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Non-consensual collection and analysis of DNA: a contemporary legal lacuna

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ABSTRACT

This article seeks to demonstrate the need for further development of Australian law applicable to non-consensual collection and analysis of DNA. There is presently no recognition of proprietary rights or legal interests in DNA, anyone may take possession of an abandoned personal item and analyse DNA found on it. Once DNA becomes dissociated from a person's body, there are no legal mechanisms which prevent it from being collected and submitted for genetic analysis such as the ancestry tests offered by Direct to Consumer (DTC) genetic testing services. This analysis can reveal sensitive information about a person, such as paternity or disease carrier status, and existing privacy law offers little protection. Further, non-forensic DNA samples such as medical samples that may be collected in a hospital setting can be repurposed by law enforcement for investigations. While there are legitimate reasons why law enforcement may utilize non-forensic DNA samples, this practice falls outside the scope of existing forensic procedures legislation. This article provides a detailed examination of this legal gap and its contemporary significance, providing a foundation for further law reform.

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1. Introduction

Australian law applicable to non-consensual collection and analysis of DNA remains underdeveloped. As it stands, there is no recognition of proprietary rights or legal interests in DNA, and anyone is entitled to take possession of an abandoned item of personal property (e.g. rubbish) and analyse any DNA found on it. Similarly, there is nothing preventing anyone from sampling DNA that is shed and deposited onto publicly accessible surfaces. Thus, once DNA becomes dissociated from a person's body, there are no legal mechanisms which prevent it from being collected. Once discarded DNA has been collected, it may be submitted for genetic analysis. This analysis can reveal sensitive information about a person, including their carrier status for various health informative genes. Existing privacy laws offer little protection for the results obtained from genetic

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analysis. A related issue is the repurposing of non-forensic DNA samples by law enforcement. This can occur when police seek access to samples that have been created for ancestry or medical purposes, or when police obtain someone's DNA through non-forensic powers such as the power to carry out random breath tests. In either case, these practices fall outside the scope of existing forensic procedures legislation – when and how police decide to repurpose non-forensic samples is largely at their discretion. This article examines this legal lacuna and its contemporary significance, seeking to provide the necessary foundation and impetus for further law reform.

2. Non-consensual collection and analysis of DNA by lay persons

There are various scenarios whereby a lay person may be motivated to collect and analyse someone's DNA without consent. For example, a person may want to verify the paternity of a child but not wish to obtain consent of their guardian. In such a case, a person may seek to surreptitiously collect a DNA sample and submit it for analysis. Otlowski (2013) highlights other reasons why a lay person might be motivated to covertly collect and analyse a person's DNA, such as the obtaining of political advantages or blackmail[1]. Similarly, Heled and Vertinsky (2021) discuss the possibility of 'genetic paparazzi' and the covert collection and analysis of genetic material of public figures[2].

The deposition of DNA onto items we handle and surfaces we interact with is a reality of everyday life. Touching a door handle, drinking from a glass, blowing your nose and shaking someone's hand are all acts which can cause DNA to become detached from your body and deposited onto an item or surface[3,4]. Once your DNA has become detached from your body and deposited onto a publicly accessible surface (e.g. a door handle) or onto an item that you subsequently discard (e.g. a tissue) it will persist for some time and can be collected with relative ease[5].

As it stands there are no laws which expressly prohibit collecting and analysing someone's discarded DNA, and limited protections for the results obtained from genetic analysis of such a DNA sample. While there exists a patchwork of statutes and common law principles that could have some application to non-consensual collection and analysis of DNA by lay persons, for the most part, this type of conduct will fall outside the scope of existing statutes and common law doctrines. To illustrate the lack of applicable law, this section will briefly discuss the tort of battery, and then proceed to examine the offence of stalking or intimidation, the application of property doctrines, and privacy law protections. In these areas, laws and principles have negligible or restrictive application to the non-consensual collection and analysis of DNA by lay persons.

Battery is an intentional tort also known as trespass to the person and may give rise to liability for damages. The term 'battery' may also be used to describe a criminal assault occasioning bodily contact, however, the *Crimes Act 1900* (NSW) no longer distinguishes between assault and battery. As explained *in Croucher v Cachia*, '[a] defendant who directly causes physical contact with a plaintiff will commit a battery . . . '[6]. Importantly, a battery will not occur where the individual has consented to the physical contact or where there is some other lawful justification for it[7]. However, the principle of battery 'must inevitably be subject to exceptions. For example, people may be subjected to the lawful exercise of the power of arrest . . . '[8]. If someone was to collect DNA from a person in a way which involved physical contact (including via the use of an instrument such as

a swab), if the person has not consented, this will ordinarily be a battery[9]. However, collecting DNA which has become dissociated from a person's body does not involve any physical interference with the person's body and as such cannot give rise to a battery. Therefore, provided the DNA is collected in a way which avoids making physical contact with the person, it is not tortious and will not give rise to a cause of action against the individual responsible, even if significant harm results.

2.1. Stalking or intimidation

Laws concerned with stalking and intimidation have limited application to non-consensual collection and analysis of DNA by lay persons. For instance, in New South Wales (NSW) stalking or intimidation is an offence under section13 of the *Crimes (Domestic and Personal Violence) Act 2007* (NSW) ('*Crimes Act 2007*'). Section 13(1) provides that 'a person who stalks or intimidates another person with the intention of causing the other person physical or mental harm is guilty of an offence'.

