

Risk Management in relation to Firearms Licensing

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This report is an evaluation of risk management by the MPS in relation to firearms licensing, including an assessment of current methods for assessing risk and an analysis of data on Certificates that were refused on application, refused on renewal, revoked or voluntarily surrendered for the years 1992 – 2016.

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SUMMARY

Our primary conclusion is that a structured professional judgement should continue to form the basis for risk assessment and decision-making for shotgun and firearms licencing by MPS Firearms Enquiry Officers (FEOs) and their managers. The preparatory desk-bound study we undertook for this report, and our own empirical research using interviews with FEOs and their managers, together with the collection and analysis of data all support this conclusion.

The MPS assesses the risk posed by granting or renewing an individual's shotgun and/or firearm Certificate in robust, fair and clear ways, consistent with legal and national requirements and which follow the guidance of the Home Office, College of Policing and others. None-the-less, assessing risk, in the sense of estimating the likelihood of an individual posing a threat in the future, is a challenging undertaking, made particularly difficult in the context of firearms licencing by the ambiguities inherent in the law and in national policy. Our research leads us to suggest that risk assessment and decision-making by FET (SCO19) could be further improved in the following ways.

Recommendation 1 – Develop additional forms of risk assessment based on threats (as an aid to structured professional judgement)

Recommendation 2 - Increase cooperation with other non-police agencies to share good practice

Recommendation 3 – Enhance FEO training and staff development to aid structured professional judgement

Recommendation 4 – Develop further the risk assessment of 'reasons to own', the security of the shotgun/firearm, particular occupational groups and during the whole of the five-year period of licencing

Recommendation 5 - Maintain and enhance the home visit for initial applicants

Recommendation 6 – Further develop the MPS Vulnerability Assessment Frame (VAF) for use by FEOs as part of their structured professional judgement

Recommendation 7 - Adapt FEO and other licencing documentation to better support structured professional judgement

Recommendation 8 - If 'risk matrices' are employed by the MPS then these should be used to challenge risk assessments, but not as a basis for structured professional judgement

Recommendation 9 – Support the development of future FEO decision-making that utilises the analysis of data

The recommendations are discussed in section 5 of this report.

1 Introduction

In September 2015 agreement was reached with the Specialist Firearm Command (SCO19)'s Senior Leadership Team (SLT)/Commander Armed Policing (AP) for a year-long joint project between the School of Law, Criminal Justice and Computing at Canterbury Christ Church University (CCCU) and the MPS to 'examine ways of improving the identification and management of risk in relation to firearms licensing' (Arditti, 2015, p. 1). Ethics approval to undertake the research was granted in November 2015. A period of desk-bound research was followed by semi-structured interviews with members of the Firearms Enquiries Team (FET) who handle and make the decisions concerning granting, refusing and revoking licensing applications on behalf of the MPS. The research also involved the collation and analysis of data from 730 greater London applicant/licence holder files who had either been refused a shotgun or firearm Certificate on initial application, refused the renewal of a Certificate, had been the subject of a licence revocation or had voluntarily surrendered their Certificate(s). The data consisted of a random sample of files spanning the years 1992 - 2016.

1.1 Background

Section 57(1) of the Firearms Act 1968 provides a definition of a 'firearm', which are loosely grouped into four categories under the Act: 'section 1 firearms' (that is, covered under s 1 of the Act), 'shotguns', 'air weapons' and 'prohibited weapons' (Bryant and Bryant, 2016, Chapter 18). In this report we use the word 'firearm' to refer to a 'section 1 firearm' (for example, a high velocity 'rifle') or, occasionally, a 'section 1 shotgun' (that is, a shotgun whose magazine holds more than two rounds). We use the word 'shotgun' to mean a 'section 2 shotgun' (no more than two rounds in a magazine). In the UK, a person legally requires a Certificate to own firearms, shotguns, and some types of ammunition – that is, they are 'licenced' to do so. Other categories of firearm such as some types of air weapon and some imitation firearms do not require Certificates.

Since the beginning of the twentieth-century licence requirements have been placed on the owners of shotguns and firearms with successive legislation usually increasing restrictions and controls. Certification not only helps to regulate and record legitimate uses of shotguns and firearms but is also used as an attempt to deny unfettered access to those who would misuse a gun. National systems of licencing the ownership and use of firearms and shotguns are in place in the UK, with much of the responsibility for decision-making residing with local police forces such as the MPS, although governed by law and Home Office and College of Policing (CoP) guidance. It is estimated that there are 34 different pieces of legislation that impact on the licencing of shotguns and firearms in England and Wales. The police also have common law powers to seize firearms, ammunition and Certificates and can also utilise search powers such as section 19 of the Police and Criminal Evidence Act 1984.

The CoP has published 'Authorised Professional Practice' (APP) which offers 'direction' to forces to enable 'effective and consistent firearms licensing' (CoP, 2014). In terms of risk assessment, the APP encourages forces to ensure that 'all decisions are [...] primarily based on reducing risk to public safety through preventing foreseeable or avoidable harm' (ibid.). As HM Inspectorate of Constabulary (HMIC) note 'the vast majority of decisions concerning the grant, renewal, refusal and revocation of firearm licences are correct (HMIC, 2015, p. 9)'.

During 2016 legal gun ownership in the UK remained at relatively low levels when compared with many other countries in Europe and the MPS has one of the lowest rates per capita in England and Wales (for example, about one-tenth the rate of ownership in North Yorkshire). Further, the vast majority of Certificate-holders in London are law-abiding individuals who have good reason to own a shotgun or firearm and store and use their guns in a safe and responsible manner. This fact was often observed by MPS Firearms Enquiries Officers (FEOs) and their managers during our interviews with them. Nationally, it is only very rarely necessary for police forces to revoke a shotgun or firearm Certificate (in the financial year 2015-16 approximately 400 in the whole of England and Wales; Home Office, 2015) and the same observation holds true of the MPS.

The UK has one of the lowest rates of homicide by firearm in the world and 'gun crime' as a whole, despite recent increases, remains at relatively low levels. However, although there have been few mass ('spree') killings in the UK using firearms, the three that have occurred in recent years (1987 in Hungerford, 1996 in Dunblane and 2010 in the county of Cumbria) were all committed by individuals holding legitimate shotgun and/or firearm Certificates. On 1 January 2012 Michael Atherton, a shotgun and firearm certificate holder, used a legally registered weapon to kill three others before killing himself. It is also claimed that in the 16 deadliest (non-terrorist) mass shootings in Europe between 1987 and 2015, 86% of the victims were killed by an individual holding a legitimate firearms licence (Alpers, 2016). Duquet notes that in the four of the five non-terrorist related mass shootings in Europe (for example, the Anders Breivik attacks in Norway) that he studied, legally obtained firearms were used (Duquet, 2016, p.29). In terms of the criminal misuse of legally registered weapons, opinion also differs concerning the extent to which 'gun crime' involves legally owned weapons. Although the Home Office remains confident that the vast majority of crimes involving firearms involve illegally-held guns others claim that not just some, but most gun crime in Britain is committed with weapons that are licenced or otherwise legally held (Squires, cited by Home Affairs Committee, 2010). It is also the case that there has been a one-third increase in total gun crime in London when compared with 2015 with 302 'lethal barrelled discharges' during the period July 2015 – August 2016 (compared with 91 during the equivalent period in 2014-2015) (MOPAC, 2016). Hence there is good reason for the MPS to maintain its high level of vigilance and professionalism in the granting of shotgun and firearm Certificates but also to take a fresh look at the risk assessment and decision-making processes involved.

The arrangements for firearms licencing have been subject to periodic reviews including those conducted by HMIC, parliamentary select committees and the Independent Police Complaints Commission (IPCC). Coroners also comment from time-to-time on licencing arrangements where fatalities have occurred as a result of legal gun ownership. In September 2015 HMIC published *Targeting the risk*, their inspection of the efficiency and effectiveness of firearms licensing in police forces in England and Wales (HMIC, 2015). The report was based on fieldwork conducted with 11 police forces (the MPS was not included in the sample) together with data collection from all 43 forces in England and Wales (ibid., p. 5). The report identified good practice (for example, in terms of on-going risk assessments of firearm certificate holders) but also expressed a number of concerns with the extant system, including the governance arrangements, the absence of nationally accredited training, the role of referees and the different approaches by forces to home visits (HMIC, 2015). Of particular concern were the arrangements for checking the medical suitability of applicants which left '[...] fundamental gaps in the establishment of a safe and effective firearms licensing system' (ibid., p. 7).

Although there is a large body of academic literature on decision-making, general risk assessment and statistical modelling of offender characteristics there is very little (as far as we can establish)

specifically on risk assessment with firearms licencing. Hence this report may be of interest not only to the MPS but also to other police forces charged with licencing responsibilities.

1.2 Risk assessment involved in licencing

The Home Office explains that '[p]ermission to possess or to purchase or acquire a firearm will be granted to an individual who is assessed by the licencing authority, the police, as not posing a threat to public safety [...] (Home Office, 2016a). The Home Office and the CoP do not itemise or describe in detail these threats but these are likely to include the following (the list is neither mutually exclusive nor exhaustive).

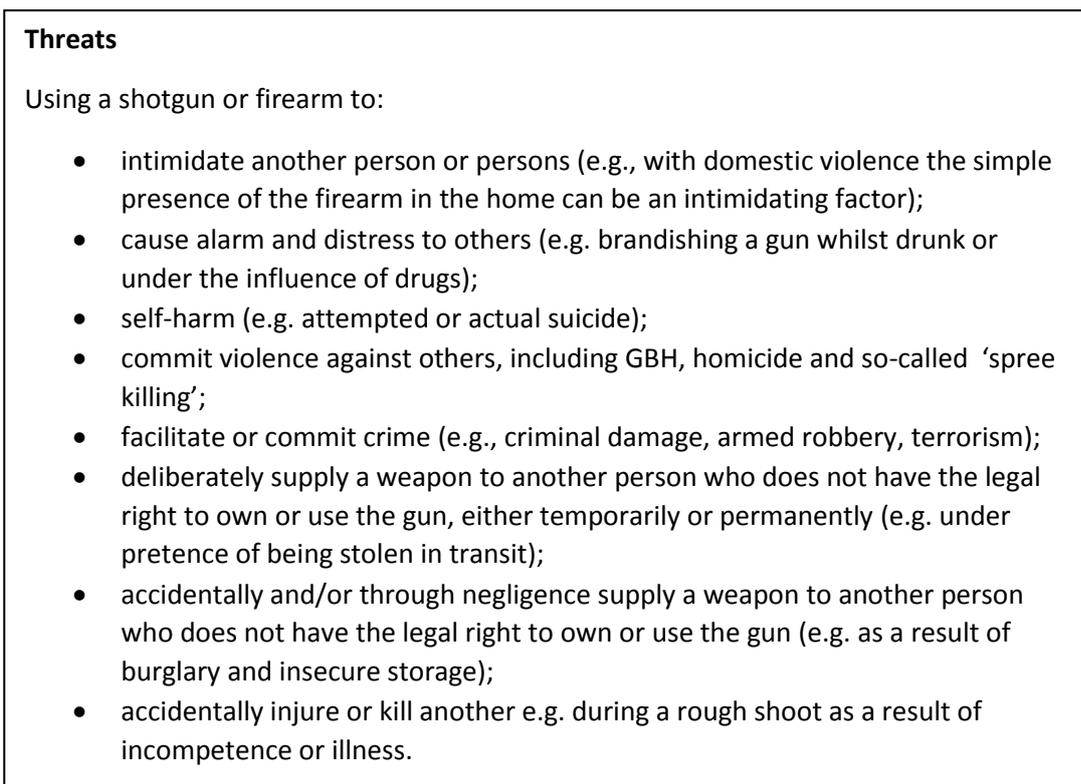


Figure 1 Threats posed by legal ownership of shotguns and firearms (source: authors).

The 'assessment of threat' is one based, in the main, on an evaluation of the risks involved in permitting an individual to legally own and use a shotgun or firearm. In practice there is rarely a single 'risk' that has been found to be a reliable predictor of future threats but rather a combination of 'risk factors'. A 'risk factor' is usually taken to mean a 'variable' that contributes to increasing the likelihood of a particular (undesirable) event or threat to occur in the future. The CoP provide general advice to police forces on the risk factors that should be used to inform decision-making and these include any history of domestic incidents or violence and the medical and mental health of the person (CoP, 2014). However, the CoP do not explain the rationale for the choice of the particular risk factors they list, nor how these factors should be weighted or combined in an overall assessment.

Risk assessment in the context of shotgun and firearms licencing is informed by the law; that is, a Firearm Enquiry Officer (FEO)'s actions are bounded by policies and powers given by extension to him or her and a decision, for example, to revoke a person's licence can be challenged in the courts.

This can pose a dilemma for licencing decision-makers when FEOs and others attempt to apply normative models of risk assessment (see section 1.3 below). For example, if a licensee were to be convicted of indecent exposure leading to a fine then this fact alone would not likely constitute a prima facie case for arguing that public safety will be at risk if the Certificate were not to be revoked (although the possibility of the offender self-harming might). However, neighbours of the convicted person might naturally question why the offender retained the 'right' to own a potentially lethal weapon and was licenced to do so by the local police force. It is often the case that police decision-making that involves risk factors has unique constraints (for example, the maintenance of authority and legitimacy) which should make us cautious in assuming that research findings in even similarly 'clinician' based occupations will necessary also apply to shotgun and firearms licencing.

The current process employed by police forces for risk assessment involves checks on the applicant using the Police National Computer (PNC), the Police National Database (PND), local force databases, Special Branch records and possibly the National Crime Agency (NCA) and specialist units within the local police force (such as domestic violence units). These checks will include searching for any history of criminal or anti-social behaviour, whether the home address or associates of the applicant are linked with known criminal activity. Risk assessment also involves checking the references provided by the applicant, interviewing the applicant and others and (especially in the case of a new application for a Certificate) making a home visit. This is discussed more fully in section 2.3.

The MPS, in common with all other police forces, employ checklists and proformas ('enquiry forms') to both aid risk assessment and decision-making and also to justify and record the outcome(s). The enquiry forms typically include the reasons why an applicant might wish to possess or acquire a shotgun or firearm and whether these are 'good reasons' (see section 2.3.2), the proposed security arrangements for the shotguns or firearms, a record and checklist of database checks on the applicant, a summary judgement on the general suitability of the applicant in terms of mental health, temperance of habits and 'fitness' to be entrusted with a shotgun or firearm. A record is also made of the FEO's observations concerning the applicant, in terms of the individual's 'personal background' (medical history, emotional state, the possibility of drink or drugs abuse), home and domestic circumstances (whether there is a spouse, children), the friends and associates of the person concerned, any club or organisation he or she belongs to and the applicant's experience of shotguns or firearms. Typically the forms used also include a summative judgement of risk under headings such as 'Police & Community Concerns' and 'Physical Risks', using categories such as 'low', 'medium' or 'high'.

During the research undertaken for this report, FET (SCO19) trialled a new enquiry form alongside an existing one, running the two forms in parallel to assess the advantages and disadvantages of each. Although both forms collect much the same information, the new form appeared to us to be better suited to promoting good practice by FEOs in terms of its structure, the clearer documenting of the risks identified and the decision-making process employed. Much of the improvement we believe is in terms of the ordering of the sections of the new form. For example, the pre-visit risk assessment section is near the beginning of the form meaning that the FEO will be prompted to follow the good practice of carrying out these checks before attending the home of the applicant. Although this might appear a trivial matter, the order in which information is provided to an assessor can affect the objectivity of his or her decision-making (see section 1.3.1). The new form also has a section dedicated to the home visit and the FEO is required to articulate the risks they have discovered and their rationale for decisions made as a consequence (a form of 'nudging'). Further, the inclusion of a 'comments' box within the section on checks to be conducted before a visit to the applicant's home appears to us to be good practice and it might be worthwhile to extend this approach to the home

and applicant sections of the form. Given that the decisions made by FEOs and their managers are potentially open to scrutiny (in the event of an incident), the use of a comments box for both these sections allows the FEO to make overt their reasoning and would allow any other FEO that subsequently accesses the file (for example, in terms of a renewal application) to immediately see why a decision was made.

