SCOTTISH CRIME STATISTICS

- QUALITY ASSURANCE

- August 2016

Contents

QUALITY ASSURANCE OF POLICE RECORDED CRIME DATA

1.   INTRODUCTION

This paper documents the steps undertaken to quality assure data that is captured and published as management information by Police Scotland, and analysed and turned into Official Statistics by the Scottish Government. This includes a summary of the quality checks made at each stage of the data journey, from capture to publication.

The process of producing Official Statistics on police recorded crime is a complex one. Data is collected in real time, as Police Officers respond to incidents and enter information into their Crime Management Systems. This is then updated on a continuous basis as investigations proceed and new information or evidence is obtained. Key decisions are made early in the process, including how to record an incident, whether or not an incident constitutes a crime and if so what the classification of that crime should be for reporting (and ultimately statistical) purposes.

Official Statistics and management information are derived from snapshots of crime management databases. Due to the evolving nature of crime investigations, the timing of data extraction from Police Scotland databases will always have some impact on the resulting figures. A summary of how this affects the production of analysis on recorded crime is included in Stage Three on data revisions.

The current database systems are complex, with data being collected at various sites on different data systems. The quality assurance processes in place are focussed on the accurate capture of data, consistency of recording, and the accurate transfer of processed data into a range of publications and published tables.

Not all crimes are reported to the police, and hence recorded by them. If a crime is left unreported or unrecorded, it will not be contained in the recorded crime statistics[1]. It is also worth noting that further decisions relating to the crime after Police Scotland's involvement e.g. following a court decision, will not be reflected in these data.

The UK Statistics Authority has provided guidance about acceptable levels of quality assurance in respect of administrative data[2]. This paper draws on that guidance, recognising that quality assurance of administrative data is more than just checking that the figures add up. It is an ongoing iterative process to assess the data's fitness to serve their purpose. It covers the entire statistical production process and involves monitoring data quality over time, and reporting on variations in that quality.

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[1] The Scottish Government's Statistical Bulletin "Recorded Crime in Scotland, 2014-15" provides more contextual detail, especially relating to the Scottish Crime and Justice Survey that paints a fuller picture of crime as perceived by victim (both recorded and non-recorded).
[2] http://www.statisticsauthority.gov.uk/assessment/monitoring/administrative-data-and-official-statistics/index.html

This paper should satisfy users that safeguards are in place to measure and report crime statistics, and that steps are in (or continue to be put in) place to improve processes and systems.

Stages in the process

Evidence is structured around the following stages in the 'data journey':

1. Dynamic capture of incident and crime data at source
2. Classifications of crimes and incidents
3. Updating records and revisions analysis
4. Police Scotland internal and external reports – scrutiny and checking
5. Scottish Government quality assurance and publication of Official Statistics on Recorded Crime in Scotland

When considering the Quality Assurance (QA) steps undertaken at each of these stages, relevant aspects of the UK Statistics Authority's Quality Management Actions (from the Quality Assurance of Administrative Data tool kit) have been considered. The following figure highlights the key quality assurance components that are currently in place or are being developed.

Quality Management Actions currently in place or under development

Investigate
- Police Scotland scrutiny of its data
- Scottish Government scrutiny of the data provided
- Crime Registrar's audit
- HMICS audit
- Bias, error and revisions analysis

Manage
- Scottish Crime Recording Board
- Strengthening relationships
- Feedback loops & learning processes
- Publishing audit reports
- Corroborating with other sources

Communicate
- Documentation of the statistical processes
- Regular dialogue between suppliers and providers
- Describe bias and errors to users
- User friendly website
- Statistics related updates for users (via SCOTSTAT)

Stage One
Dynamic capture of incident and crime data at source

This section focuses on the capture of data in real time (as it happens), how the data are used for operational purposes (i.e. not for statistical purposes at this preliminary stage), and the immediate checking procedures that are in place.

