your hands with soap and water after this process. As an alternative, you may be asked to place your fingers on an optical scanner to record your fingerprints. Both processes are quick and easy to perform, with no discomfort anticipated.

You will be asked to provide your age, gender and occupation. No other information is required, and all of the fingermark/fingerprint samples will be de-identified for analysis purposes. The samples will be labelled with a donor number at the time of collection.

How much of my time will I need to give?

The whole process is expected to take around 15 minutes for one set of fingermarks/fingerprints. However, you may be approached on multiple occasions to collect additional sets of fingermarks.

What benefits will I, and/or the broader community, receive for participating?

There are no specific benefits to you as an individual, other than supporting valuable research that will improve fingermark detection methodologies. The potential benefits to the community are significant. As fingerprints are one of the best forms of forensic evidence, improved detection methods will generate better evidence leading to the earlier identification of potential offenders, shorter court proceedings (saving significant amounts of money and reducing backlogs), and higher crime clear-up rates. Higher crime clear-up rates are an increased deterrence for potential criminals, remove identified offenders from the general population, and improve safety, security and wellbeing across the general population.

Will the study involve any risk or discomfort for me?

No.

How do you intend to publish or disseminate the results?

It is anticipated that the results of this research project – including images of developed fingermarks – will be published and/or presented in a variety of forums. In any publication and/or presentation, information will be provided in such a way that the participants cannot be identified.

Will the data and information that I have provided be disposed of?

Please be assured that only the researchers will have access to the samples you provide and that these samples will only be used for this program of research and other related projects for an extended period of time. Note that the minimum retention period for data collection is five years post publication. De-identified fingermark samples – labelled with a donor number only – may be retained for up to 10 years but researchers will be unable to associate any fingermark/fingerprint samples with a particular individual, only to a class of donor (aged, gender, occupation). The samples and related information you have provided will be securely disposed of at the end of any required retention period.

Can I withdraw from the study?

Participation is entirely voluntary and you are not obliged to be involved. If you do participate you can withdraw at any time without giving a reason.

If you do choose to withdraw, any information that you have supplied and any fingermarks/fingerprints provided will be destroyed (based on any samples labelled with your donor number). You can withdraw by contacting any of the researchers named on the first page of this information sheet.

Can I tell other people about the study?

Yes, you can tell other people about the study and provide them with the Chief Investigator's contact details (indicated below). They can contact the Chief Investigator to discuss their participation in the research project and obtain a copy of the information sheet.

What if I require further information?

Should you wish to discuss the research further before deciding whether or not to participate, please contact the Chief Investigator [Chris Lennard, Professor of Forensic Science (phone: 02 4570 1739; email: c.lennard@westernsydney.edu.au)] or one of the other researchers named on the first page of this information sheet.

What if I have a complaint?

If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through Research Engagement, Development and Innovation (REDI) on 02 4736 0229 or via email (humanethics@westernsydney.edu.au).

Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

If you agree to participate in this study, you will be asked to sign a *Participant Consent Form*. The information sheet is for you to keep and the consent form is retained by the researchers.

This study has been approved by the Western Sydney University Human Research Ethics Committee. The ethics approval number is H13483.

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Donor Number

Consent Form

Project Title: ***The chemistry of latent fingermarks and their detection***

I hereby consent to participate in the above-named program of research.

I acknowledge that:

- I have read the participant information sheet (or, where appropriate, have had it read to me) and have been given the opportunity to discuss the information and my involvement in the project with the researcher/s; and
- The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

I consent to the following (please tick each box):

☐ Having my age, gender and occupation recorded

☐ Providing reference fingerprints

☐ Depositing latent fingermarks on a range of substrates

☐ Depositing latent fingermarks over multiple collection periods

I consent to the information and samples provided being used for this program of research and other related projects for an extended period of time.

I understand that my involvement is confidential, and that the information gained during the study may be published but no information about me will be used in any way that reveals my identity. I also understand that I can withdraw from the study at any time without affecting my relationship with the researcher/s, and any organisations involved, now or in the future.

Signed: _____

Name: _____

Date: ____ / ____ / ____

This study has been approved by the Western Sydney University Human Research Ethics Committee. The ethics approval number is H13483.

What if I have a complaint?