Some police forces (although not the MPS) also employ a ‘risk matrix’ to help guide the assessment of the risk factors involved, a practice recommended by the CoP Authorised Professional Practice in order to ‘prioritise workloads’ (CoP, 2014). A typical example is shown in Figure 2 below.

Firearms Licensing Risk Matrix

Likelihood	Overall Rating				
	Very High	5	10	15	20
High	4	8	12	16	20
Medium	3	6	9	12	15
Low	2	4	6	8	10
Very Low	1	2	3	4	5
Impact	Very Low	Low	Medium	High	Very High

Impact = how serious is the potential danger to public safety or to the peace.

Likelihood = what are the chances of it happening again.

Figure 2 Firearms Licensing Risk Matrix (source: TVP, 2007, p. 7)

There are a number of obvious advantages in using risk matrices, not least of which is the simplicity and clarity of the risk assessment process and outcome. However, there are significant problems with the use of numerical scales for assessing risk factors and combining them in the way that appears to be recommended. One unavoidable technical problem is that when we quantify risk in a simple numerical manner using integers (whole numbers) we are treating nominal variables as if they were scale. Put another way, how appropriate is it to consider that ‘short-term treatment for depression’ (a score of 3) carries three times the risk of ‘unsafe storage of a firearm’ (a score of 1)? As far as we are aware, no rationale (statistical or otherwise) has been offered concerning why a linear scale has been used rather than, say a logarithmic one. The problem is further confounded by the common practice of multiplying likelihood by impact scores, which is presumably based upon an assumption that the risk factors are independent of each other (otherwise a conditional Bayesian probability would be more appropriate). In the case of a number of risks listed in the accompanying documentation to risk matrices it appears highly unlikely to us that the factors are statistically independent. In our view, to determine the most appropriate form of risk score and the ways in which they should be combined, requires much more in the way of data collection, analysis and modelling. In summary, there are significant technical reasons why we advise not to use a risk assessment matrix as a sole or even a primary way of assessing risk.

1.3 FEO decision-making during the licencing process

As HMIC note, ‘the decision-making process must be open, transparent and auditable and the decision to grant, renew, refuse or revoke a firearm certificate must be fair, impartial and rational’ (HMIC, 2015, p. 69). However, decision-making with firearms licencing has many of the

characteristics of a so-called ‘wicked problem’: each application for a Certificate is unique and often novel, the FEO deals with uncertain, incomplete and sometimes contradictory information, there are few clearly ‘right’ and ‘wrong’ answers and there is a binary outcome at stake (to licence or not). The ‘wicked problem’ that FET (SCO19) confronts has no straightforward solution along the lines of a simple association between specific measurable risk factors now or in the past, and subsequent threats in the future. For example, there is no evidence in the literature of a clear association between mental illness and violent behaviour. Most people who commit acts of violence using a shotgun or firearm are not mentally ill and the vast majority of people with mental health issues do not act violently, with or without a weapon. Hence any automated ‘screening’ of applicants that uses mental health as a risk factor will inevitably lead not only to high numbers of false positives (those judged to pose a threat, but do not) but also to a number of false negatives (those without mental illness who do constitute a threat).

It is tempting to believe that with the advent of ‘big data’ analytics that an ‘algorithm’ (essentially an automated sophisticated set of rules) will be devised that will completely solve this particular problem. Unfortunately there is little evidence yet in the literature of success in solving wicked problems in the kind of circumstances that confront the FEO. However, this is not to deny that the analysis of data should play a part in decision-making (see for example, part 4 of this report) but rather that it is highly desirable that structured professional judgement should remain for the time being as the driving force behind FEO decision-making.

Discussions in the literature concerning the nature of decision-making often make a distinction between the way things are (descriptive models) and the way things ought to be (normative models). The descriptive models set out the cognitive and other processes by which people actually make decisions in practice, for example, by observing that we make decisions based on a serial (not parallel) assessment of information; that we often choose the first available workable option that appears to satisfy our requirements and that we tend to concentrate on improving options, not looking for alternatives. Critics of descriptive models very often point to the shortcomings of human decision-making ‘in the wild’ (for example, the alleged widespread occurrence of cognitive biases in everyday decision-making). Normative models on the other hand have a more ‘scientific’ flavour and often evoke rational choice theory, formal logic (e.g. syllogisms), a priori probability assessment (e.g. Bayesian conditional likelihoods) and adaptations of economic models such as expected utility. It is thus easy to gain the spurious impression that normative models always offer the better approach to competent decision-making but this is not necessarily the case.

The recommended model for decision-making for FEOs and their managers is the National Decision Model (NDM) devised and promoted by the College of Policing (CoP, 2013a) for use by the police service as a whole and not simply FEOs and their managers. The NDM builds on previous work by the Association of Chief Police Officers (ACPO), including the ‘Conflict Management Model (CMM) and the ‘SARA’ (Scan, Analyse, Respond, Assess) approach to problem-solving. The NDM was introduced in 2012 and consists of six elements, with the Code of Ethics (as the first element) being central to the remaining five elements (information; assessment; powers and policy; option; and action and review). The NDM is intended for use by anyone making decisions in the police service (both operational and non-operational), which in effect means just about every employee, although the wording used within the NDM is to a large extent drawn from operational police culture.

When making decisions using the NDM the mnemonic CIAPOAR is often used as an aide-memoire (Bryant et al., 2016, Chapter 6):

- Code of Ethics – the policing principles and standards of professional behaviour
- Information – gather information and intelligence

- Assessment – assess threat and risk and develop a working strategy
- Powers and policy – consider powers and policy
- Options – identify the options and contingencies
- Action– take action
- Resulting outcome and review

In essence, the NDM is a risk-based model which seeks to provide the policy basis for deciding to take an action, or deciding not to act. Police officers and staff might sometimes need to work outside of policy if the circumstances require, but justification and documentation is still required. The relevant CoP APP outlines ten risk principles that are aimed at encouraging and supporting professional judgement, and are fundamental to the NDM. These principles emphasise that a core professional expectation of the police is a willingness to make decisions in conditions of uncertainty; that the prime consideration in all risk-taking should be the safety and security of the public; that risk-taking involves balancing the likelihood of the benefits and harm of a decision; an acknowledgement that harm can never be totally prevented (for this reason a decision concerning risk should be judged by how good the decision-making was, not the outcome); that making decisions concerning risk is inherently difficult; that the 'standard' of risk-taking by a police officer should be judged in comparison with others in a similar professional position; that recording decisions about risk is a matter of professional judgement; examples of good risk taking should be identified and shared; good decision-making depends on good cooperation with other agencies and that police officers who make decisions according to the principles should be supported. (CoP, 2013b).

The NDM is clearly an example of a normative approach to decision-making, that is 'top down' rather than 'bottom up'. In terms of decision-making for shotgun and licencing, the NDM 'key element' of 'Assessment – assess threat and risk and develop a working strategy' is of particular importance. It involves 'assessing the situation, including any specific threat, the risk of harm' (ibid.) A user of the NDM is advised to ask his or herself the questions 'How probable is the risk of harm?', 'How serious would it be?' and 'Is that level of risk acceptable?' (ibid.). However, very little detail is provided by the CoP concerning the methods that should, or could be employed in answering these questions.

In more general terms, two distinct forms of decision-making strategies are often discussed in the literature, which whilst not mutually exclusive nor exhaustive are sufficiently different to justify drawing distinctions. One involves decision-making strategies which might be termed 'intuitive' with strategies adopted quickly, with little conscious effort, based on recognition of the situation, using visual and other cues. Intuitive approaches tend to be employed by the more expert practitioner, often using a combination of learning through experience and heuristics. Lipshitz and Ben Shaul (1997) also highlight the difference that 'novices will deliberate about which option to select while experts will deliberate about what is going on in the situation'. The second approach, sometimes termed 'analytical' requires more time, often involves applying a linear set of rules (for example, 'Standard Operating Procedures'), is more consciously analytical in nature and can appear to the novice as the 'safer' option. In our research for this report we identified both forms of decision-making strategy at work amongst FEOs and their managers: that is both 'intuitive' and 'analytical'. In our observations, experienced FEOs appeared adept at merging intuitive understanding with more conscious analytical forms of reasoning (such as hypothesis testing) and understand the strengths and limitations of both approaches.

Although intuitive decision-making strategies can be valuable aid in the cognitive 'toolbox' of experienced and expert practitioners a question does arise concerning how similar skills can be

developed amongst FEOs new to the role. It is important to note in this context that 'intuition' is not a 'mystical process' but a form of pattern recognition based on experience. As Kahneman and Klein (2009) argue, intuitions are useful under two conditions: a reasonably stable environment and an opportunity for people to learn from feedback. A key lesson from the literature (and supported by the results of this research) is that good training, a knowledge of cognitive bias, working with more experienced practitioners who provide feedback and the accumulation of experience can improve structured professional judgement.

1.3.1 Heuristics and cognitive biases

The 'heuristic' is a form of decision-making that uses simple 'rules of thumb' reasoning to solve complex problems (Mousavi & Gigerenzer, 2014, p.5). Heuristics can (particularly when applied in circumstances which require rapid decision-making) perform as well, and often better than more formal methods. Characteristically these heuristics are 'fast and frugal'; 'fast' in that they do not consciously use complicated calculations and 'frugal' because they only use some of the information available. None-the-less they often produce accurate judgements. Remarkably, heuristics do not necessary trade off accuracy for speed and in many cases more information and computation do not necessarily lead to better decisions (Todd & Gigerenzer, 1999).

An example of heuristic that appears to be often used during FEO decision-making is the 'anchoring and adjustment' heuristic. This is the technique of starting with a relatively simple working hypothesis that fits the known facts and adjusting the hypothesis as new information emerges. A number of other heuristics that are likely to be instinctively employed as reasoning within decision-making in licencing applications. These include the 'representative' (or 'representativeness') heuristic: how typical is something of the overall set of such things? For example, are the actions of this applicant for a Certificate the behaviour characteristic of somebody who has an undiagnosed mental health problem? There is also the 'satisficing' heuristic: search through and look at the alternative decisions that are immediately available, reason on their consequences and take the first that meets immediate needs. Finally, at least some assessors might employ the 'availability' heuristic (something that readily comes to mind is more likely to be more important) which is particularly likely to be used when confronted with information overload.

However, one person's heuristic can be another's cognitive bias. As Brighton and Gigerenzer (2012, p. 7) observe, heuristics have now become widely associated with 'shoddy mental software', and deemed to be inferior to more formal analytical methods. Snook and Cullen, in reviewing the literature, note that a number of authorities argue that 'the use of heuristics by police officers is thought to produce reasoning errors that contribute to criminal investigative failures [...]' (Snook & Cullen, 2009, p. 71).

There are a number of other cognitive biases of particular relevance to FEO decision-making, including the 'feature positive effect' (the tendency to experience difficulty processing non-occurrences); the 'confirmatory bias' (unconsciously looking for evidence that supports a pre-existing schema or hypothesis), the 'hindsight bias' (distortions of memory leading to post hoc changes of likelihood estimates), the 'availability bias' (how easily previous similar examples come to mind) and finally the 'anchoring bias' (the undue influence of the first eyewitness account, or a particularly emotionally impactful element of the incident).

The existence of these cognitive biases is well-recognised in the literature surrounding police decision-making. The CoP for example, begins its advice on decision-making by warning against cognitive errors (CoP, 2015b). In response, some police forces such as the MPS are introducing

systematic ways of challenging cognitive bias in decision-making, through for example, encouraging the identification and testing of alternative competing hypotheses. Similarly, the Police Service of the Netherlands have engaged police 'contrarians' to offer alternative scenarios to police teams engaged in complex criminal investigations with a view of countering the cognitive bias due to tunnel vision and Kent Police in the UK have introduced 'critical friends' or scrutinise decisions.

2. The licencing process

As the College of Policing notes, 'It is imperative that the governance, processes and systems associated with firearms licensing are robust and rigorous, while being cost effective, efficient and fair'. (CoP, 2014). The purpose of shotgun and firearms licensing is to ensure that the holder is both a 'fit person' and, in the case of firearms, that he or she has a 'good reason' for the possession of a gun and ammunition (Home Office, 2016a). Each police force in England and Wales is responsible for granting their own Certificates, but they work under common statutory framework (predominantly, but not exclusively the Firearms Act 1968). This statutory framework is supported by Home Office guidance and Authorised Professional Practice (APP) issued by the College of Policing. In principle, compliance with this framework and guidance allows each force to discharge their legal responsibilities in a standardised fashion and should mean that each applicant is treated uniformly, in whatever county or city they make an application. In reality, as recognised by the recent HMIC thematic inspection of firearms licensing (HMIC, 2015), the law, Home Office guidance and the APP are open to significant degrees of differing interpretation. Moreover, there is no standard national model for how a police Firearms Licensing unit should be structured or what operational processes they should follow. Whilst it is appropriate to acknowledge these differences, they are not significant enough to prevent the generalised application process outlined below in 2.2 to 2.3.2 inclusive.

2.1 The Firearms Enquiry Officer (FEO)

The role of Firearms Enquiry Office (FEO, but known in some forces as a Firearms and Explosives Enquiry Officer) is a key one in the licensing process. The FEOs risk assessment and decision-making is subject to national governance arrangements as required by law and the Home Office, working towards College of Policing Authorised Professional Practice, Home Office guidance and local force policy. Typically the FEO is a member of police staff rather than a police officer, although many will be retired police officers. In the case of the MPS, just over half the total number of FEOs are serving police officers. Moreover, the majority of police staff FEOs in the MPS were previously police officers with fewer than 15% entering the occupation role with no police experiencing at all.

The principal tasks of the FEO are to conduct enquiries and advise on the grant, variation, renewal, revocation and request to voluntary surrender shotgun and firearm Certificates. They are also likely to play a part in the licencing of Registered Firearms Dealers and inspection of shooting clubs. FEOs also often advise applicants, clubs and others on application procedures and the safety and security of legally held shotguns and firearms. They may have to attend court in the case of an appeal against a decision or possibly as a witness. The FEO role is somewhat different from many within policing as the FEO is not routinely engaged with offenders, but still needs to adopt when appropriate an 'investigative mindset'.

The entry requirements of the FEO role vary from force to force. In some forces an applicant for the post of FEO is required to have some knowledge of shotguns or firearms and to be willing, if necessary, to gain a shooting qualification when appointed (TVP, 2016). In others, knowledge of shotguns and firearms is not expected at the outset but encouraged when appointed. The MPS currently has no entry requirements in relation to previous firearms knowledge. Instead it conducts a competency based interview assessment process for all new FEOs.

Training varies from force-to-force but generally is undertaken after appointment. Some forces send FEOs on a week-long residential course initially delivered by Dorset Police but now offered by West Yorkshire Police. However, most forces including the MPS conduct 'in-house' training in the form of mentoring. Contents of training programmes (which tend to be a few days in duration) typically

include inputs on legislation; the Home Office manual of guidance; risk assessment; the grant and renewal process and revocation and refusal procedures (Scottish Government, 2015). It is not known whether decision-making processes (including feedback on 'practice' risk assessment), the avoidance of cognitive bias, the strengths and weaknesses of heuristics, pattern recognition and forms of reasoning feature within these courses.

In general terms, FEOs report to a Firearms Licensing Manager (FLM), a role which is usually undertaken by a member of police staff of a higher grade. In turn, the FLM will report to a senior police officer, generally a Superintendent or Assistant Chief Constable. Often the senior police officer will assume the final responsibility for making licencing decisions, such as a refusal to grant or the revocation of a Certificate. Decisions may be open to a statutory right of appeal at a Crown Court. However, the governance process is slightly different in the MPS. The first difference is that FEOs in the MPS report to a police sergeant who, having taken into account the FEO's recommendations, are the primary decision-makers. The sergeants report to an inspector who has operational responsibility for the Unit. The inspector will refer any decision to revoke a licence or a request to return guns to a member of the public who has previously voluntarily surrendered their shotgun and/or firearm Certificate, direct to the Commander responsible for Armed Policing.