Operational process

i. Incident reporting

When a member of the public contacts the police to report a crime, the information provided is logged on an electronic incident recording system. The police assess the circumstances of the incident and respond accordingly. Depending on the information supplied and the outcome of additional inquiries, the incident may result in the creation of one or more crime reports, i.e. recorded crime(s).

As at June 2015, there are six call centres throughout Scotland (Govan, Motherwell, Dundee, Inverness, Aberdeen and Bilston Glen) employing around 1,430 staff, operating 24 hours a day. Each are currently using a number of legacy systems to capture and process information electronically.

There are a number of different incident recording systems currently in use throughout Scotland (a legacy from the pre-Police Scotland era). Most divisions now use the Storm Unity system, and the others are scheduled to move to this as part of the C3 project. This will help ensure consistency of reporting.

The incident recording system is largely used for case management and resource allocation purposes. It captures the necessary information required to determine (in the first instance) whether it is likely that a crime has been committed. When this decision is made, a record is raised on the crime recording system. The two systems operate independently although all crime recorded must have the related incident recorded and the crime record will hold the incident code for cross referral. The incident recording system is not used extensively for statistical purposes, although Police Scotland does provide a breakdown of incident types in their Quarterly Management Information publication[3].

Over the financial year 2014-15, there were over 1.65 million incidents recorded on the systems (around 4,500 per day).

Once raised, an initial assessment of the incident is made and given an initial classification – this might change. Indicators are added such as whether there is a hate element (racism, sexual orientation, etc.), vulnerable persons etc.

Following the initial assessment, there are four outcomes:
1.   No crime committed (no crime report raised);
2.   Associated with another crime (where more than one person reports a crime);

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[3]See Police Scotland – Management Information Report Quarter 4 2014/15 (Table 3) - http://www.scotland.police.uk/about-us/our-performance/

3. Transferred to another division (where the case is dealt with outside the Scottish Police Force or where transferred to another Division who have raised it as a new incident); or

4. Crime committed (crime report raised).

ii Recorded Crime

Once a police officer has decided that a crime has occurred in relation to an incident (note that an incident may have a number of different crimes associated with it) then a crime record is created on the crime recording system. The crime is recorded with an appropriate charge code and the crimes are assigned (a) unique Crime Reference number(s).

A detailed list of Charge Codes, as approved by the Crown Office and Procurator Fiscal Service (COPFS), is maintained and published on a monthly basis by the Scottish Government and circulated to crime registrars, to individuals within Police Scotland and to those within partner justice organisations.

Quality Assurance processes

i. Incidents

When incidents are reported by the public to Police Scotland, the Customer Advisor and Controller will carry out a thorough check of all the information being submitted (or equivalent person if the incident isn't being reported at a police station). This then allows a controller to make a grading decision on the severity of the incident – which will in turn dictate the police response. For the higher graded calls (i.e. those of a more severe nature that may require an emergency response) – a resource will be dispatched to deal with the incident. For the lower graded calls, where an immediate response is not critical, the call may be transferred to the Public Assistance Desk, who will liaise with the caller and may arrange an appointment with an officer as necessary.

In addition to the checks made at the time of the initial report, some divisions also have incident review officers who will assess incidents that have been phoned in to ensure information has been entered and recorded accurately. This tends to focus on high-risk areas, such as victim-based incidents (like violent or sexual crime).

An incident will remain open until it has been closed by the area control room, for onward management within the local division. When an incident has been closed, it must show whether or not a crime has been committed. If a crime has taken place then a crime record must be raised, and cross referred to the original incident (and vice-versa). If no crime has occurred (and the incident has been closed as a no-crime incident) then the record must contain sufficient information to dispel the initial inference of criminality. A record that provides a disposal of 'no complaint' is insufficient to negate any initial suggestion at the time of reporting that a crime had occurred. In some cases the Officer attending may report back the details as to the outcome of the incident to the Control Room, to allow application of the decision directly onto the incident.