The term stalking is defined in section 8 of the *Crimes Act 2007* (NSW) as including 'following of a person', 'watching or frequenting . . . a person's place of residence, business or work or any place that a person frequents', 'monitoring or tracking of a person's activities, communications or movements' and 'contacting or otherwise approaching a person using the internet or any other technologically assisted means'. While it is untested, it is difficult to envision how non-consensual collection and analysis of a person's discarded DNA could amount to stalking as defined in the NSW legislation. A person may engage in conduct that meets the definition of stalking in an attempt to obtain someone's discarded DNA (e.g. by following them), however, this will not always be the case. For example, if a person lives with someone and they surreptitiously collect their DNA from their shared living spaces, then this will ordinarily not meet the definition of stalking. Moreover, while there may be some instances where this conduct involves an 'intent' to cause 'physical or mental harm' in many cases this element is likely to be lacking. When someone collects discarded DNA from a partner or other family member their intention could be to cause physical or mental harm, however, it is arguably more likely to be information driven. That is, they want to acquire information about a person's genetics such as their relatedness or carrier status for a particular disease.

The term intimidation is defined in section 7 of the *Crimes Act 2007* (NSW). Amongst other things, intimidation means 'conduct . . . amounting to harassment'[10]. Examples of conduct that may amount to harassment provided in the legislation include '[i]ntentionally disclosing or threatening or disclose' someone's 'gender history' or 'that the person has a variation of sex characteristics'[10]. Thus, if someone collects another person's discarded DNA, subjects it to genetic analysis and discovers information about a person's biological sex this could give rise to intimidation under the *Crimes Act 2007* (NSW) if they subsequently disclose or threaten to disclose this information. However, the protection provided by this law is limited and it will only operate in the specific situation where a person discloses or threatens to disclose relevant details about a person's biological sex. There is nothing in the definition of intimidation which would appear to extend the application of this offence to cases where the information relates to a person's relatedness to someone else or to their carrier status for a particular disease. Moreover, this offence is only concerned with the disclosure or threatened disclosure of information that could be

obtained through genetic analysis. It does nothing to deter or punish the collection and analysis of discarded DNA.

2.2. Property doctrines

While it would be a trespass to enter someone's property in order to obtain their DNA, there is nothing preventing someone from collecting DNA that is deposited onto publicly accessible surfaces. Moreover, if a person abandons an item of property which has their DNA on it, someone else is entitled to assert ownership of the abandoned property and analyse the DNA found on it.

An owner of personal property such as clothing, electronics or jewellery, can abandon their property and in doing so relinquish these rights, associated with ownership of property. If someone else subsequently takes possession of the abandoned property they become entitled to the bundle of rights including the right to possession, the right to use and the right to exclude others[11]. For example, if someone intentionally leaves an item in a public space with no intention to retrieve it or exercise any control over it in the future, they will have abandoned the property. Another person would be entitled to collect the item and exercise the bundle of rights associated with the property.

In the United States, courts have held that rubbish is considered to be abandoned if it is placed in bags and then placed in bins that are accessible to others. As explained by California's Court of Appeal in *Ananda Church of Self-Realisation v Massachusetts Bay Ins Co*:

> Documents which have been placed in an outdoor trash barrel no longer retain their character as the personal property of the one who has discarded [them]. By placing them into the garbage, the owner renounces the key incidents of ownership – title, possession, and the right to control[12].

There is less discussion on this point in Australia, however, in *Leonard George Munday v Australian Capital Territory*, Higgins J explained:

> A person 'scavenging' at a public rubbish dump may assume that those discarding goods do not intend in future to assert their title to those goods. If the 'scavenger' then takes possession of those goods, he or she obtains title against the rest of the world[13].

Therefore, when an item is discarded as rubbish, so far as the law is concerned, it has been abandoned. This applies equally to valuable items like clothing or electronics as it does to items that are generally considered valueless like a disposable cup, wrapper or tissue.

The concept of abandoned property and its application to rubbish is a common law principle which has developed over many years. It is a doctrine that was devised before the emergence of DNA profiling, let alone contemporary technologies which allow for trace amounts of DNA to be detected, collected and analysed. The doctrine has not evolved in a way which accounts for the fact that discarded property will often contain DNA that can be collected and analysed. The legal position permits the person who takes possession of the property after it has been discarded to exercise complete control over it. This control appears to allow for the receiver to collect and analyse any DNA found on the item. This is because when someone uses a disposable cup or tissue, deposits saliva or other material on it and subsequently

discards the item as rubbish, the only legal property that exists is the cup or tissue and this property has been abandoned. The saliva and the DNA in the saliva is not property and therefore cannot be the subject of the bundle of rights associated with property ownership including the right to use and exclude others. This is because, as was explained by the Australian Law Reform Commission's (ALRC) in 2003, Australian law 'does not address the property status of genetic samples'[14], and this remains the position today.

In considering whether there should be legislative reform 'to extend the law of property to genetic samples' the ALRC noted some 'significant problems with applying property principles to human genetic samples'[14]. Amongst other things, the ALRC noted that '[a]llowing people to exercise the rights to income and capital of human tissue' may contribute to the commodification of the human body and could 'alter the current situation in which individuals freely donate their tissue'[14]. Additionally, the ALRC noted that the 'sale of tissue samples would burden research by increasing costs, which would . . . be passed on to consumers'[14]. Ultimately, the ALRC recommended that 'legislation should not be enacted to confer full proprietary rights in human genetic samples'[14]. However, this recommendation was influenced by the view 'that the protection of genetic samples can be achieved more effectively by the changes to the *Privacy Act* recommended elsewhere in this Report'[14]. As will be discussed, the *Privacy Act* continues to fail to address the issues raised by non-consensual collection and analysis of DNA by lay persons.

2.3. Privacy law

Existing privacy legislation has limited scope and application. Most notably, many laws only apply to government agencies and corporations, and do not protect invasions of privacy by individuals[15,16]. This means that if a lay person collects and analyses someone's DNA, any results obtained by this individual are not subject to the provisions of the *Privacy Act*, if they are not acting as an agent of a corporation or government agency. In Australia, there is also no common law or statutory right to privacy that applies across Australia (although some states have passed human rights legislation which recognize a right to privacy), meaning that once genetic test results are under the control of an individual (who is not bound by the *Privacy Act*), they may be subject to no formal privacy protections.