2.2 The application form (Form '201')

The applicant for a shotgun or firearm Certificate will first fill out the required form (Form '201') and submit this with the application fee to their local police force. A legal responsibility is placed upon the applicant to ensure that all relevant information is presented to the police and that all applications and renewals are submitted in a timely fashion. Included within this application should be relevant medical information as well as a full list of criminal convictions. In this instance the Rehabilitation of Offenders Act 1974 (Exemptions) Order 1975 means that the applicant is forbidden to withhold any criminal convictions even if those are considered 'spent' under the Rehabilitation of Offenders Act 1974. Conditional discharges and absolute discharges are also considered to be convictions in this instance, but fixed penalty notices and parking fines do not need to be declared. As well as the application fee, the applicant must provide four identical 45mm x 35mm photographs that are a true likeness. Passport photographs are advised to be used for this purpose (Home Office, 2016a).

If the applicant is applying for a shotgun Certificate alone, they are not required to provide details of the guns or ammunition they wish to purchase. However, it is a legal obligation to make the licencing department aware of any transaction involving a shotgun within seven days of the sale and any renewal must contain details of the shotguns in the holder's possession. In the case of a firearms Certificate, the applicant must provide an account of the calibre and type of firearm(s) to be acquired on the Certificate. This needs to be specific and not simply cover a range of calibres or a generic ammunition group. The FEO will consider the 'good reason' for each gun and, if approved, the Certificate will list each specific type of firearm and associated ammunition (including the amount of ammunition which be brought or held at any one time) (Home Office, 2016a). If issued, the Certificate must be updated with any ammunition purchased during the certification period and can be used by the FEO as an indicator of regular shooting when renewals are assessed.

2.3 'Fit to own' and 'good reason to own' criteria

There are age restrictions on who can apply for a firearm or shotgun Certificate. Section 22 of the Firearms Act 1968 states that no person under the age of 14 is allowed a section 1 firearm Certificate but it does allow under 15s to possess a shotgun Certificate. Under 18s are allowed to operate

shotguns and firearms, but are not permitted to purchase ammunition or the guns themselves (although they are allowed to be gifted them). Over 18s may purchase guns and ammunition with the relevant Certificate but not without restrictions on quantity (HMIC, 2015). There is no upper age limit on gun ownership, but frailty or ill health may prevent the elderly from obtaining a Certificate.

The Home Office explains that ‘Permission to possess or to purchase or acquire a firearm will be granted to an individual who is assessed by the licensing authority, the police, as not posing a threat to public safety and having good reason to own the firearm’ (Home Office, 2016a). Table 1 below summarises the Home Office recommended ways of assessing ‘fit to own’ and what ‘good reason to own’ might be. These are explained in more detail in 2.3.1 and 2.3.2 below.

‘Fit to own’	‘Good reason to own’
<ul style="list-style-type: none"> • Interviews • Visits to the person’s property • Criminal records checks • References from friends • GP may be contacted* <p>* up until April 2016 this need only happen where a medical condition is declared</p>	<ul style="list-style-type: none"> • Work • Sport or leisure (including collections or research) • Other reasons

Table 1 ‘Fit to own’ and ‘good reason to own’ a shotgun or firearm (based on Home Office, 2016a)

2.3.1 ‘Fit to own’ a shotgun or firearm

A ‘fitness test’ is applied and the factors taken into account include whether the applicant (including in the case of renewal of an existing Certificate after five years) is known, or suspected of being involved in criminal activity; whether his or her habits are ‘temperate’ (‘intemperate’ habits suggest a lack of self-control and examples include evidence of alcohol or drug abuse and anti-social behaviour); is of ‘sound mind’ (this is not defined by the Home Office but includes serious depression, suicidal tendencies, periods of emotional instability and unpredictable behaviour); medical conditions (such as a psychotic illness or particular neurological condition); the ability of the applicant to keep their firearm safe and finally, whether there is any history of domestic violence or abuse.

2.3.1.1 Database and intelligence checks

As part of the certification process the FEO must check the criminal history of the applicant (those who have been sentenced to custody for three years or more are automatically denied a Certificate for ‘life’). Home Office and CoP guidance makes it clear that previous convictions or cautions (especially any involving violence) should be taken into account. This involves local and national database checks as well as a check of intelligence databases to ensure that the applicant is not associated with criminal activity. This creates two potential issues for the FEO as intelligence might not have been assessed in court and may contain confidential information that would be harmful if the applicant was made aware. The FEO has a duty to weigh up the covert information to ensure that the applicant is treated fairly and that the intelligence has not been provided to defame the character of the applicant. Similarly, the FEO must balance the risk posed by the refusing the application on the grounds of ‘criminal association’ with the dangers in making this fact known to others. In this instance, ‘intemperate habits’ can be used (see below) as a reason for refusal, but this will be in the full knowledge that an appeal may be overturned in court. In terms of information and intelligence, the FEO and other police assessors work to the civil burden of proof, that is ‘on the balance of probabilities’. However, the FEO must be aware that ‘hearsay evidence’ is not viewed in court as being strong and an appeal by the applicant may succeed if intelligence is relied upon alone

(Home Office, 2016a). Should additional interviews be deemed appropriate, the FEO is allowed to carry them out even with people not put forward as referees by the applicant.

2.3.1.2 'Sound mind' (mental and physical fitness)

In order for a person to be deemed fit to be licensed they must demonstrate mental and physical 'fitness' through a medical declaration. Form 201 asks for consent for medical information to be shared between the GP and police regarding the physical and mental health of the applicant, usually in the form of a medical doctor's letter. Until recently, it was not strictly required for the FEO to contact a GP unless they judged it is necessary. The purpose of this information sharing is not for the GP to decide if the applicant is suitable to own a firearm, but to assist the police in determining the overall fitness of the individual. Included within this information should be details of any medication the applicant is prescribed, medical conditions, known mental health issues and substance abuse issues. Ultimately, the decision on the applicant's physical and mental health lies with the police, as the Home Office confirm: 'Chief officers of police may reach their own conclusions as to the significance of the medical information supplied based on their own knowledge and experience' (Home Office, p.72).

From 1 April 2016 a new GP referral system scheme was introduced which was intended to mean that GPs will be contacted for all applications. However, it is clear from the interim guidance issued that the onus for assessing risk will remain solely a matter for the police. In July 2016, soon after the introduction of the new scheme, the BMA appeared to temporarily withdraw its cooperation (after pressure from its members) and advised that GPs should return the letter requesting information to the police explaining that he or she is 'unable to undertake the work due to a lack of funding or for a conscientious objection to gun ownership' (BMA, 2016).

In any event, there remains a problem that at least some GPs do not feel that they are suitably qualified to give an opinion on the kind of personality disorders that might give rise to the improper use of shotguns or firearms (although this is less of a problem where a potential licensee is receiving specialist mental health care). For example, the Devon Local Medical Committee (LMCs are part of the BMA) has issued a template to local GPs that refuses requests for information on the grounds of a lack of expertise in assessing personality disorders (PULSE, 2016).

Following a successful application, a letter will be sent to the GP to ask them to place an encoded reminder on the Certificate holder's medical records, so that the GP is reminded of the fact whenever he or she treats that patient. Following a pilot in Durham, applicants are now responsible for any costs incurred in this process and the onus is placed upon the applicant to provide this information and not on the police to collect it (Home Office, 2016a).

2.3.1.3 'Intemperate habits'

The FEO is also asked to assess (presumably as part of a risk-assessment process) whether the applicant has any 'intemperate habits', which is defined by the Home Office (2016) as a lack of self-control. Whilst the Firearms Act 1968 mentions intemperate habits directly as a reason for refusal of a firearms Certificate, this is not an explicit refusal criteria for shotgun Certificates. However, an FEO may take intemperate habits into consideration when assessing if the applicant is a danger to public safety or the peace if issued a shotgun Certificate. The assessment of temperate habits will continue throughout the certification process and throughout the duration of the Certificate, with a demonstration of a lack of self-control being a reason for revocation or refusal to renew.

2.3.1.4 References and testimonials

Applicants for both firearms and shotgun Certificates must provide character references from referees that are 'of good character, and someone whom the police may trust to give honest replies to any queries which the police may make of them regarding the applicant' (Home Office, 2016a). Only one reference is required for a shotgun certificate, but two are needed for a firearms certificate. (These references are independent of the testimonials that may be required for a firearms certificate as a testimonial is focussed on the competency of the applicant and what relevant experience they have acquired shooting.) Referees are not required to comment upon the competency of the applicant, nor are they expected to have any familiarity with shooting or guns in general, rather references are produced to assist the FEO in determining if the applicant is 'fit' to have a Certificate. The police need to be satisfied that the referee is reliable and honest, but there is no guideline on how this to be assessed (such as with a passport), it will be the responsibility of the FEO to determine, according to force guidelines (which normally means a simple check against the PNC). The referee is expected to have known the applicant for a minimum of two years and have had a reasonable amount of contact in that time. Although, what 'reasonable' constitutes is again not defined. Whilst the referee can be professionally known to the applicant (such as a medical doctor) they are expected to provide a reference on the applicant personally and not in a professional capacity. It would appear from custom and practice that references are important to the risk assessment and decision-making of the FEO in so far as they demonstrate the ability of the applicant to provide the names of at least one person of 'good character' who would be willing to vouch for them.

HMIC and other bodies have highlighted an inconsistent approach amongst forces in contacting referees (HMIC, 2015, p. 32), particularly in not contacting referees in the case of the initial granting of a Certificate (ibid. p. 33). However, we found that in the case of the MPS all referees were contacted.

2.3.1.5 FEO interviews with applicant, home visit and security of shotgun or firearm

As part of the risk assessment process applicants are usually interviewed by an FEO on a one-to-one and face-to-face basis. This might occur at the home of the applicant (in which case it is combined with other tasks to be carried out by the FEO, as described in section 3.2) or might occur at a mutually convenient location such as the workplace of the applicant. In the case of the MPS all interviews are conducted at the home location (other than for Registered Firearms Dealers).

The Home Office explains that '[a] home visit should always be carried out before granting a certificate to a first time applicant' (Home Office, 2016a, p.59). Police forces have more discretion about carrying out home visits in the case of a renewal of a Certificate. There are a number of reasons why a home visit is considered an important part of the licencing process. On a practical level, the FEO is responsible for checking the applicant's likeness matches that put forward in the application. This is usually carried out during the face-to-face interview at the applicant's home. Whilst an 'interview' with the applicant in his or her home may not be strictly necessary (one may have already occurred for example) they allow the FEO to complete assessments on the suitability of the applicant as well as the suitability of the proposed storage location. The FEO is likely to be working towards completing checklist and proformas which are designed to assess the risk factors in licencing. Many of the FEOs we interviewed as part of our research with the MPS saw the home visit as a key stage in the licensing process. It provides an opportunity for the FEO not only to check factual information but also to gain insights into the fitness to own a shotgun and/or firearm and that the applicant has good reason to do so.

In terms of security of the shotgun or firearm, the home is assessed for potential risks from within (non-Certificate holders in the household gaining access) as well as the general security of the building. The FEO will also check the fitting of a Home Office approved firearms cabinet including the safe storage of keys and ammunition (HMIC, 2015). During this home visit the FEO may wish to speak with a partner should there be allegations or suspicions of domestic violence and to determine the happiness of a partner to have a gun in the house (Home Office, 2016a). Whilst the partners support is not needed to grant a licence, objection to a gun being in the premises will be recorded in the final report made by the FEO to the licensing manager.

2.3.2 'Good reason' to own a shotgun or firearm

There are no lists of definitive good reasons and the judgement on the quality of the reason will be the responsibility of the firearms licencing team concerned. There is guidance given in Chapter 13 of the Home Office Guide on Firearms Licencing Law (2016), but this is largely concerned with the calibre and type of weapon appropriate for particular types of quarry and not exhaustive and intended as a guide only. When considering an application for target shooting, the FEO will need to consider the club membership of the applicant with, regular shooting, relevant training and possibly a testimonial from the club needed to prove the value of the reason. In the case of quarry shooting, permission to shoot on the land, the land being appropriate to the type of firearm being used and relevant experience will all need to be provided in order for the application to be considered. In both types of shooting it is up to the applicant to prove that they have good reason and not for the police to prove their reason is not valid (Home Office, 2016a).

2.3.3 Final decision to grant a Certificate

Once all background checks have been made, referees checked and the applicant interviewed the FEO writes a final report on the fitness of the applicant and submits it to a senior officer (typically a 'Firearms Licencing Manager' of police Sergeant rank or higher) for approval, or otherwise. There is no formal procedure for the final decision-making process, but there will be collaboration between the senior officer and the FEO on the final outcome. The decision to grant or refuse an application must be made in light of the evidence and information provided in the report and not on any other material. Should an applicant have been denied a Certificate or had one revoked, the final decision is usually made by a senior officer within the firearms licencing team.

In England and Wales police forces will enter the nominal details of the applicant (even in the case of unsuccessful applications or renewals) on the National Firearms Licensing Management System (the NFLMS). Where appropriate, details concerning the shotguns or firearms acquired by the Certificate holder and how they are stored will also be included on the NFLMS.

2.4 Refusal of grant, refusal of renewal, revocation and 'voluntary surrender' of Certificates

Since 1995 shotgun and firearms Certificates last for five years and their care and security is the responsibility of the Certificate holder. The holder is also obliged to make his or her assigned FEO know of any change in circumstance that may affect their eligibility to hold a Certificate. The force firearms licencing team is required to monitor the Certificate holder through their interactions with the police with a view to constantly updating the risk to 'public safety and the peace' that the holder represents. Should there be significant changes in the circumstances of the licensee that means he or she is assessed as being a threat to public safety or a danger to the peace (that is, on the grounds specified in section 30A(2)-(5) of the Firearms Act 1968 (as amended)) it is the police force's responsibility to revoke the Certificate and seize the gun(s) as appropriate. In the MPS one way that significant changes are identified is via an overnight 'data-wash' in which the details of every

Certificate holder are matched against various police indices to check if the licensee has come to the adverse attention of police in the previous 24 hours.

Problematically, as HMIC notes, “[...] there is no definition, either in the Firearms Act 1968 or in the Home Office guidance to describe or explain how ‘danger to the peace’ should be applied” (HMIC, 2015, p. 8). There is however, some limited case law to offer guidance on what ‘danger to the peace’ might constitute namely that ‘irresponsible and uncontrolled behaviour’ would count (HMIC, 2015, p. 63). In the absence of detailed guidance, police forces have taken a pragmatic approach on what constitutes ‘irresponsible and uncontrolled behaviour’. For example, during our research we encountered cases where Certificates were revoked on grounds such as ‘unsuitable behaviour to have a SGC or FAC, many cases of possession of indecent images’. Undoubtedly most people would agree that the possession of indecent images is evidence of ‘irresponsible and uncontrolled behaviour’ but a problem remains in how to reconcile this with the kind of risk assessment used by some police forces (but not the MPS) which utilise numerical forms of measurement (such as risk matrices, see 1.2 above).

3. Risk assessment and decision-making by FEOs at the MPS

As part of the research into risk management in relation to firearms licencing in the MPS interviews were conducted in two phases, with the first round completed by 13 of the MPS FEOs, who deal with the applications once the initial background vetting has been completed by the FET (SCO19) research unit. The second phase of the interviews involved three direct line managers: the sergeants who ratify the FEO's proposals and sign off on the grants or refusals.