HMICS recently conducted an audit of call handling and logging. More information on the outcome of this review is available on their website, with an interim report published on the 3rd September 2015[4] and the final report published on the 10th November 2015[5]. Both HMICS and Police Scotland also carry out regular audits of crime-related incidents, to ensure information has been recorded accurately (See Stage 2). This work also includes sampling those incidents that were closed as non Crimes to ensure this decision was accurate based on there being sufficient information to justify the no crime decision, and, that all crime-related incidents lead to the creation of an associated crime record (covered in more detail below).

ii. Recorded Crime

Once a crime record has been established, this becomes the main vehicle for recording the details of the crime as investigations progress.

The crime record undergoes a significant amount of scrutiny between being raised and filing the record following disposal (i.e. closure of the incident).

An officer first enters the details of the crime (either manually, or by telephone via a dedicated typist) into the crime management system (there are different systems currently in use due to the pre Police Scotland legacy forces). These details include location, time, victim details such as gender, age and address, witness details, and various flags such as alcohol involved, weapons used etc.

Officers are required to complete the initial report as soon as possible, preferably by the end of their tour of duty. There can be circumstances when a crime report is delayed, however the Scottish Crime Recording Standard (SCRS – see page 10 for additional information) states that this delay should not extend beyond 72 hours unless there are exceptional circumstances. All delays in recording crime which extend beyond 72 hours must have an explanation detailed in the incident report.

Once the initial record is raised, it is reviewed by the Crime Management Unit (CMU). Each division has a CMU, consisting of a crime manager, a deputy crime manager, and a supporting team. The CMU reads the circumstances of the case and assesses whether additional information is required to determine what crime has occurred, or whether the number of crimes implied in the record have all been counted correctly. They also consider whether the nature of the crime included requires a different team to the on-scene officer to take forward further investigation of the case (for example sexual crime). For these incidents the CMU will forward the record to that team. The CMU will also remind and prompt other teams within PS to supply their own relevant information as appropriate to a crime record prior to closure (for example forensic information such as finger prints or drug types).

Whilst the CMU may change the type or number of crimes relating to a case – most often they will seek clarification from officers on specific details, to ensure crimes are recorded accurately. From the initial entry of the crime record into the crime

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[4]http://www.hmics.org/publications/independent-assurance-review-police-scotland-%E2%80%93-callhandling-interim-report
[5]http://hmics.org/publications/hmics-independent-assurance-review-police-scotland-call-handling-final-report

management system to the final sign-off, the CMU has the ability to dip into cases and flag up queries and reminders for the necessary information required to sign-off the crime record. Through this process dialogue and feedback will flow between the relevant officers, their supervisors and the CMU – as records are updated and investigations progress. This will continue until such time as the CMU is satisfied that the record can be closed.

Each crime record retains an auditable trail of the queries raised by CMU as the case moves forward – and officers' responses to them. It is important to note that crime records will not be disposed of if the CMU is unsatisfied with how a crime(s) is being defined or counted – and the CMU can ask the Crime Registrars (who audit the quality of recorded crime, see Section 2) to intervene as necessary, to ensure cases are appropriately closed and filed.

The points below illustrate some of the more generic queries or comments that can be raised by the CMU as part of their role of quality assuring crime information.

- In incidents which potentially include multiple crimes – the CMU will remind officers to ensure that information is appropriately cross-referenced with other relevant records, to help ensure the total number of crimes are counted correctly.

- Similar to the above, the CMU will seek to tease out the precise number of crimes in cases where there may be more than one complainer or more than one type of crime. An example could be where a record of vandalism implies a second complainer beyond the main one referred to in the original record (through damage to two people's property). In this case the CMU would seek clarification about what happened to this second person and whether a second crime had taken place. Many incidents can also contain multiple types of crime – such as vandalism, breach of the peace and assault, and the CMU will review these carefully to ensure all crime is being classified and recorded in line with the counting rules and standards.