However, the *Privacy Act* could impose obligations on the company that carries out the genetic testing, collects the results and subsequently discloses these results. However, the relevance and application of these obligations is highly uncertain.

One potentially relevant obligation in the *Privacy Act* is found in Australian Privacy Principle (APP) 3.3. APP 3.3 deals with the collection of sensitive information about an individual. An entity that is bound by the APPs in the *Privacy Act* must not collect sensitive information about an individual unless (1) the collection of the sensitive information is reasonably necessary for one or more of the entity's functions or activities, and (2) the individual about whom the sensitive information relates must consent to the collection. It is the latter requirement, found in APP 3.3(a), that is most relevant. This requirement could operate to impose on genetic test providers an obligation to take reasonable steps to verify that the source of a genetic sample which has been submitted for analysis has consented to this analysis. Failure to do so could amount to a breach of APP 3.3(a).

If a breach of APP 3.3(a), or any other APP, is found to have occurred there are a range of possible consequences for a direct-to-consumer (DTC) genetic testing company including significant pecuniary penalties[17]. Additionally, in 2025 a new statutory tort for serious invasions of privacy was introduced, conferring on individuals a cause of action for serious invasions of privacy[18]. If the tort is made out, a court will have the power to award damages to the plaintiff. Thus, the *Privacy Act* could operate to encourage DTC genetic testing companies to take steps to deter against non-consensual collection and analysis of DNA by lay persons. If they fail to do so, the *Privacy Act* makes provisions for these companies to be punished and ordered to rectify the interference with privacy. The new statutory tort also creates an avenue for redress for individuals who may be harmed as a result.

However, it is unlikely that the obligations found in the *Privacy Act* will completely address the issue of non-consensual genetic testing. This is because the way in which these businesses operate is such that there will necessarily be a risk that the submitted sample has been obtained from someone other than the person requesting the analysis and there will sometimes be very little the company can do to detect this. In the context of traditional genetic testing carried out in a medical context, the risk of non-consensual genetic testing may be minimized by the fact that the collection of the genetic sample is done on site and by an agent of the testing service. This process provides significant assurance that the sample that is collected and analysed has come from the source of the genetic material. However, modern DTC genetic testing services operate differently. In particular, these services generally require consumers to self-collect the sample and send it to the company via a postal service. Given that the testing service does not directly collect the sample, it is very possible that someone could submit a sample that has come from someone else and there is very little a DTC testing service could do to detect this.

There are steps that a DTC testing company could take to make it more difficult for people to submit someone else's DNA for analysis, however, it's unlikely that they would be able to address this risk entirely. For example, they could refuse to analyse samples that are in a form which raise obvious concerns about covert collection (e.g. nail clippings or hair). While many major DTC testing companies require the submitted sample be in a particular form, generally a buccal swab, there are services which allow customers to submit problematic samples. For example, AlphaBiolabs, a US based company offers a 'Nail Clipping DNA Test' that can be purchased online for a small fee. This product is described as 'an alternative method of collecting a DNA sample' such as 'where retrieving a cheek sample from all test participants might not be possible'[19]. Similarly, EasyDNA, an Australian company, offers 'discreet' testing of samples including 'nail clipping', 'hair with root', 'razor', 'cigarette butt', 'chewing gum', 'condom', 'drinking glass' and 'drinking straw'[20].

However, even if these companies did refuse to analyse samples that give rise to obvious concerns about consent, without directly collecting the sample from the relevant individual there will inevitably be a risk that a sample submitted for analysis has come from a person who has not provided consent for the requested analysis. First, it may be possible to collect a saliva sample from an unknowing person which would not be distinguishable from any other saliva sample that a DTC testing service may receive. A relatively easy way to do this would be to have someone take a rapid antigen test (or similar diagnostic test) which requires them to produce a relatively

large amount of saliva. You could then use a swab such as the one provided by major DTC testing services to collect saliva from the collection tube or the test cassette and in doing so you may be able to generate a saliva sample which is indistinguishable from one you would collect by swabbing the inside of someone's mouth.

Second, someone could collect a saliva sample from someone for one purpose or for a particular type of analysis but then submit it for a different or more detailed analysis. For example, someone could collect a DNA sample from someone else under the proviso of a seemingly innocuous test such as a pharmacy's 'know your skin' DNA test which provides insights on 'how your DNA affects the way your skin is likely to age'[21]. They could then submit this sample for far more detailed genetic analysis. In such a case, a testing service would have no way of knowing that the source of the sample has not consented to the requested analysis.

Even where a DTC testing service takes reasonable steps to ensure that genetic analysis is only carried out with the consent of the source, there will remain real risks that non-consensual analysis will take place. Provided the company has taken reasonable steps to comply the relevant APPs, this may be sufficient for the purposes of the *Privacy Act*. This demonstrates the limits of the protection provided by privacy laws. Moreover, there remains uncertainty about whether the *Privacy Act* can be imposed on foreign corporations such as US based DTC testing services. While there is an extraterritoriality clause in the statute[17], it's application to overseas genetic testing services has yet to be tested.

It is also worth noting that many DTC testing companies have included statements such as the following terms and conditions:

> In addition to the requirements described above, you also agree to the following terms for your use of DNA services: . . . Any saliva sample you provide is either your own or the saliva of a person for whom you are a parent or legal guardian . . .

The effect of such a clause in a DTC companies' terms of service is to impose a contractual obligation on users of the service. Thus, if a user breaches this clause, they may be liable for breach of contract. However, the protection provided by the inclusion of such statements is limited. An issue which arises is the difficulty of detecting instances where a DNA sample is submitted to a company in contravention of a clause like the one extracted above. As has been discussed above, in light of the current business model adopted by these companies it may be very difficult for them to verify consent.