The interviews were semi-structured and consisted of two scenarios, created by the researchers and vetted by the Inspector responsible for the FET unit. The scenarios used concerned the renewal of a shotgun licence and the grant of a firearms licence on the basis of a first time application. The details were presented via the standard application form 201 (Appendices 1 & 2), and the interviewer had some additional information to be provided during the course of the scenario, if requested by the participant (Appendix 3). Supplemental questioning focussed on the FEOs' cognitive processes when dealing with each type of application, the reasoning behind these processes and how that led to the overall decisions on whether or not to license the applicant.

A brief analysis was carried out on the interviews to identify key points and decisions extracted to facilitate the secondary set of interviews with the three sergeants. Information provided to the sergeants comprised of the application forms and the 3620 enquiry form (the standard form, not the new form currently being trialled) completed by the FEOs following their interviews with applicants. The purpose of these interviews was to gauge concordance between the FEO's recommendations and their line manager's decisions. How would they approach the scenario themselves and if the overall decision differs to that of the FEO, how is this reconciled?

As with the FEOs' interviews the participants' perceptions of risk, both to the FEOs during applicant visits and to the general public through licensing decisions, and how they manage and or mitigate the risk, remained an underlying theme.

The aim of the semi-structured interview process was to look at good practice in FEO working, particularly focusing on the role of the FEO as risk assessor and decision-maker and how risk assessment was developed. We were also particularly interested in the process of passing final reports to team leaders, how the team leaders processed the risk assessment and the conclusions they drew as a result. The results below demonstrate the discussion points raised in the interviews by the interviewees and the shared approaches taken when assessing the risks associated with an applicant.

3.1 FEO approach to risk assessment

In all interviews, participants were asked about their approach to risk assessment and how (in the case of FEOs that are, or had been police officers) it differed from risk assessment when working as a frontline officer. All responded that the process was similar, with public safety the priority for their actions but with an extended timeframe. In a risk assessment for a shotgun or firearms Certificate the decision affects the next five years as, unless an incident occurs, the applicant will hold the Certificate until the expiry date and is not likely to be fully reassessed until close to the time for renewal. Officially, as noted above, the reassessment process takes place throughout the duration of the licence, with any activity that brings the holder into contact with the police flagged up for review by the FEO (HMIC, 2015). However, the majority of risk assessments made by FEOs are unchanged throughout the life of the Certificate and this fact does influence the way in which the

initial risk assessment is carried out. We found that although the risk assessment methods used by FEOs shared much in common with how police officers perceive risk, many of the cognitive and decision-making processes that an FEO employs encourages them to consider the risks attached to an individual ways beyond those only possible during rapid 'on-the-spot' risk assessments. 'Slow time' enables them to consider all of the potential risks associated with an individual, checking evidence that either supports or refutes a hypothesis concerning the applicant and drawing conclusions based on the results of their investigations. There is always the possibility of legal or quasi-legal review (either in appeal or inquiry), so the FEO must be clear in their reasoning and apply rational arguments in their conclusions. In the MPS we found that there was no undue pressure to produce a quick decision (for example, to issue a Certificate) for routine applications and this assists the FEO in making a robust risk assessment. We noted that, in some senses an FEO's decision-making is aided by the ambiguity inherent in the legal and policy requirement to check the applicant's 'fitness' and on what constitutes a 'threat to the peace' (see section 2.3 of this report) as this lack of specificity can accommodate a wide variety of forms of evidence, reasoning and argument. However, this does reinforce the need for less experienced FEOs to work alongside expert practitioners.

Throughout our semi-structured interviews of FEOs it was clear that the 'anchoring and adjustment' heuristic is used throughout the interview and home visit stage, with the FEO determining a working hypothesis and using the information generated during the process to support, refute or to adjust this hypothesis. When utilising this heuristic, the FEO starts with the working hypothesis that the applicant is trustworthy and is deserving of being granted a Certificate. The application process allows the FEO to use the information generated to reassess the working hypothesis, turning a binary decision making process into a more 'shades of grey' picture of the individual. This use of evidence to introduce complexity to a simple working hypothesis may work well when considering an applicant's mental health, as a binary yes/no judgement would ignore the complexity of the applicant's situation and the fluidity of their personal state. Similarly, the 'representativeness' heuristic was seen to be used in all the interviews we conducted based on the scenarios, with FEOs discussing their evaluation of situations, behaviours and environments as being representative of certain behaviours or conditions. Whilst this is a useful heuristic for coping with decisions outside of an FEO's training, it is important to ensure that the FEO does not simply accept the first explanatory hypothesis rather than searching for more contradictory or affirmative evidence. This is especially the case when assessing mental health, as FEOs reported using overt observations of behaviour and environment (such as messy houses or unusual speech patterns) as assessment criteria for mental stability. These criteria could easily lead to false positives and be explained by factors unrelated to mental health and without further assessment an incorrect judgement would be made. The FEOs themselves seemed aware of this potential issue, with all expressing that these assessment criteria would not be the sole justification for a refusal, merely that they would be used as a basis for further assessment (demonstrating the application of the 'anchoring and adjustment' heuristic). Similarly, the FEO must be aware of the 'availability' heuristic and avoid misrepresenting the likelihood of a risk simply because they have encountered a similar event recently, particularly if the event was emotionally charged or unusual. This is particularly true for FEOs given the repetitiveness of the application process, the quantity of applications and the potential pitfalls of an incorrect assessment. The Michael Atherton case (see section 1.1 of this report above), was mentioned in a number of interviews with mental health and domestic abuse discussed as reasons for refusal of an application. Whilst this could demonstrate sound logical risk assessment (learning from past mistakes), this could easily lead to cognitive bias, with the FEO incorrectly assessing risk merely

because of the 'availability' of the Atherton case rather than because evidence is there to support their hypothesis.

Overall the risk assessment process employed by the FEO appeared to us to be theoretically robust (on the grounds of the reasoning employed) and FEOs deal well with the introduction of both 'objective' and 'subjective' information. This is particularly important given the range of subjective data that the FEO must interpret, from micro details such as body language, to macro expressions of mental health such as the environment. There is evidence to suggest that the FEOs are utilising heuristics throughout the assessment process, but that they are also aware of the potential pitfalls that using this type of reasoning can lead to.

It is difficult to discuss the role of FEO decision-making without considering the context in which they make their decisions. Anxiety concerning judicial review is omnipresent but, more positively, this also serves to temper some of the more dangerous short cuts that could be employed by an unaware and inexperienced FEO. Making rash judgement based on illogical evidence was acknowledged as being a potential problem in our interviews with FEOs, but the potential for judicial review and effective management meant that the FEOs maintained a focus on the evidence base to support their decision-making (for example, which hypothesis to support). There is also a commonality in approach that was unexpected given the freedom offered by the role and the ambiguity of the assessment terminology provided by the CoP and the Home Office. In part this commonality may be due to use of the police NDM (see 1.3 above) and the policing background that many interviewees shared. However it seems more likely that this commonality originates from the management style of the FLMs and their encouragement of good practice and communication amongst FEOs.

3.2 The FEO 'home visit' and interview with the applicant

During the semi-structured interviews conducted as part of this research (based in part on the scenarios given in the Appendices) all the FEOs stressed the importance of a home visit to the risk assessment process, with some concerned that telephone interviews might in time replace the perceived need for home visits. Visits to the applicant's home were seen to be a crucial component of risk assessment by both FEOs and team leaders, with the latter opting for additional face-to-face meetings with the applicant should the FEO report need clarification. According to the Home Office (2016) there is no obligation for police forces to conduct a home visit in the case of an application for a shotgun certificate (although it is required in the case of firearm licence application), providing they are happy with the fitness of the applicant. When asked about this, the interviewees expressed that they would have a great deal of difficulty determining the fitness of an applicant without using a home visit. The interviewees were very clear that they meant a home visit and not just a face-to-face meeting at some other location, with the home setting being vitally important to a number of techniques to determine fitness. Having said this, the interviewees recognised the usefulness of unannounced home visits, but also recognised that this was, superficially at least, an inefficient method of completing interviews (with the obvious problem that the applicant may not be present in the home). No interviewee expressed concern that a prearranged interview was an inadequate basis for a risk assessment, it was just generally felt that unannounced visits were superior, but mostly unachievable.

Most of the FEOs we interviewed arrived early before the home visit, to assess the property and the surrounding area, using these observations to build on the mental picture they have of the applicant from reading the applicant's file (principally the application form and the results of database and other enquiries – see section 2.3 of this report above). One interviewee used local crime data to

build a picture of the surrounding area, especially in relation to burglary rates, as they were concerned about the likelihood of the firearm being stolen. Interviewees described the home visit assessment as being a threefold process, namely to assess the:

- 1) applicant's home building in the context of the rest of the area;
- 2) physical security of the home;
- 3) state of the building as an insight into mental and physical condition of the applicant.

Assessing the physical security of the building involved considering the state of windows and doors to the premises, as the applicant had a duty of care to keep the shotgun and/or firearm secure. The FEOs noted any alarm systems and any shared entrances or areas in order to later discuss these with the applicant. At about the same time, the FEO will assess the layout of the applicant's home/building in comparison with other buildings in the street or neighbourhood and evaluate the condition, layout and occupancy compared to the backdrop of the area. Given that many of the FEOs had worked in the same geographical areas for a number of years, it is possible that they were comparing the building, its location and occupants to their own mental map of the area and using this knowledge to make an assessment of the associated risks. The state of the applicant's home is also used by many FEOs as a 'proxy' for the physical and mental state of the applicant, with a dilapidated building potentially indicating laziness and mental or physical illness. Whilst many FEOs mentioned using the state of the building as an indicator of mental health in this way, they were all clear to point out that this was not a final judgement, just an indicator they would use to ask questions later. When considering this process within the context of the police National Decision Model (the NDM, see 1.3 above), this early assessment fits into the 'gather information and intelligence' component (CoP, 2014), with the FEO collecting visual clues that allow them to make an initial risk assessment and to tailor their approach in the coming interview.

Once inside the applicant's home, the FEO will carry out a similar assessment of the interior of the building, again looking for indicators of physical security, the state of the interior and how it relates to similar dwellings in the surrounding area. Key to an assessment of the physical security of the shotgun and/or firearm is the existence of shared loft space and other areas (such as stairwells or landings). One FEO also stated that he/she would look to see whether any nearby buildings could be used by another (such as a neighbour) to look into the applicant's premises. The windows and doors would be reassessed from the inside to guarantee that their security matches that of the exterior and a discussion would be held with the applicant about any alarm system spotted on the outside of the building. The assessment of the interior of the premises would be tested against the impression given by the exterior and if the two match, some level of corroboration is given to the initial assessment of the applicant. If the two do not match, then the mental picture is revised to accommodate the new information or a flag is raised that would need further investigation. Whilst the tidiness and cleanliness of the interior is sometimes used by an FEO as an indicator to a chaotic lifestyle or mental instability, it is not taken in isolation as evidence of an applicant being unfit to hold a Certificate. As one FEO put it "I'm not going to take someone's guns away because their house is a pig-sty". However, we did feel that FEO training might benefit from additional input on some of the research that has been conducted concerning associations between lifestyle, mental health, drink and drug abuse: for example, in terms of differentiating between 'dry squalor' (e.g. the hoarding of apparently useless items) and 'wet squalor' (e.g. the presence of dirt, unpleasant smell).

The home visit is also used by the FEO to collect evidence that supports or contradicts the information given on the application form (201): if an applicant states they have children, evidence of children needs to be present in the home. The FEO is using the material presented on the application form as a self-declared 'picture' of the applicant. They are then using the home visit to

detect any possible significant variation from the veracity of the picture as a method of checking a hypothesis concerning the honesty of the applicant. In the context of the NDM, the FEO is fluidly moving between the “Gather” and “Assess” stages, ‘ticking off’ those areas that they are satisfied with and making decisions on how to progress on those that need further investigation.

When discussing the applicant interview process, the FEOs revealed that this is the most personalised aspect of the risk assessment, each FEO with his or her own approach but all share the same final intention. One FEO utilised forms of their own design with which to capture the data, but also acting as an aide memoir ensuring that they ask all of the relevant questions. It is during the interview with the applicant that the FEO will form the majority of their assessment of the person as being fit, or not, to hold a shotgun and/or firearm Certificate. It is important to point out that the FEOs felt that unlike many police roles, they are usually dealing with honest people who are not intending to deceive and that requires a matching approach to interviewing. The FEO will seek to make the atmosphere of the interview as pleasant and relaxed as possible, in part because the applicant is assumed not to be hiding anything of relevance, or being inclined to deception, but also because the relaxed atmosphere assists with gaining the most useful information. FEOs utilise open-ended questions and a calm tone to relax the applicant and encourage them to talk. All interviewees discussed the need for a convivial atmosphere and for there to be no time pressures in the interview, with the applicant encouraged to share the needed information before the interview is concluded. However, in order to obtain information that the applicant may not wish to divulge, but needs to be discussed, the FEO has a number of techniques to deploy. The use of superior police ranks can be used to motivate the applicant into more open discussion with phrases like “my sergeant won’t be happy with this...” and “I’m going to have to run this past my sergeant...” allowing the FEO to maintain the relaxed atmosphere, but also to indicate the importance of their question. Direct questioning will be utilised when the applicant is being evasive or if they do not appear to understand the question and the response can be monitored, with any evasiveness or stalling seen as being an indicator of deception. FEOs appear to be using methods to identify potential lying or deception, in part based on verbal and other cues but not explicitly basing their techniques on any particular theory or the results of empirical research. As before, it might be helpful if FEO training included some consideration of a number of theories and empirical research findings concerning lying and deception.

All FEOs discussed the de facto authority that came with the role: the applicant has applied for a Certificate and most applicants understand that a necessary but not sufficient condition to be licenced is full cooperation and compliance. Unambiguously reminding the applicant of this fact was seen to be a last resort, to be used only if the applicant was refusing to answer the FEO’s questions fully and unambiguously. FEOs emphasised though, that most applicants responded openly and honestly to questions, without any need for anything beyond simple open-ended questions.

3.3 Mental and physical health assessment of applicants

All FEOs interviewed felt that getting access to medical information and assessing the truthfulness of the applicant’s responses was one of the most difficult aspects of the role. All FEO interviewees discussed the need to question the applicant on his or her mental and physical health in the face-to-face interview rather than just relying on the application/renewal form. This need to see the response first-hand was explained as a lack of confidence in the current medical reference process and a need to be sure the applicant was not attempting to deceive the licencing authority in some way. The new process that requires the applicant to pay for the GP report (see section 2.3.1.2 above) was deemed a success by all, putting more of the responsibility on the applicant. However, some FEOs still ‘chased up’ GPs as a matter of routine.

FEOs discussed their use of the MPS Vulnerability Assessment Framework (VAF) as part of the interview process, using this as a way to check the mental health of an individual. The VAF is a 'tool to assist MPS police and staff in identifying vulnerability in members of contact they have contact with' (MPS, 2015). The original purpose of the VAF was to '[..] maximise opportunities for early intervention to prevent someone becoming a victim or suspect at a later stage' and to '[...] help in decision making when considering referring adults to appropriate safeguarding agencies [...]' (ibid.). None-the-less the model seems to have been successfully adopted and adapted by some FEOs for the mental health risk assessment elements of the licencing purposes. The VAF has five main components ('ABCDE', see Figure 3 below) which match closely those areas of assessment of applicants' mental health discussed by many FEOs in our semi-structured interviews with them. Whilst not used in the same manner as with the original VAF, these five criteria are assessed by the FEO on the home visit and the conclusions drawn are used to assess the suitability to be granted a Certificate.