- In cases involving injuries to a complainer, the CMU will prompt and remind officers to include updates on medical treatment and prognosis - including where insufficient information on injuries has been included in the initial record. This is a critical quality assurance function as the nature of assault-based injuries will determine whether an incident is statistically counted as a Group 1 Violent Crime (i.e. a serious assault) or a Group 6 Miscellaneous Offence (i.e. a common assault).

In addition to the above, many of Police Scotland's crime management systems include built-in flags that will automatically prompt officers to carry out specific functions in relation to certain types of crime. The CMU also reminds officers to notify it if new information comes to light which may require changes to a crime's classification. Further updates should be timely and complainers should be kept informed.

In a separate exercise, a case officer from the case management team will prepare a final report on the case for the Procurator Fiscal – albeit they do not review the information in the actual crime record.

The above section demonstrates that throughout the process of recording incidents and crimes, a considerable amount of scrutiny takes place involving a large number of officers and dedicated staff, to ensure crimes are recorded consistently and ethically.

<u>Stage Two</u>
Classifications of Crime and Incidents

This stage covers how a crime is defined. There are two crucially important elements to recording crime data for statistical and counting purposes. One is determining whether an incident involves a crime (or more than one crime), thus affecting the number of crimes counted. The other is determining the nature of crime and classifying it under the strict definitions in operation.

Two important aspects are ensuring consistency of recording across Scotland (particularly relevant due to the re-organisation of Police Forces in Scotland and the establishment of Police Scotland in 2013) and consistency of recording over time (reflecting the changing nature of crime and how it's recorded).

Setting standards

Crime recording practice is governed by the Scottish Crime Recording Standard[6] (SCRS). The SCRS provides a framework for deciding when an incident should be recorded as a crime, what type of crime should be recorded and how many crimes should be counted.

The SCRS was introduced throughout Scotland on 1 April 2004. It was produced by the Scottish Crime Registrars' Group and agreed by the Association of Chief Police Officers in Scotland (ACPOS) following research that identified the need to develop a more victim centred approach to crime recording (as developed in England & Wales and other countries internationally). Further details are available in the User Guide to Recorded Crime in Scotland[7].

The collective responsibility for maintaining and setting the SCRS lies with the key agencies that produce the statistics, working together on a collaborative basis. They do this primarily through the Scottish Crime Recording Board – the successor body to the Scottish Crime Registrars Group.

Scottish Crime Recording Board

The role of the Scottish Crime Recording Board (SCRB) and <u>overall purpose</u> is 'To act as the guardian of, and ultimate decision maker on, issues related to the Scottish Crime Recording Standard'. It has three high level objectives: to support the production of accurate and objective statistics on crime in Scotland; to ensure crime data are comprehensive, consistent, transparent and trustworthy; and, to take into account the needs of both users and providers in the production of crime statistics, and to ensure this process is undertaken in a manner consistent with the Code of Practice for Official Statistics[8].

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[6]Scottish Crime Recording Standard -
http://www.scotland.police.uk/assets/pdf/138327/232757/scottish-crime-recording-standard?view=Standard
[7] http://www.gov.scot/Topics/Statistics/Browse/Crime-Justice/PubRecordedCrime/UserGuide/pdf
[8] http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html

The SCRB is chaired by the Scottish Government, with representatives from Police Scotland (including the National Crime Registrar), Scottish Police Authority (SPA), Crown Office and Procurator Fiscal Service, Her Majesty's Inspectorate of Constabulary Scotland (HMICS), British Transport Police, Ministry of Defence Police, and other external stakeholders as appropriate.

Further details relating to the functions of the SCRB and its supporting subgroups are available on the Scottish Government (SG) website[9]. The first function of the SCRB is to oversee the maintenance and development of the SCRS (including the rules that underpin the counting of crime) and to approve all changes to it (a Technical Group, chaired by Police Scotland, supports the Board in this role).