Most significantly, clauses like the one extracted above do nothing to address harms suffered by the source of the DNA. Even if a person is liable for breach of contract due to contravention of a terms of service agreement, this only gives the company a right in action. The person from whom the DNA was obtained does not acquire any legal right to pursue remedies. This is a consequence of privity of contract. A terms of service agreement is a contract between the consumer who provides valuable consideration for the services offered by the DTC genetic testing company. The parties privy to the agreement are the consumer and the DTC testing company. An individual who is the source of DNA that is submitted for analysis in contravention of the terms of service agreement is not a party to the contract and acquires no right against the consumer or the company. Therefore, even if these clauses in the DTC testing company's terms of service agreements do impose a legal obligation on users of a genetic testing service to refrain from

submitting samples from a non-consenting party, they do not address the harms that may result when a person nevertheless breaches the agreement.

3. Non-consensual collection and analysis of DNA by law enforcement

There are obvious reasons why law enforcement is likely to be motivated to engage in non-consensual collection and analysis of DNA. Doing so may be essential for an investigation. Much of the above discussion surrounding the non-consensual collection and analysis of DNA by lay persons is also relevant to law enforcement. Just as a lay person can collect extra-bodily DNA that is found on publicly accessible surfaces or on abandoned property, so too can a law enforcement official. However, in the law enforcement context, this gap in the law has to be understood with reference to existing legislation that ordinarily regulates the collection of forensic samples from individuals by police and the various scenarios which fall outside the scope of these laws.

3.1. Forensic procedures legislation

The forensic procedures legislation in each Australian jurisdiction permits the carrying out of procedures that will give rise to a DNA sample (e.g. the collection of a buccal swab) even if the person does not consent. As described by the NSW Court of Appeal, this legislation describes the 'circumstances in which, and procedures by which, forensic material may be obtained from a person's body' as well as the use that may be made of such forensic material'[22].

A key feature of forensic procedures legislation is that it authorizes what would otherwise be a battery at common law[23]. As explained by Oosthuzein, Howes and White (2023):

> Early use of forensic DNA analyses depended on a volunteer's willingness to provide a DNA sample. Law enforcement agencies could not compel any suspect to undergo non-consensual DNA sampling. In *Fernando v Commissioner of Police* (1995) 36 NSWLR 567, the New South Wales (NSW) Court of Appeal confirmed that there was no power to compel a suspect to provide a sample of his or her blood, saliva, or other body material at common law. Using unauthorised physical force to obtain such samples would amount to assault and the arbitrary and unlawful attack on the suspect's privacy, honour, reputation and dignity[24].

Forensic procedures legislation authorizes the carrying out of specific procedures on suspects without their consent. The authority provided by the forensic procedures legislation does not provide police with a general power to collect DNA samples without consent. Instead, it authorizes the carrying out of specific procedures in specific circumstances subject to various requirements. For example, the *Crimes Act 1914* (Cth) authorizes various forensic procedures which would give rise to a DNA sample including the taking of a buccal swab, a sample of saliva, a sample of hair and a sample of blood by finger prick, and analogous provisions are found in the forensic procedures legislation that exists in each Australian jurisdiction[25]. These procedures may be performed on an adult suspect if they have given informed consent to undergo the procedure or, in the absence of consent, by order of a senior officer or magistrate[26]. Analogous provisions and authorizations appear in the

Table 1. Forensic procedures legislation for each Australian jurisdiction.

Jurisdiction	Legislation
Commonwealth	*Crimes Act 1914* (Cth) Part 1D
New South Wales	*Crimes (Forensic Procedures) Act 2000* (NSW)
Victoria	*Crimes Act 1958* (VIC) s 464B
Queensland	*Police Powers and Responsibilities Act 2000* (QLD)
Tasmania	*Forensic Procedures Act 2000* (TAS)
Australian Capital Territory	*Crimes (Forensic Procedures) Act 2000* (ACT)
South Australia	*Criminal Law (Forensic Procedures) Act 2007* (SA)
Northern Territory	*Police Administration Act 1978* (NT)
Western Australia	*Criminal Investigation (Identifying People) Act 2002* (WA)

relevant forensic procedures acts that exist in each Australian jurisdiction. Table 1 provides the relevant laws in each Australian jurisdiction, although no Australian jurisdiction regulates FIGG.

If police were to take a buccal swab from someone without their consent, this would ordinarily be a battery, as described earlier. However, if the buccal swab is taken in accordance with the forensic procedures legislation, conduct which would otherwise be a battery is excused. This is reflected in the Commonwealth legislation, which provides:

> No civil or criminal liability is incurred by any person (including a constable) who carries out, or helps to carry out, a forensic procedure under this Part in respect of anything properly and necessarily done in good faith by the person in carrying out or helping to carry out the forensic procedure if the person believed on reasonable grounds that:
>
> (a) informed consent had been given to the carrying out of the forensic procedure, or
> (b) the carrying out of the forensic procedure without informed consent had been duly ordered by a constable officer or Magistrate under this Part[27].

However, the forensic procedures statutes are only concerned with the collection of DNA when it involves physical contact by a police officer. If DNA is collected in a way that does not involve physical contact, this falls outside the scope of the forensic procedures legislation and cannot give rise to a battery. For example, when a person uses a tissue or a cup and discards it, another person may collect the discarded item, sample the DNA found on it and analyse it. As it is not a battery, it is irrelevant whether or not the forensic procedures legislation provides a lawful justification. At present, there is nothing unlawful about picking up a discarded item and collecting DNA found on it. This is reflected in several cases which have affirmed the legality of police collecting DNA from discarded items such as cups and used cigarette butts[28,29].