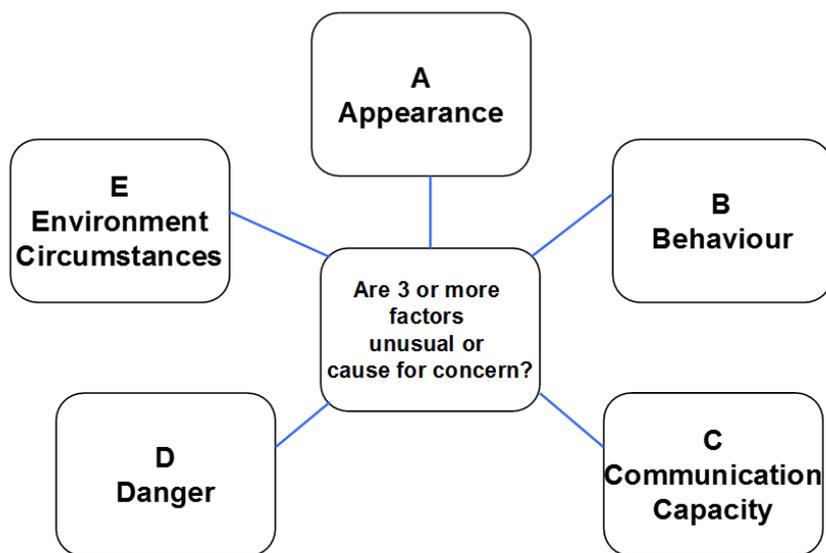


Figure 3 The Vulnerability Assessment Framework (source: MPS, 2015)

In the original formulation of the VAF, Appearance, Behaviour, Communication Capacity, Danger and Environment Circumstances were defined as in Figure 4 below.

<p>A - Appearance Is there something about their appearance that is unusual or gives rise for concern? Do they look ill, injured, unsettled, anxious? What can be observed immediately about the person in distress? What is the demeanour of the person? Is there a physical problem e.g. bleeding, panic attack?</p> <p>B - Behaviour Is there something about their behaviour that is unusual or gives rise for concern? Are they excitable, irrational, manic, slow, furtive? What are they doing and is it in keeping with the situation?</p> <p>C - Communication/ Capacity Is there something about the way that they communicate that is unusual or gives rise for concern? Is their speech slurred, slow, fast? Are their eyes glazed, staring, dilated/ What is their body language and are they displaying any subtle signs of stress or fear? Do they understand your questions?</p> <p>D - Danger Is there a risk of danger / harm to themselves or another?</p> <p>E - Environment/ Circumstances Is there something about the environment that is unusual or gives rise for concern? What is the time of day? Where do they live? Can they get home? Has the incident that they are involved in significantly affected their circumstances? What are the circumstances? Are they unusual or out of the ordinary. Does anything give rise to concern? (This could include a hunch or intuition). Has there been a significant change in the person's circumstances?</p>
--

Figure 4 Explanation of the 'ABCDE' tool in the VAF (source: MPs, 2015)

A modified 'ABCDE' assessment encapsulates the assessment by the FEO of the medical health of an applicant and only once he or she is satisfied with each of these components, will the FEO be able to recommend granting a Certificate. However, in general terms the mental health assessment training provided to FEOs was not seen as being sufficient, with many FEOs stating that they did not feel that the training provided them with the necessary 'tools for the job'. The reliance on GP reports to identify those people with diagnosed mental health conditions, but the inability to gain an assessment for someone undiagnosed was also identified as potentially problematic.

3.4 Experience of FEOs with shotguns and firearms

Each FEO interviewee was asked if they shot outside of work, if they were a Certificate holder or if they had firearms experience, either at work or in recreational time. Of those interviewed, 44% stated that they either shot recreationally or had significant firearms training as part of their previous police roles. Officers who stated that they had experience of shooting felt that this gave them a distinct advantage in lie detection, empathy and information gathering than their non-shooting peers. They felt that successfully fulfilling the role of the FEO was assisted by experience in shooting, familiarity with guns and with the relevant legislation. 'Shooting FEOs' generally felt that they were better equipped to spot applicants that were 'blagging' their way to a licence, as they would identify discrepancies in knowledge or experience that non-shooters would not have the background knowledge to spot. The FEO's knowledge could be used to determine the skill of the

applicant by quizzing them about his or her competencies and visually checking how they handled a gun. If the FEO is basing the questions on their own knowledge and experience, they are able to ask direct, simple questions that will ascertain the skill level of the applicant. However, it should be considered that narrow focussed questions based around what the interviewer wants to know, has been shown to generate less informative responses than more open-ended questioning (Fisher and Geiselman 2010). When considering the purpose of the interview, the type of questions posed are an important consideration. If the interview is a risk assessment process to determine if the individual is physically and mentally competent, then direct questions concerning shooting experience and competency (with 'right' and 'wrong' answers) might be appropriate. Yet, if the interview is part of a fact gathering process which forms the backdrop to the risk assessment, then a focus on personal experience and shooting knowledge could actually be a hindrance as it limits open ended responses and reduces the overall level of information collected. 'Non-shooting FEOs' responded to this issue in their answers, with all stating that learning the background information needed to identify a competent applicant occurs during the probation period where they shadow an experienced FEO. None felt that they were compromised by being non-shooters, nor did they feel that it would improve their performance to become shooters in the future.

Our interviews with FEOs suggest that respondents with shooting experience also felt that this gave them a shortcut in building a rapport with the applicant, with most mentioning their shared interest in the interview with the applicant. This process has a long history in academic interviewing, with shared traits and interests being seen as a good shortcut to building a rapport with the interviewee and thereby bypassing the awkward 'feeling out' process whenever two new people meet (May, 2001). Whilst this is a helpful shortcut, it carries with it an increased risk of a loss of objectivity on the part of the interviewer. None of the interviewees felt that this was an issue, their awareness of the potentially fatal consequences of getting a judgement wrong being a constant background to the entire assessment process. This awareness was bought up in all interviews, with specific examples of where it was discovered retrospectively that Certificates had been granted unwisely being used as cautionary tales.

On balance our research suggests that a knowledge of shotguns, firearms and recreational 'shooting' (such as clay pigeon shooting) is of value to the FEO in aiding risk assessment and decision-making during the licencing process.

3.5 The role of the Firearms Licencing Manager

In the interviews with the Firearms Licencing Managers, we discussed the relationship with the FEO and looked at how the manager determined whether to grant or refuse applications. All interviewees stated that they had good relationships with their FEOs and that the relationship is built on trust, developed over a period of time. Without underlying confidence in the FEO's judgement, the manager would also lack confidence in approving an application. When asked how they build trust with a new FEO, there were a number of techniques described. Generally, the manager places the new FEO with a member of the team the manager knows to be experienced and capable to act as a mentor, working to the manager's guidance. This helps with the risk assessment process as the manager can be sure that the new FEO is learning how to assess risk from someone with a proven successful track record. Positive reinforcement of good reports and constructive feedback of areas to improve were also highlighted as techniques. One team manager holds a weekly meeting, which allows the team to build a rapport with each other as well as with the manager. This meeting also serves to highlight and encourage good working, with praise being given to good practice. Open lines of communication were seen to be a positive feature, with the FEOs encouraged to discuss cases amongst themselves as well as with managers. The managers also

utilise each other's experience to help with difficult decisions or when the manager has doubts, operating as a kind of 'think tank' to problem solve. All of the Sergeants interviewed felt that free and open communication between ranks was essential for the risks to be properly assessed. The trust between the manager and the FEO was discussed by all interviewees, with all managers interviewed saying that an experienced FEO's recommendations can usually be approved without detailed scrutiny. The FEO and manager can also develop a shorthand, with key phrases being used to show the manager that the report is relatively straight-forward and there are no inconsistencies or serious risk factors that require more investigation.

4. Data analysis of refused on application, refused on renewal, revoked and voluntarily surrendered case files

As part of the research into risk management in relation to firearms licencing, sample data was collected and analysed using MPS records of individuals in the greater London area who had either been refused a shotgun or firearms Certificate on initial application, or had been refused renewal of an existing Certificate, or had been the subject of a revocation of their Certificate or had voluntarily surrendered their licence. There were a number of questions that the data analysis sought to address:

- Are there any correlations or associations in the data that might be of assistance in decision-making and risk assessment in shotgun and firearms licencing?
- Are there any underlying patterns (such as clusters) within the data?
- Are there socio-demographic or other characteristics of an applicant which are indicators of risk of future threat(s)?

Prior to the main data gathering, and in order to determine what relevant data was available in the files, a random selection of 10 revoked/refused files were chosen for in-depth study by two researchers. Each researcher analysed five files and compiled a list of the relevant information in each file, what format that information came in, and then compared each of the five files to determine which information was common to all. Both lists were then compared to determine the data that should be available uniformly across all files. Once consensus was reached, a database was created to facilitate the data gathering process. Using secured laptops, which remained onsite at the FET building during the process, the required data was gathered over a three week period from a total of 730 files (see Table 7 below) covering the years 1992 until April 2016. In order to maintain the security and confidentiality of the files the required information was anonymised and recorded using a secure database whilst on MPS premises. National data (which in some cases included information specific to the MPS) was also collected and analysed and is included below for purposes of comparison.

It is important to note that the data analysis concerned only those individuals whose Certificates have been refused, revoked or surrendered: that is they have, by definition, come to the attention of the MPS or other police forces or agencies in terms of potentially posing a risk. For this very reason, the predictive capability of the analysis was limited (because a form of statistical 'self-fulfilling prophecy' at work, consisting of an unrepresentative self-selecting group). Those who have been successfully 'caught' by the risk assessment currently in use by the MPS do not necessarily pose the greatest actual risk. We were also only able to analyse data which was both collected by the MPS and which could also be made available for the purposes of research. There are also other significant limitations to our research: for example, the population of London has increased over the period of study, its demography has altered, the documentation held by the MPS has changed and our sampling rates were somewhat arbitrary for some years under study (they were dependant on the files available). However, these caveats aside, it is also fair to note that alternative and possibly more robust forms of research into shotgun and firearms licencing (such as using Randomised Control Trials) might be problematic in an area of police work where public safety is paramount.

More research is certainly needed that includes analysing 'before the event' statistics amongst the general adult population of London, the sub-population of all shotgun and firearm licence holders as well as the sample of refused, revoked and voluntary surrendered licensees that were the subject of this current research. For example, it might be valuable to look at all those in the greater London area who have committed certain types of motoring offence, and whether this is one of the factors

(in what is almost certainly a multifactorial model) that makes a greater than expected contribution to a subsequent risk of threat. If this data were to be made available then a number of predictive techniques could be evaluated, particularly logistical modelling, data mining and machine learning.

4.1 NFLMS (national) data

Data concerning Certificate holders within the MPS area (in common with all other police forces in England and Wales) is inputted into a web-based database, the National Firearms Licensing Management System (NFLMS). The NFLMS contains data on applicants and licenced firearms and shotgun owners together with dealers and registered firearms dealers (Home Office, 2016c, p. 9). It also contains details of those refused a shotgun and/or firearm Certificate on application or renewal or have had a Certificate revoked (ibid.) or who have voluntarily surrendered their licence. The NFLMS is a 'live' system; that is, subject to change on a very frequent basis and 'interfaces' with other databases the MPS has access to, such as the PNC. The NFLMS automatically informs the MPS if any of their Certificate holders become involved with the police (e.g. through arrest, being 'bound over') or if a prosecution is mounted against them.

Data is extracted from the NFMS on an annual basis, collated and published by the Home Office. Some of the published data is currently described by the Home Office as 'experimental' statistics (Home Office, 2016a). There are also potential problems with the data in terms of 'overcounting' the numbers of firearms and shotguns, given the practice of some police forces of allowing licence holders to 'temporarily' keep hold of their weapons after expiry of the Certificate (ibid., p. 14).

With these caveats, Table 2 below shows the number of Certificate holders for the financial year 2015/16 (that is the 12 months ending 31 March), after manual extraction of the data from Home Office spreadsheets. (The difference in overall total compared to the sum of sub-totals is owing to the individuals who hold both firearms and shotgun certificates.)

	Firearm certificates	Shotgun certificates	TOTAL	Firearm and/or shotgun certificates
Female	206	1808	2014	1914
Male	4328	24357	28685	25356
TOTAL	4534	26165	30699	27270

Table 2 Totals of firearm and shotgun certificates, MPS, financial year 2015-16; source: Home Office, 2016a

As Table 2 illustrates, a large majority of Certificate holders in the MPS area are male (c. 93%). The total number for the financial year 2015-16 is also consistent with 'live' data provided by the MPS in October 2016.

The Home Office also provides data on the age profile of Certificate holders at the force level although this is currently provided on an 'experimental' basis only. Data was manually extracted and aggregated from the Home Office spreadsheets to produce Table 3 below, showing the age distribution of Certificate holders in the financial year 2015-16.

Age range	Frequency	Proportion
13 and under	11	0.04%
14 to 17	89	0.32%
18 to 34	4,595	16.85%
35 to 49	7,875	28.88%
50 to 64	8,805	32.29%
65 and over	5,895	21.62%
TOTAL	27270	

Table 3 Ages of firearm and shotgun Certificate holders, MPS, financial year 2015-16; source: Home Office, 2016a

The age profile was compared with the age profile of the population of the Greater London area as determined during the 2011 Census. The age profile of Certificate holders differs markedly from the underlying population of greater London, the former being on average younger (for example, the median age of the whole population in greater London in 2012 was 34 years whereas for Certificate holders in the financial year 2015-16 the median age is in the 50 to 64 year age group).

4.2 Spatial distribution of Certificate holders in Greater London

In October 2016 there were a total of 4483 firearm certificate owners and 25645 shotgun certificate holders resident in the greater London area and holding certificates issued by the MPS .The MPS Firearms Enquiry Team (FET) provided anonymised age and location (postcode) data concerning the Certificate holders and this was used to analyse the spatial distribution. (In some cases the same postcode might have more than one Certificate holder (for example, family members) and a single individual might be both a firearm and a shotgun Certificate holder).

Figure 5 below shows the distribution of firearm certificate holders.

[REDACTED]

Figure 5 Location of firearm Certificate holders, Greater London area, October 2016 (source: MPS data).

Figure 6 below shows the distribution of shotgun certificate holders.

[REDACTED]

Figure 6 Location of shotgun Certificate holders, Greater London area, October 2016 (source: MPS data).

Finally, Figure 7 below shows the distribution of shotgun and/or firearm certificate holders.

[REDACTED]

Figure 7 Location of shotgun and or/firearm Certificate holders, Greater London area, October 2016 (source: MPS data).

Further analysis was undertaken at the level of postcode to test for spatial clustering and as can perhaps be seen from Figures 5 to 7 above, there appears to be a concentration of shotgun and firearm Certificate holders in the south-west area of central London. In terms of shotguns and/or firearms (Figure 7 above), the 'top ten' postcodes were identified by manual sorting of the data: and are shown in Table 4 below.

Postcode	District	No. of Firearms and /or Shotgun Certificates
SW6	Fulham	1327
SW11	Battersea and Clapham	1002
SW18	Wandsworth	859
SW3	Chelsea (including Brompton and part of Knightsbridge)	688
W8	Kensington	506
SW15	Putney	478
SW19	Wimbledon	435
W11	Notting Hill	425
SW10	West Brompton	405
W14	West Kensington	395

Table 4 The ten districts with the highest numbers of firearms and/or shotgun certificates in October 2016 (source: MPS data)

The order for shotgun certificates was almost identical other than the transposing of the ranks of the SW19 and W11 districts. In terms of firearms the order of frequency is largely the same, apart from the inclusion of the postal districts of Croydon, Coulsdon and Chingford as shown in Table 5 below.

Postcode	District	No. of Firearms Certificates
SW6	Fulham	138
SW11	Battersea and Clapham	104
SW18	Wandsworth	78
SW3	Chelsea (including Brompton and part of Knightsbridge)	77
SW19	Wimbledon	63
W8	Kensington	61
CR0	Croydon	59
W11	Notting Hill	52
CR5	Coulsdon	50
E4	Chingford	50

Table 5 The ten districts with the highest numbers of firearms certificates in October 2016 (source: MPS data)

Although this analysis does not take into account the area of each postal district, nor the population size it does reflect the distribution of FEO workload in terms of grant application and renewals. As explained below, the 'top ten' postcodes also exhibit some correlation with the location of refused at application, refused renewal, revoked and voluntary surrendered distribution.