The actions agreed by the SCRB and the outcomes to those actions are agreed between members, documented and made public[10]. This is to provide reassurance that changes in classifications, aggregation and methods are discussed and agreed openly by key stakeholders for the wider benefit of users.

Quality Assurance – Auditing Adherence to the Standard

The SCRS also requires that regular audits of crime recording are carried out to check that incidents are recorded correctly and to check whether recorded crimes have been counted and classified correctly.

There are two regular audits of the data with respect to compliance with the SCRS: the first is a systematic and routine check by the National Crime Registrar; the second, an independent regulatory audit by HMICS.

The National Crime Registrar's Audit

The ultimate responsibility for ensuring compliance with the SCRS (and associated counting rules) lies with the Chief Constable of Police Scotland, discharged on a daily basis by the appointed Crime Registrars. All crime records are subject to the rules set out in the SCRS which are under constant review. Updates will normally be effective from 1 April each year.

The Crime Registrar teams are Police Scotland Head Quarter staff, who operate independently of Divisions. In addition to their function of ensuring compliance with the SCRS, they provide guidance and training for the Force as a whole.

Each of the thirteen Police Scotland divisions has a Crime Manager who is responsible for local crime recording practices in their respective divisions. The National Crime Registrar and Crime Registrars are responsible for conducting three types of audit of recording practices:

- Audit 1 – Crime Related Incidents and Associated Recorded Crime (Biannual)
- Audit 2 – Recording of Specific Crime Types (Divisional Crime Audit) (Quarterly)

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[9]http://www.gov.scot/Topics/Statistics/Browse/Crime-Justice/PubRecordedCrime/SCRB
[10] http://www.gov.scot/Topics/Statistics/Browse/Crime-Justice/PubRecordedCrime/SCRB/SCRBmeet

- Audit 3 – Recorded Crime Classification to 'No Crime' (Bi-annual) (these are reversals of an original assumption that an incident was a crime, based on additional information – for example a broken window may at first sight be considered an act of vandalism but further investigation confirms it was an accident).

The sample size for the National Crime Registrar's audit typically includes over 2,000 incidents and over 1,500 crimes (for each biannual audit). The quarterly Divisional Crime Audit includes over 3,000 crimes and the biannual 'No Crime' Audit reviews almost 1,000 reclassification decisions.

This ongoing scrutiny provides an additional checking function highlighting consistency or differing practices between divisions, identifying common occurring errors where more explicit guidance might be necessary and differing performance between individuals' judgements. The National Crime Registrar provides a quarterly Bulletin for all Police Scotland staff, based on the results of previous audits. This offers advice and practical help, gleaned from his analysis. Each audit is followed up with targeted training and support, whereby a report on each division's results is prepared – to facilitate discussions with the local crime management team around any problems identified. The Registrars also retain the ability to conduct short-term follow up audits if significant room for improvement is flagged up for a particular division or crime type.

The results of these audits are published every six months through the Audit and Risk Committee of the Scottish Police Authority[11]. In addition to this, the SCRB receives reports from the National Crime Registrar on the internal audit programme of police crime and offence data, and progress made in meeting recommendations from HMICS and previous internal audits. This gives everyone involved in the process of quality assuring and (or) producing the Official Statistics an opportunity to discuss the results of these audits and raise any queries.

The results of these audits should also be seen in perspective with the other quality checks in place, especially the daily checking of all current records by the divisional supervisors.

Further technical details about these audits are provided in Annex A.

The HMICS Audit

HMICS carries out regular audits of recorded crime. The latest was published in November 2014[12]. This provides an independent assessment of the state, efficiency and effectiveness of crime reporting by Police Scotland and the extent to which recording practice complies with the SCRS. It tests the accuracy of both incident and crime recording in Scotland.