For example, in *R v Kane* police collected a used cigarette butt which the suspect had dropped on a footpath. The butt was subjected to DNA analysis and the results of the analysis led police to arrest the suspect in connection with the offence. The defence sought to argue that the collection and analysis of the cigarette butt amounted to a forensic procedure. In response to this submission, Sully J explained:

> [W]hat is contemplated by the notion of a forensic procedure, whether intimate or non-intimate, is that it is a procedure actually *carried out on the person of some specific individual*. The chance circumstance that a person throws away, relevantly, a cigarette butt which is retrieved without any reference to, or interference with the person, and which turns out to

> have significant probative value in terms of what it says about the relevant DNA profile, does not seem to me to satisfy, either in principle or in practice, either in law or in fact, what is contemplated by the [Forensic procedures act]. (emphasis added)[29]

Similarly, in *R v White*, Studdert J clearly stated that the NSW legislation does not 'encompass the obtaining of material which has been discarded' given that:

> One finds the meaning of 'forensic procedure' by looking, inter alia, at an intimate forensic procedure and a non-intimate forensic procedure … All these activities involve 'taking' a substance, *not merely picking up a substance which has been discarded* or thrown away. (emphasis added)[30]

It is irrelevant that there is no express authorization for police to collect and analyse extra-bodily DNA from discarded material because ordinarily this is not unlawful. There is no legal principle at common law or in legislation which makes it unlawful for a police officer, or anyone else, to collect and analyse genetic 'material which has been discarded'[30]. Just as a lay person can collect and analyse discarded extra-bodily DNA without the consent of the source, so too can a police officer. This is so regardless of the fact that forensic procedures legislation exists. As has been communicated by courts in the cases discussed, use of such methods as a way to obtain a suspect's DNA involves no wrongdoing or impropriety by investigators.

3.2. Repurposing of non-forensic samples

Another form of non-consensual collection and analysis of DNA that could occur in the law enforcement context is the repurposing of non-forensic samples for forensic purposes. As discussed, there is nothing preventing someone from collecting and analysing extra-bodily DNA on discarded items and on public or private surfaces and this has provided police with a way to circumvent the formalities established by the forensic procedures legislation. However, in addition to the relatively small amounts of DNA that are involuntarily and unknowingly shed, there are various contexts in which bodily material containing DNA is collected with the knowledge and consent of the source. For example, there are various medical tests (e.g. blood tests) which will involve the collection of samples containing DNA. Additionally, DNA can be collected as an incident of police administered random breath tests and oral fluid tests. As it stands, there are no laws which prevent police from utilizing the DNA found in these samples for forensic purposes. Again, this will generally occur without the knowledge or consent of the source of the DNA.

3.2.1. Use of non-forensic investigative powers to collect DNA

As discussed, police can obtain bodily DNA samples in accordance with forensic procedures legislation, however, they may also obtain someone's DNA by covertly sampling discarded items or surfaces touched by the person. Doing so does not involve any impropriety.by investigators as it falls outside the scope of existing laws. This practice is one example of a covert informal method of collecting DNA. The informality arises from the fact that it falls outside the scope of the processes established by the forensic procedures legislation. The practice is covert in the sense that it occurs without the knowledge of the source. Another example of a covert informal method of collecting

DNA, highlighted by the ALRC, is the use of 'non-forensic investigative powers' such as random breath tests[14].

Obtaining a DNA sample with non-forensic investigative powers falls outside the scope of the forensic procedures legislation. However, unlike in the case of extra-bodily DNA, this practice still involves making physical contact with the person. The difference is that the physical contact is supported by the laws which grant police the power to carry out activities like random breath tests. This is explained by Gans (2013) who notes that the forensic procedures legislation does not regulate 'physical touching or interreference with the body of the suspect ... so long as those interactions are supported by other laws'[31]. Accordingly, police can collect someone's DNA using other powers, such as those permitting 'random' testing of intoxication or arrest'[31].

This practice appears to have been sanctioned by courts. For example, in *R v Daley*[32], NSW Police set up a roadside random breath testing station near the suspect's home. When the suspect drove past they pulled him into the station, carried out a random breath test, sealed the breath test container and submitted the contents for DNA analysis. This did not amount to a forensic procedure, nor did it involve any unlawful conduct by NSW Police.

This practice is legal because the initial contact which would otherwise be a battery is permitted by legislation which grants police the power to carry out random breath tests. Once the sample has been obtained through the carrying out of a random breath test, the lack of rights and interests in DNA means that police (and anyone else who was to obtain the sample) is free to exploit it as they see fit, including by submitting it for genetic analysis. In some cases, the results of the analysis will be protected by privacy law, however, these laws create various exceptions for 'enforcement bodies', meaning that in many cases privacy laws will do very little to protect privacy in the results of genetic testing carried out by police in the course of investigating a crime.

For example, APP 6 outlines when an APP entity may use or disclose personal information and provides that disclosure of personal information for a secondary purpose is impermissible unless an exception applies. Amongst other exceptions, APP 6 is not breached when the APP entity reasonably believes that the secondary use or disclosure is reasonably necessary for one or more enforcement related activities carried out by or on behalf of an enforcement body. State and federal police are expressly included in the definition of 'enforcement body'. Moreover, law enforcement is also exempt from the recently introduced statutory tort for serious invasions of privacy.

Police are granted extraordinary powers which allow them to discharge their law enforcement function, but also authorize the infringement of citizen's rights. When exercising the various powers that have been granted by legislation, police must ensure that they are exercising their powers in a way that is consistent with the terms of the statute and the authority granted. It is arguable that using the power to carry out random breath tests for the purpose of covertly collecting someone's DNA is outside the scope of the authority granted by the legislation. As such, this practice is an unlawful exercise of this power. This discussion has far broader implications beyond the context of random breath tests. It speaks to the need to ensure that police powers are being exercised in a way that is consistent with the authorizing statute.

3.2.2. Collecting DNA with powers granted by the Road Transport Act

In *R v Daley*, NSW Police carried out a random breath test on a suspect for the purpose of covertly obtaining their DNA. In doing so, they were exercising a power granted to them under the *Road Transport Act*.