4.3 Analysis of MPS Certificates refused, revoked or voluntary surrendered, 1992 – 2016

The Metropolitan Firearms Enquiry Team (FET) has over 30000 live files, current licence holders, and on average refuse or revoke approximately 150 licences or applications a year. The FET currently

relies on a paper based filing system and given the volume of files available, and changes in legislation, policy and documentation during the time period under study (for example, after 1 January 1995 the duration of a firearm or shotgun Certificate was extended from 3 to 5 years), it was decided to choose a small sample from the period 1992 to 2004 inclusive and somewhat larger samples from each year 2005 to April 2016 inclusive. The numbers sampled from each year or years is given in Table 6 below.

Calendar year(s)	Sample size
1992-2004	64
2005	28
2006	30
2007	45
2008	52
2009	46
2010	69
2011	41
2012	72
2013	53
2014	93
2015	98
2016 (up to April 2016)	23
(No date)	(16)
TOTAL	730

Table 6 Sample sizes from MPS refused at application, refused renewal, revoked or voluntary surrendered for the period 1992 -2004

The sample size for 2014 was 61% (93 from a possible 153) and for 2015 it was 66% (98 from 149). Sample sizes from previous years are unknown but, given the random nature of the sampling, would be expected to be similar (apart from the period 1992 – 2014).

4.3.1 Number of years before Certificate was refused on application, refused on renewal, revoked or voluntarily surrendered

The number of years that elapsed until a Certificate was refused at application (zero years by definition), refused at renewal, revoked or voluntary surrendered was extracted from the 730 files examined. The results are shown in Table 7 below.

No. of years	Freq.
0 (refusals 'in the first instance')	229
1	51
2	22
3	25
4	29
5	62
6	19
7	15
8	29
9	17
10	42
11	21
12	16
13	22
14	14
15	26
16	7
17	8
18	14

19	11
20	11
21	5
22	3
23	8
24	4
25	5
26	2
27-51	13
TOTAL	730

Table 7 Frequency of the no. of years before a Certificate was refused on application, refused on renewal, revoked or voluntary surrendered 1992- 2016 (source: MPS data, n = 730)

After removal of the zero years (refusal on application) the mean was calculated as 9.9 years (that is, a period of time just prior to the second renewal of a Certificate) the median 8 years and the standard deviation of 7.8 years. A large standard deviation when compared with the mean suggests wide variability in the data with a lack of clustering around the mean. To test this further a 'box and whisker plot' was created (see Figure 8 below).

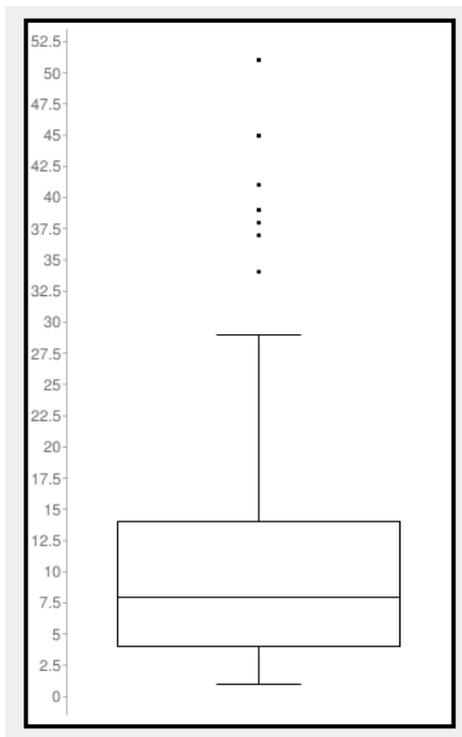


Figure 8 Box and whisker plot of number of years before certificate refused on renewal or revoked (source: MPS data 1992 – 2016, n =501).

As Figure 8 above illustrates, although half of the data is between the local quartile of four years and the upper quartile of 14 years there is also extensive dispersal and a significant number of outliers. None-the-less, it is broadly the case that in the run-up to the first renewal, during the second period of Certification and soon after constitute a more than average 'risky' period. This might be a genuine reflection of the changes in risk over time but might instead reflect the five- year cycle of Certificate renewal.

Further analysis was undertaken to determine changes in likelihood of refusal, revocation or the need for voluntary surrender over time and also to check for the existence of periodicity in the data (including refusal at first application). A bar chart showing the frequencies of length of time in number of years is shown in Figure 9 below (with the zero year refusals omitted).

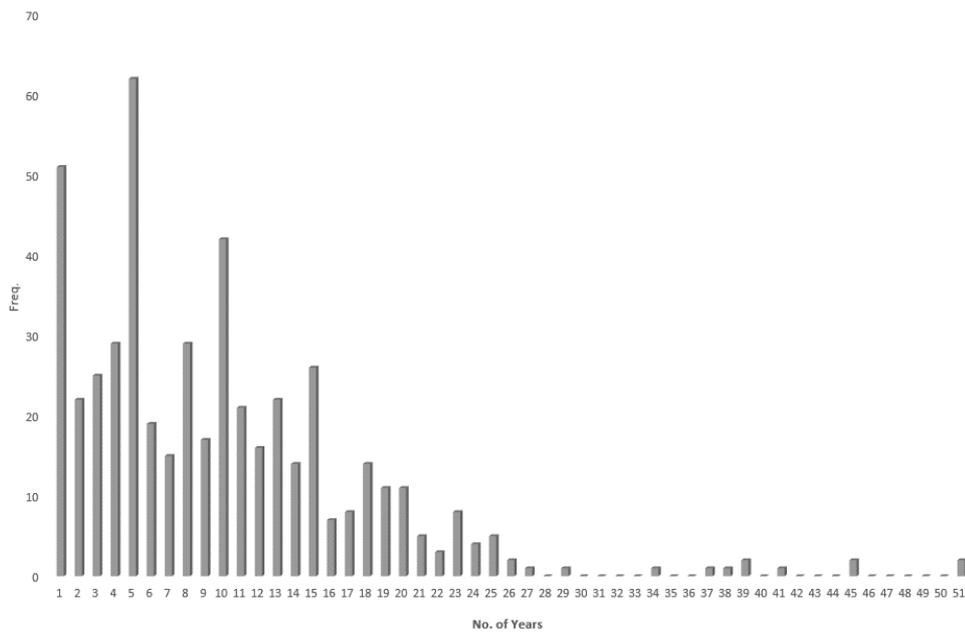


Figure 9 Bar chart showing frequency of Certificate refusals on renewal, revocations and voluntary surrender 1992-2016 (source: MPS data).

Figure 9 above appears to confirm the existence of an approximate five-year cycle in refusals on renewal, revocations or voluntary surrenders.

A scatter chart illustrating the change of frequency over time (omitting the count for zero years which refers in the main to refusal of application) was also created and is shown in Figure 10 below.

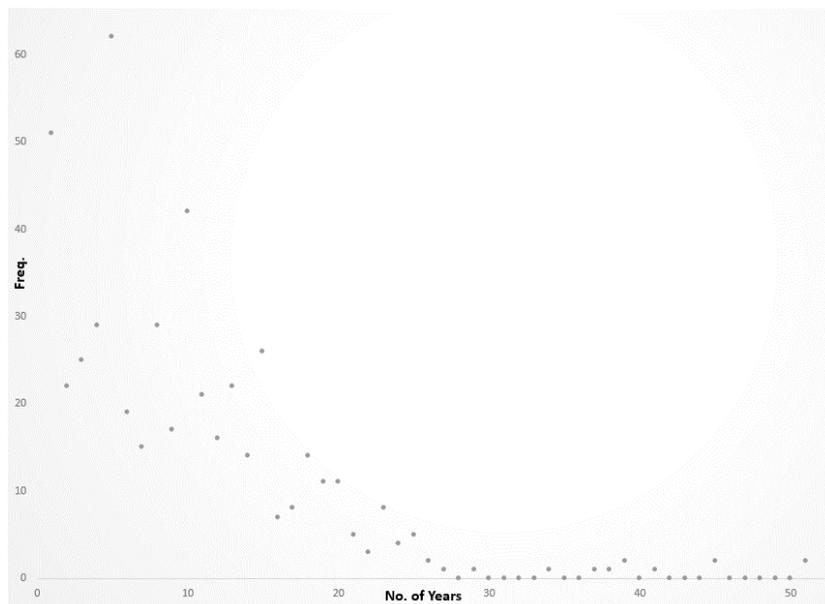


Figure 10 Scatter diagram showing frequency of Certificate refusals on renewal, revocations and voluntary surrender 1992-2016 (source: MPS data).

Figure 10 above appears to suggest that the risk does not appear to increase the longer the time that an individual holds the licence. The general trend is asymptotic (tending to decrease towards zero with increasing time). Indeed, the 'riskiest period' is during the first five years and particularly in the first year. There is a possibility that an exponential decay model might reasonably fit the data. However, the decline in frequency might simply be as a result of fewer people holding Certificates for the longer periods and hence fewer refusals on renewal, revocations or voluntary surrenders by chance alone. In order to disentangle the effect we would need to establish in future research what 'churn' factor is at work with firearm and shotgun licencing.

4.3.2 Spatial distribution of Certificate applicants or holders refused on application, refused on renewal, revoked or voluntarily surrendered

In section 4.3.1 above the location of all Certificate holders in the Greater London area in October 2016 was plotted. For purposes of comparison the locations of the 730 certificate applicants or holders refused on application, refused at renewal, revoked or voluntarily surrendered for the period 1992 – April 2016 were also plotted and the results are shown in Figure 11 below.

[REDACTED]

Figure 11 Location of Certificate applicants or holders refused on application, refused on renewal, revoked or voluntarily surrendered, greater London area, 1992- April 2016 (source: MPS data).

In terms of all refused, revoked, refused renewal and voluntary surrendered the spatial distribution at the level of postcode appears to reflect rates of current Certificate ownership (see section 4.3.1 of this report above). Further analysis was undertaken looking at the spatial distribution of the most recent (the last five years) data and revoked and refused certificates only. This showed much higher than expected proportions (tested assuming a Poisson distribution and a chi-squared test) of revoked and refused at renewal shotgun and firearm Certificate holders in the Romford district of east London, the Dartford area in south-east London and the Harrow districts in north-west London. We have to be cautious however, as this may reflect unidentified bias in the sampling method but there are sufficient grounds to warrant further investigation in future research. Regardless, the bulk of FEO licencing work is to be located amongst the population of SW London.

4.3.3 Proportions of Certificates refused on application, refused on renewal, revoked or voluntarily surrendered

There are a number of phases at which an applicant or holder of a shotgun and/or firearm certificate may have his or her Certificate 'withdrawn': on application (in which case no Certificate is issued), on application for new renewal (currently after five years), through being revoked or the person concerned voluntarily surrendering their Certificate. Table 8 below shows the proportions fitting into each of these categories for the 730 files from the period 1992 – April 2016 that were analysed as part of the research.

	Freq.	Proportion
Refused on application	238	32.60%
Refused on renewal	75	10.27%
Revoked	341	46.71%
Voluntarily surrendered	50	6.85%
No reason given	26	3.56%
Total	730	100%

Table 8 Proportions of Certificates refused on application, refused on renewal, revoked or voluntarily surrendered for the period 1992 – April 2016 (source: MPS data)

As can be seen from Table 8 above, a large proportion of the sample (32.60%) consisted of applications that were refused in the first instance. This data probably represents a ‘success’ for the Certification process, potentially identifying those who might pose a greater risk of threat from the use of a shotgun or firearm, although a clearer view can only be formed if comparison with all Certificate holders (as well as those whose Certificates were subsequently revoked) were to be possible. With this additional data an estimate of the size of false positives and false negatives could also be made.

Taken together, refused on renewal, revoked and voluntarily surrendered constitute a majority of the sample (c. 64%). This group possibly constitute the greatest risk as they are/have been in legal possession of potentially lethal weapons and their past behaviour, character assessment and so on had not, by definition, provided grounds for refusal in the first instance. For this reason we have analysed this group separately below.

4.3.4 Age at which certificate refused on application, refused on renewal, revoked or voluntarily surrendered

The 730 records were analysed to identify the age of the Certificate holder at the time at which the Certificate was refused on application, refused on renewal, revoked or voluntarily surrendered. These ages were placed into the same groups used by the Home Office for the collection of national data (see 4.1 above), for the purposes of comparison. The results are shown in Table 9 below (note that n = 701 as not all data was available).

Age range	Freq.	Proportion (%)
13 and under	0	0.00%
14 to 17	8	1.14%
18 to 34	170	24.25%
35 to 49	268	38.23%
50 to 64	193	27.53%
65 and over	62	8.84%
TOTAL	701	

Table 9 Age at which certificate refused on application, refused on renewal, revoked or voluntarily surrendered for the period 1992 – April 2016 (source: MPS data)

When compared with the current age distribution of current Certificate holders in the greater London area (see Table 9 in 4.1 above) there are statistically significant differences (confirmed using a chi-squared test at the 5% level). However, caution must be exercised in interpreting these results as we are not strictly comparing ‘like with like’ and there have been, for example, significant demographic changes in London since 1992. None-the-less, on the basis of this analysis it would be justified in looking further at the age range 35 to 49 years as a group possibly higher at risk when compared with the whole cohort.

4.3.5 Primary reason(s) cited for Certificates refused on application, refused on renewal, revoked or voluntarily surrendered

In order to establish any significant differences between primary reasons for refusal on application compared to refusal at renewal/revocation/ voluntary surrender the data was divided and ranked and the result is shown in Table 11 below.

Primary Reason	Refusal on application	Revoked/refused renewal/voluntary surrender
	Rank	Rank
Alcohol abuse	3	12
Criminal damage	6	13
Domestic violence	7	1
Driving offences	2	4
Drugs	8	5
Firearms offences	9	9
Fraud	11	11
Mental health	10	2
Security of firearm	13	6
Sexual offences	12	8
Theft	4	12
Threatening behaviour	5	7
Violent behaviour	1	3

Table 11 Ranks of primary reason to refuse on application compared with ranks of refusal to renew an existing Certificate, to revoke a Certificate or to request the voluntary surrender a Certificate (source: MPS data)

The primary reasons of ‘alcohol’ and ‘theft’ feature far more prominently within the set of reasons to refuse a Certificate on application when compared for reasons given for refusal to renew an existing Certificate, to revoke a Certificate or to request the voluntary surrender. The reverse tendency is for mental health, security of firearm and domestic violence to feature more prominently with refusal to renew, revocation or request voluntary surrender. On the assumption that these are genuine affects (of which there must be some doubt given the data constraints discussed earlier) there are a number of possible explanations. One reason might be that abuse of alcohol is easier to identify during home visits or through police or other agency records and is therefore relatively easy to ‘filter out’ at the application stage. Theft is clearly easier to identify through police records and rarely occurs as a primary reason after a Certificate has been granted. In terms of ‘after the event’ reasons it could be that, in any event, mental health issues are a relatively common occurrence within the population as a whole and this is equally true of the sub-population of Certificate holders. The peak age, for example, of suicide amongst the male population of England and Wales is within the 45 to 59 age group, and this corresponds approximately with the age group in this study with the highest rates of refusals and revocations (see above). Mental health as a primary reason is discussed further in section 4.3.6 of this report. In terms of security of firearm a possible explanation is that problems do not emerge until after a Certificate has been granted and possibly during the period of renewal.

Domestic violence as a risk factor appears to be under-identified at the point of application as it is not often cited as a reason for refusal to grant a Certificate but is the single biggest reason for refusal to renew a Certificate, to revoke a Certificate or to request its voluntary surrender. An obvious question is whether the risk of domestic violence committed (or suspected) by a Certificate holder could have been reasonably accurately estimated in advance with the current means of assessing risk. With some offenders there will be persistent patterns of behaviour, both in terms of the type of offence committed and repeat offending (notably with offences such sex offending, fraud, theft of a vehicle and drink-driving). However, successfully predicting future violent behaviour, such as domestic violence, has been notoriously problematic. At the level of the population (as distinct from the individual) there are certainly risk factors which are associated with domestic violence (such as

alcohol abuse) but part of the problem is that the domestic violence group are not homogeneous in nature (typically between two and four distinct sub-groups of offenders have been identified, such as ‘anti-social/narcissistic’ and ‘emotionally dependent and volatile’).