If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through Research Engagement, Development and Innovation (REDI) on 02 4736 0229 or via email (humanethics@westernsydney.edu.au). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

This message will be sent via email to groups of staff and students based at WSU's Hawkesbury Campus:

"The Forensic Science research team based at Western Sydney's Hawkesbury Campus is undertaking a program of research into the chemical composition and detection of latent fingermarks. The chemical composition of latent fingermarks can vary significantly depending on age, gender, occupation, diet, etc. As such, we need to collect and analyse fingermarks from a broad range of individuals so that we can capture the variations that would be expected across the general adult population. We are seeking staff and student volunteers who would be willing to deposit their fingermarks on a range of different substrates. Reference fingerprints will also be collected for comparison purposes.

Participation is entirely voluntary and no response to this email is required if you choose not to provide samples for this research.

If you are interested in providing samples for this research, please email a member of the research team:

Professor Chris Lennard	c.lennard@westernsydney.edu.au
Dr Val Spikmans	v.spikmans@westernsydney.edu.au
Dr Rob Ebeyan	r.ebeyan@westernsydney.edu.au
Dr Brenden Riley	b.riley@westernsydney.edu.au

On receipt of your email, a meeting will be arranged so that further information can be provided before formal consent is requested and samples collected.

We thank you in advance for your consideration of this request."

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Page: _____

Fingermark Donor Profiles

Donor #	Age	M / F	Occupation

Data Management Plan

Project overview

Project name (*):	The chemistry of latent fingermarks and their detection (2020 to 2025)
Project ID :	TBD (ethics clearance number when known)
Project website:	N/A
Start date:	2020-02-02
End date:	2025-02-01
Funding source	School funding for HDR students
Grant number(s)	N/A
Activity type:	Applied research
FoR Codes	039902 - Forensic Chemistry
SEO Codes	940499 - Justice and the Law not elsewhere classified

Description

This program of research is directed at the assessment of various fingermark detection and enhancement methods (looking at, for example, the efficiency and effectiveness of these methods to both reveal the presence of the fingermarks but also record the fine detail contained within these marks). Various aspects of fingermark chemistry may also be investigated.

People

Principal investigator (*)	Christopher Lennard [C.Lennard@westernsydney.edu.au]
Data creator (*)	Christopher Lennard [C.Lennard@westernsydney.edu.au]
School / Institute (*)	School of Science and Health (from 2020: School of Science)
Data manager	Christopher Lennard [C.Lennard@westernsydney.edu.au]
Collaborators	1. Valerie Spikmans [v.spikmans@westernsydney.edu.au] 2. Robert Ebeyan [r.ebeyan@westernsydney.edu.au] 3. Brenden Riley [B.Riley@westernsydney.edu.au]
External Collaborators	Professor Claude Roux - University of Technology Sydney Dr Xanthe Spindler - University of Technology Sydney Dr Seb Moret - University of Technology Sydney

Supervisor	

Data and Data storage

What types of data will be produced and in what format?

Digital images (standard file formats) Reports, publications and other documentation (MS Word) Presentations (MS PowerPoint) Data processing files (MS Excel)

What software if any is required to collect, collate or analyse your data?

Standard MS Office and digital image software - no specialised software required

What third party data are you using and are there any special requirements around the use of the data?

N/A

Expected size of the data collected: 20GB – 100GB

Storage location: Shared university network drive

Where will physical research be stored?

It is unlikely that non-digital data will be produced. If any non-digital data is produced, the data will be scanned and stored with the digital data. The original hardcopy documents will be stored by C. Lennard in room K16.G.51 (locked office).

What is the required minimum retention period for your data?

7 years

What do you intent to do with the research data and primary materials at the end of the retention period?

Retain

Ethics and sensitivities

Ethics approval number: (approval is pending)

Type of sensitivity:

Information about privacy, confidentiality or sensitivity to the data and how it will be managed

No names will be associated with any of the recorded fingermark images (in accordance with the associated human ethics clearance)

Can the research be shared?:

Restricted access

Ownership, licensing and IP

In which country will your data be collected: Australia

Copyright and intellectual property owners

Higher Degree Research Student

List of any other owners

The research will be conducted in collaboration with a university partner (UTS) and may also involve agencies such as the NSW Police

Information about contractual obligations that apply to this data

N/A