Similar to the forensic procedures legislation, the *Road Transport Act 2013* (NSW) provides a lawful justification for conduct which would otherwise amount to a battery. When police carry out a random breath test on a driver, they necessarily make physical contact with that person. As drivers are not permitted to decline to undergo a random breath test, they cannot be taken to have provided free and informed consent to the contact. In light of this, but for the existence of the authority granted by the *Road Transport Act*, this would likely constitute a battery.

In interpreting statutes like the forensic procedures legislation and *Road Transport Act* a strict construction should be adopted. This is because, these statues grant police extraordinary powers to invade a person's bodily integrity, something which is generally the subject of significant legal protections. Similarly, courts have encouraged the strict construction of statutes granting police powers to carry out search warrants. For example, in *George v Rockett & Anor*, the High Court of Australia commented:

> [I]n construing and applying such statutes it needs to be kept in mind that they authorise the invasion of interest which the common law has always valued highly and which, through the writ of trespass, it went to great lengths to protect. Against, that background, the enactment of conditions which must be fulfilled before a search warrant can be lawfully issued and executed is to be seen as a reflection of the legislature's concern to give a measure of protection to these interests. To insist on strict compliance with the statutory conditions governing the issue of search warrants is simply to give effect to the purpose of the legislation[33].

Bodily integrity is an interest which 'the common law has always valued' and protected. For example, in *Collins v Wilcock*, Goff LJ stated:

> The fundamental principle, plain and incontestable, is that every person's body is inviolate. It has long been established that any touching of another person, however slight, may amount to a battery . . . The breadth of the principle reflects the fundamental nature of the interest so protected . . . [34]

The *Road Transport Act* authorizes an interference with bodily integrity by allowing police to subject drivers to mandatory tests which necessarily involve physical contact. In interpreting the authority that is given to police, it is essential to recognize the background to the granting of this authority and the significance of the invasion that is permitted. Thus, strict compliance with the legislative provisions governing the carrying out of random breath tests and other powers granted by it is essential.

The *Road Transport Act* grants police a number of powers to collect and test samples from road users. Schedule 3 is concerned with testing for alcohol and drug use, granting police powers to test and take samples from road users. These include powers to conduct random breath testing and random oral fluid testing. The collection of DNA is a necessary incident of exercising these powers. Hence, why police have sought to utilize the power to conduct random breath tests to obtain the DNA of suspects in the past[32].

These powers are granted for a particular purpose, namely the testing for alcohol and drug use in road users. This is implicit in the fact that these powers are granted by

the *Road Transport Act*, described in section 3 of the legislation as 'statutory provisions concerning road users, road transport and the improvement of road safety'[33]. There is nothing in this legislation which suggests that parliament intended these powers to be used for a purpose unrelated to road transport. Moreover, the legislation clearly communicates that the purpose of breath and oral fluid tests is to test for alcohol and drug use, respectively. The term 'breath test' is defined in Schedule 3 of the legislation to mean ' . . . a test *for the purpose of* indicating the concentration of alcohol present in a person's breath or blood . . . ' (emphasis added)[33]. Similarly, the term 'oral fluid test' is defined to mean ' . . . a test carried out . . . *for the purpose of* ascertaining whether any prescribed illicit drugs are present in that person's oral fluid' (emphasis added)[33]. Accordingly, use of these powers for a purpose such as surreptitiously obtaining a person's DNA is inconsistent with the grant of these powers in the legislation and therefore this is arguably an unauthorized exercise of power.

This is not to say that police should not, in theory, be permitted to utilize the façade of a random breath test or an oral fluid test as a means of covertly obtaining a suspect's DNA, however, based on the current grant of power in the *Road Transport Act* police should not utilize these powers for purposes other than to ascertain 'the concentration of alcohol present in a person's breath or blood' or 'whether any prescribed illicit drugs are present in that person's oral fluid'[33]. The use of these powers to covertly collect DNA may be justified in certain cases, however, the power to carry out a random breath test for this purpose does not currently exist. Such a power must come from legislation that should clearly define the scope and limitations on the exercise of the power.

3.3. Collecting DNA from medical samples

Another way in which police can repurpose non-forensic DNA for forensic purposes is by seeking access to samples that have been collected in a medical context. Just like the DNA that is found on a discarded cup, there is a lack of recognition of legal rights and interests in extra-bodily DNA found in donated material (e.g. blood, plasma, organs, sperm), medical waste or pathological samples. Moreover, as it stands, the law does not recognize proprietary rights or interests in human tissue. The exception to this is where the tissue has been preserved 'by the lawful exercise of work or skill', in which case the person responsible for the preservation may acquire the rights associated with ownership of property[34]. The source of bodily material such as cord blood collected at birth or frozen embryos has no proprietary rights in the physical material, the DNA found in it or the information that may be extracted.

There may be legitimate reasons for refusing to apply a property approach to human tissue and genetic material, however, as a consequence of doing so, individuals have no formal rights or interests in their tissue and DNA once it has been removed from their body. This allows law enforcement to seek access to medical samples and repurpose them as forensic DNA samples. There are no formal avenues for the source of the tissue and the DNA to prevent this because the source has no rights in the tissue or the DNA.

While some of the problems that arise from the refusal to apply a property approach to human tissue and DNA could be ameliorated through robust privacy laws, there remains limited protection for genetic privacy in Australia. This means that not only does a person

not have formal rights in their tissue or the DNA extracted from it they also have limited formal rights in the information that can be derived from the DNA.

Human tissue laws such as the *Human Tissue Act 1983* (NSW) ('*Human Tissue Act*') do provide a degree of protection for human tissue, however, the extent to which these laws would also apply to DNA extracted from tissue is unclear. Moreover, these laws are predominantly concerned with the removal and use of human tissue for therapeutic, medical or scientific purposes. For example, section 21X of the *Human Tissue Act* provides:

> (1) The use, for therapeutic, medical or scientific purposes, of tissue removed from the body of a person during medical, dental or surgical treatment, is authorized if—
> (a) the person has given his or her consent in writing to the use of the tissue for that purpose, and
> (b) the consent has not been revoked.