4.3.6 Mental health as a primary reason cited for Certificates refused on application, refused on renewal, revoked or voluntarily surrendered

For the complete sample of 730, a total of 332 (45%) individual’s Certificates were refused on application, refused on renewal, revoked or voluntarily surrendered on grounds that included mental health issues, with 24 on the basis of physical health conditions. The breakdown between refused on application, refused on renewal, revoked and voluntary surrendered is shown in Table 12 below.

	Freq.	Proportion (%)
Refused on application	121	36.4%
Refused on renewal	28	8.4%
Revoked	148	44.6%
Voluntary surrendered	35	10.5%
TOTAL	332	

Table 12 The frequencies and proportions of Certificates that were refused on application, refused on renewal, revoked or voluntary surrendered on grounds that included mental health issues (source: MPS data)

The specific mental health reasons were identified for each individual concerned and a judgement made concerning the primary reason. Overall the most cited primary reason was ‘depression’ (31%). However, when the data is broken down between ‘refused on application’ and ‘refused on renewal or revoked’ (with voluntary surrendered being omitted) then the distribution of primary reasons is somewhat different, as illustrated in Table 13 below.

	Primary reason	
Refused on application	Depression (36%)	Anxiety (13%)
Refused on renewal	Depression (32%)	Stress (21%)
Revoked	Depression (31%)	‘Self-harm’ (18%)

Table 13 The most cited primary mental health reason for ‘refused on application’ and ‘refused on renewal or revoked’ (source: MPS data)

Other mental health issues such as ‘OCD’, ‘psychosis’ and ‘bi-polar disorders’ were very rarely cited as reasons. The high proportions for ‘depression’ for refusal on application and refusal on renewal might reflect the practice of requiring applicants to state on the application form 201 whether they have been treated for depression or any other kind of ‘mental or nervous disorder’. However, this is less likely to be an explanation for the large percentage of Certificates subsequently revoked on the basis of ‘depression’. A possible reason for this is that ‘OCD’, ‘psychosis’ and so on might be considered by FEOs and GPs as disorders which require clinical diagnosis by specialists, whereas ‘depression’ and ‘anxiety’ are apparently much more familiar and common forms of mental illness. Both GPs and FEOs will also naturally tend to limit themselves to facts, such as the prescription of medicines to alleviate the symptoms of depressive illness. As a witness explained to a Home Affairs Committee in 2010, “As a GP, I can give no judgment to someone's fitness to hold a weapon, particularly forecasting the future. What I can do is provide factual evidence about the past” (Dr Canning, Home Affairs Committee, 2010). It does not appear common practice in many police forces to refer medical information to the force medical officer for another opinion (although there is little publically available information about the extent of this practice). Although it is clearly unreasonable to ask GPs to ‘predict the future’ there could be scope for developing the current FEO request for information to include more in the way of risk assessment in addition to factual statements concerning treatment and diagnoses (for example, using a checklist derived from diagnostic mental health criteria).

4.3.7 Latent Cluster Analysis of the primary reason(s) cited for Certificates refused on application, refused on renewal, revoked or voluntarily surrendered

The primary objective of cluster analysis is to group the objects (in this case data concerning Certificate holders) in a manner that maximises the differences between clusters but at the same time minimises the variability (that is maximises the homogeneity) within a particular cluster. Cluster analysis is a practical tool used to reveal 'natural groupings' within data sets. Although cluster analysis has been employed for some time in marketing, biology (including genetics) and medical research it has only recently been employed to better understand 'hidden' patterns in crime and policing data. There are a number of cluster analysis methods available to researchers, including hierarchical, k-means clustering and two-step clustering and these often feature as options with statistical software such as SPSS or SAS. Latent Cluster Analysis (LCA) uses probability modelling and has a number of advantages over other algorithms employed as a method for identifying clusters within the data collected as part of this study. One advantage is that LCA can be employed with many different types of data, including categorical (such as the 'primary reason' field) and ratio (such as age of Certificate holder). LCA is also reasonably 'forgiving' of missing data, of the form that often occurs when written forms and documents are analysed. However, the disadvantages of LCA are that choice of the variable inputs (such as mental health) is more complex and the results obtained from LCA are more difficult to interpret than using most other clustering methods.

After some experimentation (that is a 'trial and error' approach with choice of variables) with the data for the refused on application only (that is, excluding refused on renewal, revoked or voluntarily surrendered) a number of statistically significant clusters were discovered of which the simplest, and most intuitively meaningful, was a three-cluster model whose profile plot is given in Figure 13 below.

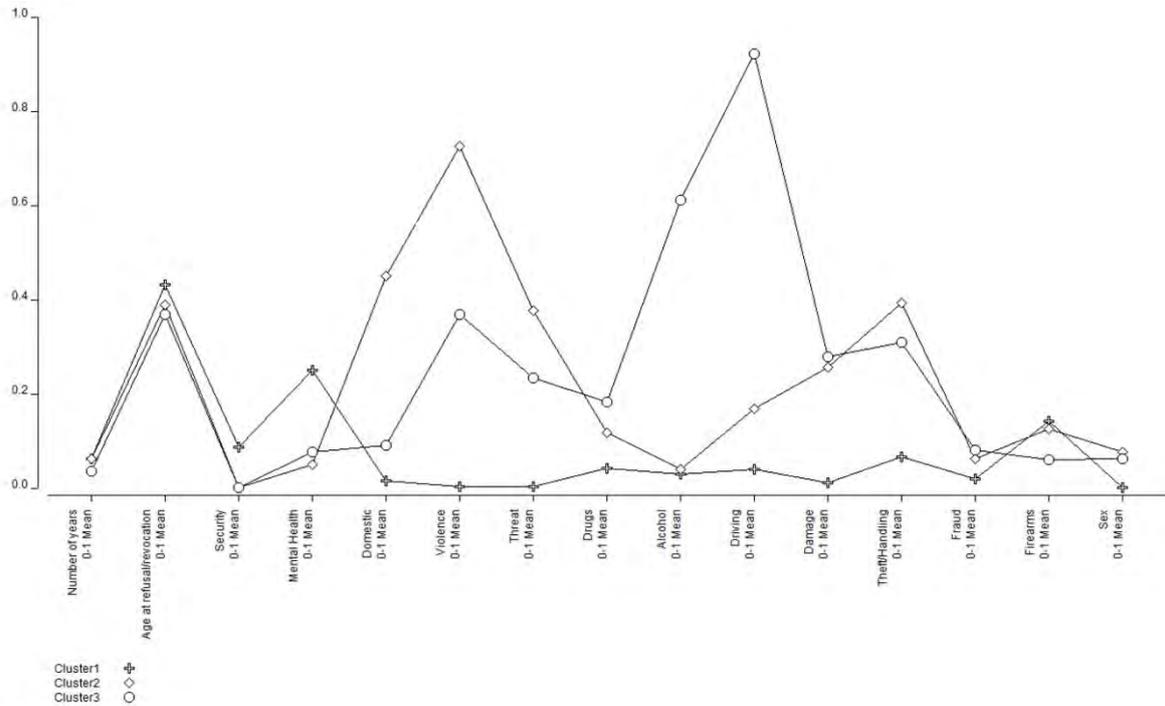


Figure 13 Profile plot of three cluster model derived from sample of refused on application (source: MPS data)

Table 14 below shows a summary of this model, with a list of the latent factors involved in each cluster (the factor contributing the greatest to each cluster being the first in each list), together with the proportion of the total sample.

Latent Factors (in order of significance, greatest contributory factor in bold)	Proportion of sample (%)
Mental Health Firearms offences Security of shotgun/firearm	46% (108)
Violence Domestic violence Theft/'Handling' offences	27% (62)
Driving offences (including drink driving) Alcohol abuse Violence	26% (61)

Table 14 Latent factors of a three-cluster model of those refused on application (source: MPS data)

In many respects the existence of the two clusters of 'mental health' and 'violence' (including 'domestic violence') for the refused on application sub-sample is unsurprising as these are likely to feature highly in the risk assessments carried out by FEOs. Perhaps less expected is 'driving offences' (particularly involving alcohol) as a separate cluster but these offences are likely to be uncovered during database searches (see above).

Further analysis was conducted on the data for those refused on renewal and revoked (that is, excluding those refused on first application and those who voluntarily surrender their Certificate(s)). These can be considered a group that potentially may have posed the greatest risk. In this case a four cluster model was found to be a good fit and the profile plot is shown in Figure 14 below.

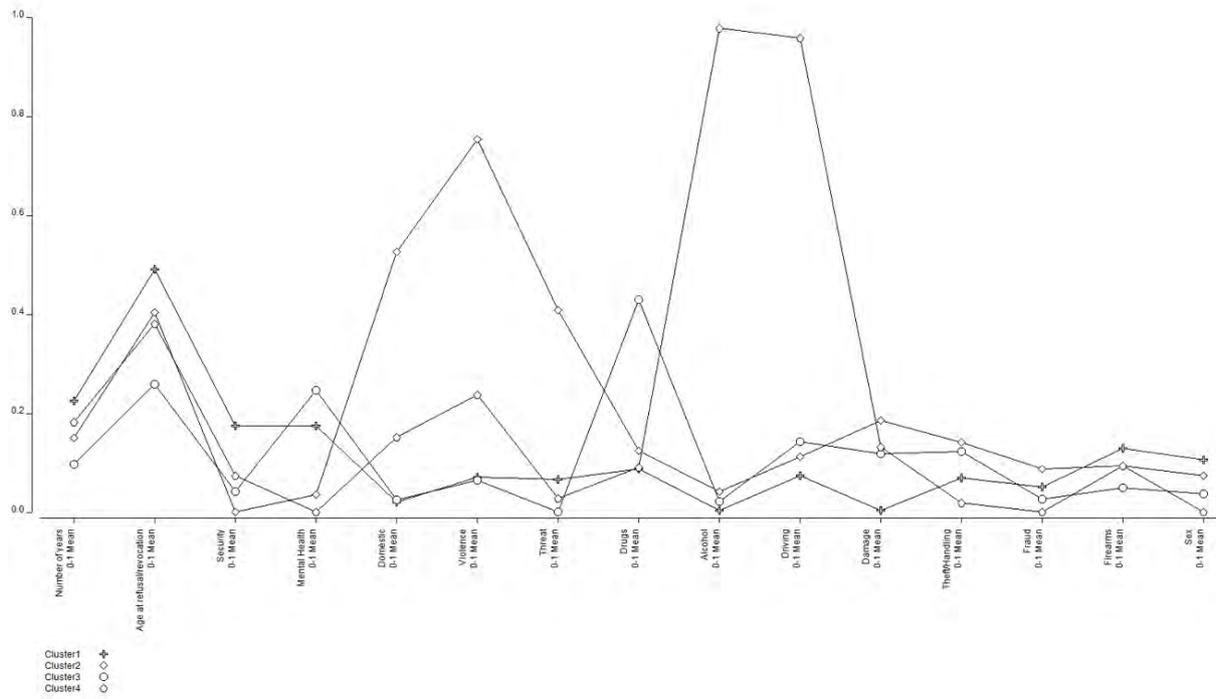


Figure 14 Profile plot of four-cluster model derived from sample of refused on renewal or revoked (source: MPS data)

Table 15 below shows a summary of the four-cluster model of the sample of Certificate holders whose application for renewal of licence were refused or whose Certificate was revoked.

Latent Factors (in order of significance)	Proportion of sample (%)
Security of shotgun/firearm	41% (167)
Mental Health	
Violence	30% (122)
Domestic violence	
Theft	
Drugs	16% (65)
Mental Health	
Alcohol	13% (54)
Driving offences (including drink driving)	

Table 15 Latent factors of a four cluster model of those refused on renewal or revoked (source: MPS data)

Surprisingly, mental health is an important factor in two of the clusters but not a ‘defining’ characteristic of any. A consideration of the risk presented by the mental health of an applicant features highly in the assessment of risk carried out by FEOs at the point of initial application. However, cluster analysis does suggest that security of the firearm might also be an important

leading indicator, coexisting with mental health issues. A more in-depth appraisal of the applicant in terms of security of weapon, both at home location and when transported might also lead to more information concerning the risk posed by the mental state of the individual and a better overall estimate of risk. Likewise, suspicions of domestic violence (or a property crime conviction in the background of the applicant, however 'minor') could lead to a deeper search for evidence of a more general violent temperament.

4.3.8 Occupation of those Certificate applicants or holders refused on application, refused on renewal, revoked or voluntarily surrendered

The occupations of Certificate applicants or holders that were refused on application, refused on renewal, revoked or voluntarily surrendered were available (in a 'free text' format) in the 730 files sampled. Of the total sample, 26 were 'unclassified' and have been removed from the summary given below in Table 16. Occupations were grouped together into the Office of National Statistics (ONS) Standard Occupational Classification (SOC) Hierarchy at the highest level (Major Group) (ONS, 2016).

SOC Occupational group	Freq.	Proportion (%)
Administrative	12	1.7%
Caring, Leisure and Other Service Occupations	21	3.0%
Elementary Occupation (includes farm workers, drivers/chauffeurs, porters etc.)	39	5.5%
Managers, Directors and Senior Officials	123	17.5%
Process, Plant and Machine Operators	14	2.0%
Professional Occupations	148	21.0%
Public Service	9	1.3%
Retired	54	7.7%
Sales and Customer Service Occupations	50	7.1%
Self employed	12	1.7%
Skilled Trades Occupations (includes builders, plumbers, chefs etc.)	124	17.6%
Student	34	4.8%
Unemployed	46	6.5%
Unknown	17	2.4%
Voluntary	1	0.1%

Table 16 Occupation of those Certificate applicants or holders refused on application, refused on renewal, revoked or voluntarily surrendered (source: MPS data)

The 'Professional Occupations', 'Skilled Trades Occupations' and 'Managers, Directors and Senior Officials' groups together account for a majority (c. 56%) of Certificates refused on application, refused on renewal, revoked or voluntarily surrendered. This result is not surprising as it is likely that these groups also form a majority of all Certificate holders in the greater London area.

A further analysis was conducted to discover any underlying differences between refusal on application and refusal on renewal, revocation or voluntary surrender. In terms of refusal on application three groups made up 60% of refusals, of which the biggest group was 'Skilled Trades Occupations' (24%); however for refusal on renewal, revocation or voluntary the biggest group was 'Professional Occupations' (22%) with the 'Skilled Trades Occupations' proportion declining (14%). The proportion of 'Managers, Directors and Senior Officials' stayed relatively stable (at about 17%-

18%). This suggests a greater risk with the 'Professional Occupations' group in terms of the ability of FEOs to filter out individuals from this group. There are a number of possible reasons for this (on the assumption that this is a genuine effect). One possible explanation is that the 'Professional Occupations' group is more adept at 'playing the system' in terms of the application process and issues only emerge with this group at a post-Certification stage. It is also the case that individuals from these occupations are more likely than others to hold private medical insurance and hence information concerning mental and physical health may not be readily available. However, this remains speculative at this stage.

5. Conclusions and recommendations

Our primary conclusion is that a structured professional judgement should continue to form the basis for risk assessment and decision-making for shotgun and firearms licencing by MPS Firearms Enquiry Officers (FEOs) and their managers. The preparatory desk-bound study we undertook for this report, and our own empirical research using interviews with FEOs and their managers, together with the collection and analysis of data all support this conclusion.

The MPS assesses the risk posed by granting or renewing an individual's shotgun and/or firearm Certificate in robust, fair and clear ways, consistent with legal and national requirements and which follow the guidance of the Home Office, College of Policing and others. None-the-less, assessing risk, in the sense of estimating the likelihood of an individual posing a threat in the future, is a challenging undertaking, made particularly difficult in the context of firearms licensing by the ambiguities inherent in the law and in national policy. Our research leads us to suggest that risk assessment and decision-making by FET (SCO19) could be further improved in the following ways.