The 2014 Audit showed that the quality of most incident and crime recording decisions by Police Scotland is good. 92% of incidents were closed correctly (Test 1)

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[11] http://www.spa.police.uk/meetings-events/audit-and-risk-committee/
[12] http://www.hmics.org/publications/hmics-crime-audit-2014

and 94% of crime was counted and classified correctly (Test 2). The audit also showed that a few divisions had performed very well, achieving high compliance rates for all or most crime types. Conversely, a few divisions had lower performance.

Following the 2014 audit HMICS gave all divisions a Divisional Improvement Plan, and every quarter the National Crime Management Forum meets to review progress. This body is chaired by a Police Scotland Detective Superintendent, who is also a member of the SCRB.

In 2015 HMICS conducted an Audit of Call Handling by Police Scotland, part of which included a review of whether incidents phoned in to the Police had been closed correctly (i.e. a similar exercise to Test 1 in the 2014 Crime Audit). This found that 95.1% of incidents were closed correctly in accordance with the SCRS. In a letter to the UK Statistics Authority, Derek Penman (HM Inspector of Constabulary in Scotland) notes that while the results are not directly comparable to those in Crime Audit 2014, it is nevertheless worth highlighting that the compliance rate in the call audit (95.1%) was higher than in the latest crime audit (92%). HMICS believe this improvement reflects work Police Scotland has undertaken in response to their previous recommendations.

HMICS will conduct another audit of Crime Recording in 2016 and have sought initial views from the SCRB regarding the scope of this audit. They will continue to consult with the SCRB and other stakeholders as this work develops.

Conclusion

Evidence from the various audits conducted suggests that recorded crime accuracy appears to be improving over time at the national level (although there remains some variation at the divisional level).

The value of both Police Scotland and HMICS audits is of most benefit when used constructively to improve officers' understanding of the crime classification system and how to get the classifications correct, first time. Internal circulations within Police Scotland suggest ongoing improvement, and as part of its standard functions the SCRB will continue to consider how all the audit activity undertaken can best inform and provide assurance to users of both Police Scotland's management information and the published official statistics.

<u>Stage Three</u>
Updating records and revisions analysis

This stage considers how records can change over time as the information is refined. It considers how to present statistics derived from snapshot information and how such changes could be reported on.

Operational processes

One of the challenges of the recorded crime statistics system is that the databases are dynamic, i.e. constantly changing in real time as police investigations develop. Care is taken to analyse data from well regulated snapshots so to ensure consistency of reporting.

Most aspects of recording crimes are subject to revisions from the initial recording of an incident to the final recording of a specific crime. Details of the crime record might change as investigations progress and intelligence is gleaned. Once the record is effectively finalised, no further changes take place to the record, even though other related information might provide a contextual update – i.e. if a court comes to a different decision than the police.

Quality Assurance procedures: Police Scotland Management Information

Police Scotland advise that when presenting analysis based on quarterly snapshots of data, care needs to be taken when interpreting the results, given amendments to crime and offence records can always arise after the initial record is entered into Crime Management Systems. Care needs to be taken when making statements, especially about recent trends, as there will always remain the possibility that figures could be revised in future snapshots of the data.

Police Scotland produced a revisions analysis for the first time in June 2015, which accompanied their Management Information report for 2014-15 Quarter 4[13]. This note provided users with details about how the latest crime figures for earlier quarters had been revised since the publications a quarter and a year earlier. This analysis demonstrated how crime statistics settle down over time and that it can take around a year to converge to the near-final estimates (accepting that on some rare occasions there may be revisions to longer term data).

Revisions are rarely as a consequence of mistakes or the correction of errors. They are more concerned with the refining of record-level data as investigations and other matters progress. Typical cases occur in instances such as: during the investigation of a potential crime, further evidence or information comes to light leading to a decision that no crime has taken place; or the crime code changes as more information becomes available. There are other relevant considerations which relate to the timing of incidents and their consequences – for example a serious assault or attempted murder may be reclassified to a murder if the victim dies at a later stage - as a consequence of the assault.