However, the legislation is silent on the authority to use tissue removed from a patient for forensic purposes. This would appear to fall outside the scope of the legislation.

Accordingly, just as police can sample saliva from a used and discarded cup, there would appear to be nothing stopping them from attempting to collect DNA from medical waste, umbilical cords or other samples that are collected at birth, or any form of tissue that has been removed from a person's body such as donated organs, embryos or teeth. Neither the forensic procedures legislation or human tissue laws regulate when and how this occurs. While these practices would require cooperation by the organizations (e.g. the hospitals or biobanks) there doesn't appear to be any law that would prevent an organization from allowing police to access these materials.

Overseas, there are numerous examples of police obtaining DNA from persons of interest by sampling material that had initially been collected in a medical context. For example, in 2022 New Jersey police were reported to have sought access to an infant's blood sample which had been obtained as part of a required public health screening programme in order to investigate the child's father who was a suspect in a sexual assault case[35]. In 2003, Swedish police were granted access to a newborn blood sample of a suspect which was held by a hospital. Police later arrested the suspect who was sentenced to life imprisonment[36].

There are also reports demonstrating that this practice occurs in an Australian context. For example, de Groot et al. (2021) describe a 1997 case in which police investigating alleged incest were granted access to a Guthrie card in order to carry out paternal testing[36]. In this case, police sought access to the children's Guthrie cards 'after their mother had refused to give permission to obtain blood directly from the children'[36]. Moreover, in the ALRC's *Essentially Yours* report, the commission described a Memorandum of Understanding (MOU) between NSW Police Force and NSW Health Department:

> The MOU provides that the Department will disclose cards for the purpose of identifying human remains or where the Police possess a forensic sample suspected to come from a victim of a crime, taken from the scene of the crime, where the victim cannot be located. New South Wales Police must make reasonable efforts to secure the consent in writing of the next-of-kin of the person whose sample is requested, unless it would be impractical to do so or would compromise an ongoing investigation[14].

In the context of the Australian case described above, the fact that the mother had expressly refused to give consent prior to police seeking access to the stored samples of the children, is particularly significant. It highlights how the protections that are established by the forensic procedures legislation are rendered meaningless by allowing police to obtain DNA in other ways such as by seeking access to medical samples. In a given case, police may attempt to obtain a sample through the formal processes established by the forensic procedures legislation, however, if this fails because the person does not consent, and they cannot obtain an order from a magistrate, they can merely sample a source of extra-bodily DNA such as tissue samples stored by biobanks and hospitals.

There are legitimate reasons for police seeking access to medical samples in the course of a criminal investigation, and in many cases, it will arguably be in the public interest to allow such access. For example, in a case like the one described above where there is suspected incest which needs to be confirmed through DNA testing, there is a genuine public interest in identifying and deterring these acts that may justify police accessing a medical sample of a suspect without the individual's consent. However, there is a need to ensure that such a practice is the subject of appropriate law and regulation. As it stands, accessing medical samples is entirely at the discretion of police and the organizations that hold the samples.

4. Contemporary developments

4.1. The DTC genetic testing industry

The issues discussed in the proceeding sections of this article highlight major shortcomings in the law surrounding the collection and analysis of DNA in Australia. These shortcomings are of particular concern due to developments in the DTC Genetic Testing industry and the emergence of Forensic Investigative Genetic Genealogy (FIGG). As DTC genetic testing services become increasingly accessible to consumers, the failure to protect extra-bodily DNA may cause new and unforeseen harms. This has been discussed by Otlowski who explains:

> With the growing availability of direct-to-consumer genetic testing, unimpeded by the usual gatekeeping in the health sphere, it is quite feasible for genetic samples to be surreptitiously obtained and sent to a direct-to-consumer genetic testing company for analysis. Indeed, some companies advertise 'discrete' testing services, and one context in which this is known to frequently occur is paternity testing. Aside from this, however, a range of other circumstances has been identified where there may be motivation to have a person's genetic material secretly analysed, including custody disputes, or for purposes of blackmail or political advantage[1].

Additionally, the National Health and Medical Research Council (NHMRC) has pointed out that additional concerns arise given that these samples may be sent overseas for analysis:

> The internet has facilitated the exponential growth of the genetic testing market. DTC genetic testing, in particular, has flourished through targeted marketing using this medium. Such tests can be appealing because sample collection can be done at home and access to results by others is limited. However, a consumer's DNA sample is then held by a third party, most

likely in an overseas jurisdiction. This is of even greater concern in cases where the DNA of another person is surreptitiously obtained and tested without their consent[37].

In 2024, it was estimated that the DTC Genetic testing market was worth 2.4 billion USD, having grown from 1.9 billion USD in 2023. Projections indicate that this market will continue to grow at a rapid rate over the next 10 years with some estimating that by 2033 the market may be worth as much as 17 billion USD[38].

This growth is almost certainly being observed in an Australian context. A 2023 study identified 484 commercially marketed DTC pathology tests, being advertised online in Australia. These tests were found to cost on average less than 200 AUD, making them reasonably affordable for many people[39].

In addition to being highly accessible, the tests offered by DTC testing companies offer detailed genetic insights. In contrast to the genetic analysis that is routinely carried out by law enforcement, the tests performed by DTC testing companies involve far more detailed analysis, yielding far more detailed and sensitive results. Whereas routine DNA analysis carried out by law enforcement relies on limited analysis of short tandem repeats (STRs) which have been specifically selected so as to minimize the risk of revealing insights about health, DTC testing companies test hundreds of thousands of Single Nucleotide Polymorphisms (SNPs) which are specifically selected to provide detailed insights into a person's genetics[40].