Recommendation 1 – Develop additional forms of risk assessment based on threats (as an aid to structured professional judgement)

The current approach to evaluating risk often includes the identification of risk *in absentia* of threats; that is an assessment involves considering a particular generalised risk (such as 'intemperate habits') but not include explicitly identifying what threats this risk might lead to. For example, the mental health of an applicant or Certificate holder is understandably always considered a risk factor for licencing purposes and its evaluation is justified under the general requirement to assess the 'fitness' of the applicant, but the threats are usually implied rather than made explicit. Although the threat of self-harm (e.g. suicide) and the threat of injuring or killing another might both be correlated with 'mental health' it is highly likely that for each threat quite different mental health risk factors are involved. Further, these mental health risk factors will combine with other risk factors in complex ways.

A complementary approach (that is, in addition to, rather than replacing the legal requirement for a 'generalised' approach) is to ask the question 'What potential threats are posed in granting this Certificate?' followed by 'What risk factors are associated with these threats?' leading to 'What sources of information exist to test for these risks?' Three examples of this approach are given in Appendix 5.

Recommendation 2 - Increase cooperation with other non-police agencies to share good practice

Much responsibility is placed on FET (SCO19) and its FEOs when making the decision whether to licence an applicant for a shotgun or firearm Certificate. One of the responsibilities of the FET is to assess risk on the basis of the 'sound mind' of the applicant (essentially a psychological assessment). This is similar to the responsibility on other professionals working in clinical settings, for example in terms of the suitability for prison release. We recommend that increased cooperation is undertaken with other agencies that also conduct home visits to assess mental health (such as local health authorities) in order to share good practice. Longer term it might be possible for FET (SCO19) to encourage 'communities of practice' to form, that is opening up the licencing process and responsibility to other agencies although we appreciate that this is more a national rather than MPS remit.

Recommendation 3 – Enhance FEO training and staff development to aid structured professional judgement

The FEOs and managers that took part in our research were shotgun and firearms licencing experts and possessed well-honed abilities to assess risk and make decisions based upon a careful evaluation of the information available. There is an obvious need to retain experienced staff as mentors for newly appointed FEOS, as, for example, the evidence available suggests that intuitive understanding of risk by novices is built up over time and through feedback. There is, however, scope for enhancing the current training that FEOs receive on risk assessment and decision-making. We recommend that consideration be given to considering at least some of the following within the training of FEOs (in addition to the 'standard' national training on offer):

- Principles and theories of risk assessment e.g. sensitivity v. specificity and threat identification.
- Actuarial (statistical) and clinical approaches to risk assessment, including the use of statistical modelling to aid decision-making.
- Forms of reasoning – e.g. inductive, deductive and abductive.
- Probability, combining likelihoods, false positives and negatives in testing.
- Formulating and testing hypotheses, including how published empirical research can support decision-making.
- Pattern recognition and anomaly detection.
- Heuristics in decision-making, including the requirements for their effective application; the strengths of mental heuristics but also the limitations.
- Cognitive fallacies and errors relevant to FEO risk assessment and decision-making.
- Practical training with 'specimen' 3620 forms that are designed to stimulate the application of the different forms of reasoning required for risk assessment and to help trainee FEOs to recognise cognitive fallacies.
- Identifying lying and deception, including the presence of 'cognitive overload' as an indicator but also the limitations of 'body language' as a tool.
- More detailed knowledge of shotguns, firearms, rough shooting, clay pigeon shooting, internet forums and discussion groups used by the shooting community. Understanding how illicit 'Dark Web' resources are used by some Certificate owners, for example, by people wishing to illegally acquire 'buck shot' and 'slugs' for use with shotguns.
- Greater awareness of the ability of some individuals from 'professional occupations' to 'play the system' to successfully gain a licence and potentially hide the risk they pose. (There is an added complication in terms of mental health assessment risks as people from this group are more likely to be receiving private health care.)

In terms of staff development, we suggest that FEOs have the occasional day shadowing another FEO (perhaps once every six months) which would provide an insight into how other FEOs determine risk. It might also be good practice to encourage FET supervisory staff (such as Sergeants) to occasionally shadow their staff (e.g. in order to keep in touch with the day-to-day aspects of the role). We also recommend that FEOs spend a period of time in the main FET (SOC6) office to encourage the sharing of good practice to provide a catalyst for the formation of effective working protocols between management and FEOs. One FET team held a meeting every week to discuss problem cases and to share practice and we feel that this approach could be usefully adopted by all teams.

Recommendation 4 – Develop further the risk assessment of ‘reasons to own’, the security of the shotgun/firearm, particular occupational groups and during the whole of the five-year period of licencing

Our research suggests that risk assessment might be further enhanced through consideration of the following:

- Increased emphasis on **why** an applicant wants to own and use a shotgun and/or firearm. Unfortunately the standard application form (in the case of an application for a shotgun-only licence) does not encourage a comprehensive response to this question and the details can only be established (and the veracity evaluated) by interviewing the applicant, preferably at his or her home. Current Home Office guidance on reasons for ownership is neither detailed nor focused specifically on risk assessment.
- A detailed scrutiny of the proposed or actual security of shotgun or firearm. This is not simply in terms of the importance of security its own right but also as a ‘gateway’ into gaining an insight into the ‘fitness’ of the applicant e.g. in terms of mental health.
- Greater monitoring of certificate holders during the five year period of the grant (this is also supported in an IoPCC Report; IPPC, 2013, p. 4) by, for example, the use of home visits. Nationally, extending the duration of Certificates (e.g. to 10 years) for individuals (but not firearms dealers) but at the same time increase real time monitoring of current holder might be a practical way of achieving this. However, we appreciate that this is not within the powers of the MPS.

Recommendation 5 - Maintain and enhance the home visit for initial applicants

We found that the ‘home visit’ (which normally includes the FEO interviewing the applicant) that takes place in the case of all first applications for a shotgun and/or firearm Certificate was an important method of determining the risks posed. Forms of information are collected and risk assessed during the home visit in ways that would be very difficult in any other way. We would go so far to say that operational effectiveness would be compromised if this were to change. For this reason we also recommend that not only should the home visit be maintained but that there should also be more written guidance for home visits and that a semi-structured home visit form be utilised by FEOs.

Recommendation 6 – Further develop the MPS Vulnerability Assessment Frame (VAF) for use by FEOs as part of their structured professional judgement

As noted earlier in section 3.3 of this report, the MPS Vulnerability Assessment Framework (VAF) is effectively and efficiently utilised by MPS FEOs to aid the assessment of the mental health of an applicant (normally as part of the ‘sound mind’ test). We recommend that the VAF is further ‘customised’ for FEO use as currently aspects of the framework are specific to other parts of the criminal justice system and not necessarily relevant to mental health risk assessment for shotgun and firearms licencing. Likewise, the particular risk assessments carried out for licencing purposes might require more differentiation between types of mental illness, a process not currently allowed for by the VAF. The VAF could also be integrated more fully with the police service National Decision Model (NDM) stages.

Recommendation 7 - Adapt FEO and other licencing documentation to better support structured professional judgement

As explained earlier in section 3 of this report, the 'new' 3620 form being trialled by FET (SCO19) offers distinct advantages. We would recommend that this form is further developed in an electronic format that allows for the inclusion of a 'comments box' within its home and applicant sections. Consideration could also be given to varying the order in which information is assessed by FEOs to minimise the possible effects of cognitive bias.

In terms of an applicant's case file a checklist should be introduced to ensure that all the required documentation is gathered together in a single file. Unnecessary duplication of documentation in the files (such as multiple copies of the same refusal/revocation letter and medical information request letters) should also be avoided. (There are likely to be fewer issues of this kind when electronic filing and collation is more fully utilised within the new MPS licencing process).

Recommendation 8 - If 'risk matrices' are employed by the MPS then these should be used to challenge risk assessments, but not as a basis for structured professional judgement

We note that 'risk matrices' are not currently used by FET (SCO19) and our research supports their position. If this situation were to change then we recommend that risk matrices are used to challenge risk assessments, but not as a basis for structured professional judgement.

Recommendation 9 – Support the development of future FEO decision-making that utilises the analysis of data

'Algorithms' (derived from data analysis) are increasingly being used in clinical settings such as medicine to support decision-making, either as complementary approaches or as a means to test hypotheses. Our research demonstrates that there is potential for the use of algorithms in risk assessment in shotgun and firearms licencing. We therefore recommend that FET (SCO19) encourage consideration of increased data analysis at the national level with a view to exploring the potential for an algorithmic approach to identifying risk. However, it is acknowledged that a constraining factor in the future development of firearms licencing risk algorithms is that the law (probably rightly) does not allow for refusal or revocation on the basis of a 'mathematical' test. As is seen with some 'predictive policing' algorithms, using data to identify risk often has the unintended effect of singling out those with characteristics mathematically correlated with certain types of offending, including ethnicity, age and socio-economic status that are beyond the control of the individuals concerned.

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Appendices

Appendix 1 (REDACTED)

Appendix 2 (REDACTED)

Appendix 3

Scenario 1 -

Mr A Smith is applying for a shotgun certificate renewal. His application form is given to the interviewee for reference as they are due to consider his renewal.

- Mr Smith is noted in the intelligence check as being a victim and suspect in a neighbourhood dispute with his neighbour Mr Jones on 23/4/16.
- Mr Smith will downplay the incident stating that it "is nothing, just a misunderstanding" and that it is behind them both.
- Mr Jones will explain that Mr Smith and he had a verbal altercation following accusations that he was having an affair with Mrs Smith.
- Mrs Smith will deny this if asked stating that she and Mr Jones are just friends.
- Other neighbours will point out loud arguments between Mr and Mrs Smith going back to 02/16 but none will report any violence between the two. Mr Smith and Mr Jones are also known to have loud verbal altercations in the street.
- Mr Jones and Mrs Smith are known to be friends by neighbours.
- The local authority ASB team will identify multiple occasions where raised voices have been reported by neighbours between Mr Smith and Mr Jones but the Police were only called on the one occasion. No reports of disturbances since the beginning of June.
- Mr Smith's referees will state that he is fine and that they have not seen any change in his behaviour.
- Mr Smith's GP has prescribed him anti-depressants since 05/16.

Scenario 2 –

“Mr Allen is a 35 year old stockbroker from Tottenham who has applied for a firearm certificate for both .22RF and .308 calibres in order to target shoot and control vermin. He lives alone in a flat. His application seems fine: his background checks have come back with no issues, he has been through an induction course at a local shooting club and his GP states that Mr Allen is of sound body and mind. His referees are a local magistrate and a surgeon at ‘St Barts’ hospital. He has regularly been attending a shooting club for three months. His home is ordered and nicely furnished and his plan for the storage of the rifle seems sound. He has shown you invoices for a gun cabinet that he plans to have installed according to the plans he has shown you. The interview went well, he seems personable and good humoured. On the way out of the flat you notice a framed photograph of Hitler on the dresser by the door.”

Further information

- If asked his uncle owns an estate in Surrey, where they go rough shooting. However, Mr Allen is not a shotgun certificate holder, and uses a shotgun provided by his uncle.
- If asked about ‘controlling vermin’ this is on his uncle’s estate in Surrey.
- Background check on the uncle indicates that he received a caution in 2013 for racially abusing someone in the street.
- If asked about the photograph, Mr Allen states that he collects WW2 memorabilia, particularly from the ‘Third Reich’.

Appendix 4

	A	B	C	D
1	Field	Type	Priority	Description
2	GID	number	k	Identifier for each case
3	ID	auto	k	Case identifier by laptop
4	Laptop number	number	k	Laptop number (1-5)
5	Application Reference	text	k	Application reference number
6	Applicant DOB	date/time	2	Applicant Date of Birth
7	Postcode	text	2	Applicant Postcode
8	Occupation	text	2	Applicant Occupation
9	Licence type	text	2	Licence type - shotgun or firearm
10	Date applied (most recent)	date/time	3	Most recent application date
11	Date granted	date/time	3	Date application granted (most recent)
12	Number of years	number	1	Number of years licence held
13	Number of weapons: Shotgun	number	2	Number of shotguns held
14	Number of weapons: Firearm	number	2	Number of firearms held
15	European firearms pass	yes/no	2	European firearms pass holder
16	Club membership	yes/no	1	Club member
17	Years shooting	text	1	Years of shooting experience
18	Expiry reason	text	2	Reason for previous licence expiry
19	Date revoked/refused	date/time	3	Date of revocation/refusal
20	Reason for revocation/refusal	text	1	Reason for revocation/refusal
21	Previous refusals/revocations	yes/no	1	Did the applicant have previous revocations or refusals?
22	Criminal history	memo	1	Summary of criminal history compiled by researcher
23	Medical background: Physical	memo	2	Summary of physical health history
24	Medical background: Mental	memo	1	Summary of mental health history
25	Substance misuse	yes/no	1	Has the applicant a history of substance misuse?
26	Misuse declared	yes/no	1	Has substance misuse been declared by the applicant?
27	Alcohol	yes/no	2	Does the applicant have a history of alcohol misuse?
28	Cocaine	yes/no	2	Does the applicant have a history of cocaine misuse?
29	Heroin	yes/no	2	Does the applicant have a history of heroin misuse?
30	Cannabis	yes/no	2	Does the applicant have a history of cannabis misuse?
31	Amphetamines	yes/no	2	Does the applicant have a history of amphetamine misuse?
32	LSD	yes/no	2	Does the applicant have a history of LSD misuse?
33	Other	memo	2	Does the applicant have a history of other substance misuse?
34	Treatment for substance misuse	yes/no	2	Has the applicant received treatment for substance misuse?
35	Current treatment	yes/no	1	Is the applicant currently receiving treatment for substance misuse?
36	Relatives with licences	number	1	Does the applicant have relatives holding licences?
37	Shared firearms with relatives	text	2	Does the applicant share firearms with relatives?
38	Shared storage with relatives	text	2	Does the applicant share storage for firearms with relatives?
39	Relatives with criminal offences	memo	1	Does the applicant have relatives with criminal convictions?

Appendix 5

Example of Threat	Possible risk factors	Sources for risk assessment	Notes
Incompetent use of shotgun or firearm causing accidental injury or death to others	Inexperience, mental health, age-related undiagnosed illness such as dementia or a neurological condition, history of accidents	Age of applicant; use of VAF; applicant's understanding of safety and security of shotgun or firearm during home visit; interview with applicant; GP's report	Dementia a particular concern with an ageing population and the growth of shotgun and firearm ownership. Family and friends may not be aware that a person experiencing dementia or similar has access to firearms in their home.
Violent conduct with shotgun or firearm	Drink or substance abuse; emotional instability; some forms of mental illness; no history of previous licensing/involvement in shooting sports; evidence of attempt to 'work the system' on application; possibly insincere reasons given to own a shotgun or firearm	Application form 201; observation of behaviour, circumstances during home visit; interview answers (e.g. suggesting latent motive of 'self-protection' or desire for dominance)	It has been found in many studies that substance misuse and/or dependence combined mental health issues (particularly psychosis) are statistically correlated with a higher propensity to commit acts of violence (although it is important to note that this remains of low probability, and any violence does not necessarily include the use of a firearm).
Self-harm e.g. attempted or actual suicide	Occupational status of applicant, history of 'mental disorders' (e.g. mood disorders); alcohol and other substance abuse; relationship problems; family history of suicide	Application form 201; the VAF; interview and home visit (e.g. appearance of person, questioning concerning family members), GPs report; proposed security of storage of shotgun or firearm (including when in transit)	Evidence concerning the availability of firearms as a risk factor in suicide are mixed, most countries where research has been conducted showing no association (the prime exception is the US). However, a number of actions are possible to reduce the threat – for example, making quick access to firearm and ammunition difficult, so for example encouraging guns and cartridges to be stored separately, the latter also under lock and key.