4.2. Forensic Investigative Genetic Genealogy (FIGG)

The preceding discussion has referred to various cases which disclose the use of informal methods of obtaining DNA by police. While these cases indicate that these practices have been occurring for decades, there is no evidence suggesting widespread use of informal methods of obtaining DNA. In fact, the limited number of cases disclosing these practices tends to indicate relatively modest use of informal methods. However, the very recent emergence of Forensic Investigative Genetic Genealogy (FIGG) provides the impetus for considering such reforms. Not only is FIGG likely to bring about greater use of informal methods to obtain DNA, it is also likely to change the investigative landscape, increasing the intelligence value of a DNA sample.

The emergence of FIGG is most closely associated with the prosecution and conviction of Joseph James De Angelo in 2018, also known as the Golden State Killer. In this case, police had collected several DNA samples from crime scenes across California between 1974 and 1986. Analysis had revealed that the DNA samples had come from the same perpetrator, however, the identity of the perpetrator was unknown. Comparisons between the DNA found at the crime scenes and DNA of known offenders and persons of interest did not lead police to the person responsible for the murders, rapes and burglaries. After these traditional methods had proven unsuccessful, police decided to utilize GEDmatch, an online platform which allows individuals who have undergone genetic ancestry testing to upload their results in order to carry out genealogical research and identify genetic relatives. Police uploaded the DNA profile from the crime scenes to GEDmatch and identified distant cousins of the unknown perpetrator. This led police to identify Joseph James De Angelo as a possible suspect in the investigation. They subsequently surveyed De Angelo and covertly obtained his DNA by sampling the door handle

of his car. A comparison between De Angelo's DNA and the original crime scene DNA revealed that De Angelo was extremely likely to be the source of the crime scene DNA. He was later arrested, charged, convicted and sentenced to 13 consecutive life sentences[41].

FIGG has since been utilized by law enforcement agencies around the world to identify human remains and suspects in criminal investigations. To date, the use of FIGG in Australia has not been as widespread as it has elsewhere, however, it has been used in several investigations into unidentified human remains carried out by the Victorian Institute of Forensic Medicine and the AFP, and in at least one criminal investigation carried out by Western Australia Police Force[42–44]. In late 2023, NSW Police Force and the Australian Federal Police announced development of a FIGG pilot for criminal casework[45,46].

The value of FIGG is largely based on the expanded databases that are being utilized. Compared with Australia's National Criminal Investigation DNA Database (NCIDD), the DNA databases that are used in the FIGG process contain a greater number of individuals as well as an expanded demographic of individuals. Moreover, the nature of the genetic data contained in these databases is significantly more informative than the profiles in the NCIDD. As a result, FIGG is capable of identifying suspects in circumstances where other methods have failed. As such police have every reason to turn to FIGG in order to solve previously unsolved crimes.

However, FIGG will rarely lead police directly to the perpetrator. Instead, the technique provides police with intelligence that can be used to narrow down the pool of possible suspects. Often this intelligence will take the form of known individuals who are distant relatives (e.g. a second cousin) of the unknown person. Armed with this knowledge, police still need to identify possible suspects and then ascertain whether or not these people were actually involved in the crime under investigation. They can do this by comparing the DNA of suspects who have been identified with FIGG to the DNA that has been recovered from the crime scenes. If the results demonstrate that the person identified with FIGG can be excluded as the source of the crime scene DNA, then police can exclude them as a suspect. If the results demonstrate that the person identified with FIGG cannot be excluded as the source of the crime scene DNA, then police can include them as a suspect and may, after further investigations, arrest and charge them with the relevant crime.

Throughout this process, there are various reasons why police would prefer to covertly sample a suspect's DNA, as they did in De Angelo's case, rather than obtaining a formal DNA sample. For one thing, while FIGG is a targeted process, it might identify several individuals (such as siblings) any one of whom could conceivably be the suspect based on their genetic relationship to the profiles on the genealogy database as well as other details such as gender and geographical location. In such a case, police can obtain discarded DNA from these individuals in order to exclude or include them as possible suspects. This is far more expeditious and less resource intensive than making an application for an order from a magistrate under the forensic procedures legislation for each lead identified with FIGG. Additionally, covert collection of DNA from suspects identified with FIGG means that someone who is later excluded as a suspect based on the subsequent DNA comparison need not be subjected to the stress and distress that may come from being alerted to the fact that they are a suspect in a criminal investigation. It also means that a suspect who is later identified to be the likely source of the crime scene DNA is not

alerted to the investigation until police are able to arrest them, meaning that there is no opportunity for them to destroy crucial evidence linking them to the crimes or to flee the jurisdiction. While the use of FIGG in criminal investigations in Australia is still in its infancy, based on the US and international experience, the use of covert methods to obtain suspect's DNA is likely to be a feature of these investigations. In light of this, there is a new and pressing need to review how covert collection and analysis of DNA in Australia is regulated.

5. Conclusion

This article has highlighted a gap, or legal lacuna, surrounding non-consensual collection and analysis of DNA in Australia. The gaps in the law discussed are of particular contemporary significance given the developments in the DTC genetic testing industry and the emergence of FIGG. In addressing this gap, it is essential to consider both lay persons and law enforcement. While different considerations arise in the context of lay persons and law enforcement, the law's failure to recognize and protect rights and interests in genetic material once it has become dissociated from a person's body requires reform. The gap enables covert analysis of DNA that a person has discarded, undermining a person's privacy and dignity, by allowing genetic material to be analysed without the consent of the source. Identifying and characterizing this gap is the first step towards implementing appropriate reforms. Finally, a current ALRC inquiry into human tissue laws, announced in August 2024[47], may provide an opportunity to address a number of the issues discussed in this paper. Moreover, in addressing the limitations in human tissue laws, it is essential to recognize the connection between human tissue and genetic material. While this connection may seem obvious, existing human tissue laws fail to expressly extend their application to both the tissue itself and the genetic material it contains, and it is encouraging that the need for reform in this area is beginning to be recognized.

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