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[13]http://www.scotland.police.uk/assets/pdf/138327/232757/management-information-revisions-analysis-quarter4-2014-15

15

Quality Assurance procedures: Official Statistics on Recorded Crime

The Scottish Government's 2014-15 Official Statistics bulletin included analysis on the extent of revisions made to recorded crime data following its original submission to SG Statisticians by Police Scotland. This compared the 2013-14 crime and offence data extracted by Police Scotland in April 2014 (and published in November 2014) with the same set of data submitted one year later (i.e. 2013-14 crime and offence data extracted in April 2015).

This analysis confirmed that the extent of further amendment to police crime and offence records is <u>minimal</u> at the Scotland level – giving users confidence that the previously published statistics for 2013-14 provided a sufficiently accurate measure of police recorded crimes and offences.
http://www.gov.scot/Publications/2015/09/5338/318222

In light of this analysis and the Scottish Government's ability to request further cuts of the same data at future time points if desired, the Bulletin also outlined statisticians' plans to assess whether any amendment to the Official Statistics revisions policy should be made. The December 2015 meeting of the SCRB considered this topic and concluded that simplicity, consistency in time series analysis and the ability to publish statistics promptly were the most important factors. As such it has been concluded that the current practice, whereby the Scottish Government continues to publish annual datasets which are downloaded immediately following the financial year to which they relate, will continue.

Future reporting

It is important that the impact of the ongoing revisions described above continues to be monitored - as an aid to quality assurance of the information. This relates both to Police Scotland's management information reports and the Scottish Government's Official Statistics. Where relevant, explaining the extent of changes in the data is important to help user understanding, especially when considering changes over time.

The Official Statistics will continue to be based on snapshot information extracted immediately following the year to which they relate (i.e. the 2015-16 statistics will be based on data extracted and submitted by Police Scotland in April 2016). By comparing these figures with the equivalent snapshot in earlier years, statisticians can ensure that no systemic bias is introduced, despite any actual change in the data. There are therefore no planned revisions to report for future releases of the Official Statistics – notwithstanding that corrections to past data will always be made or highlighted to users where an error is discovered.

As an additional check, future Official Statistics releases will update the revisions analysis outlined at the top of this page – to seek confirmation that the extent of further amendment to data once it has been submitted to the SG remains minimal at the Scotland level and consistent with earlier years.

<u>Stage Four</u>
Police Scotland internal and external reports – scrutiny and checking

This stage provides details on the Management Information (MI) reports Police Scotland (PS) produce for both internal purposes and public use. It also provides details of the data scrutiny and quality assurance arrangements in place to mitigate the risk of errors occurring in the data extraction and report preparation processes.

Publications and Management Information Reports

PS publishes statistical information on a quarterly basis in the form of MI releases,[14] typically around two months after the period to which they relate. These include:

- A quarterly MI report for Scotland as a whole
- A quarterly MI Report for each Council Area
- A quarterly MI Report for each Police Division
- A note providing details of revisions since the previous report (Scotland)

The figures in these reports are presented as cumulative totals for the year to date, together with comparative data for the previous and earlier years. PS's revisions policy is to update all figures from those used in earlier publications so that the latest available figures are available in each new MI Report. These MI releases are <u>not</u> classified as official statistics and PS is not a registered producer of official statistics. They are produced to demonstrate PS's commitment to transparency (alongside other regular reporting activity to the Scottish Police Authority).

The data for these releases is also the main source of information for the Scottish Government's Recorded Crime in Scotland publication (an annual Official Statistics product). The figures in the Q4 MI release will in theory be consistent with the annual official statistics publication (although they may end up differing as a consequence of amendments following quality assurance carried out by Scottish Government statisticians – see Stage 5).

PS also produces a wide range of reports for its own internal purposes. These are used for assessing performance, measuring progress towards targets, and for management and resource allocation. These include:

- A Weekly Executive Summary
- A Weekly Divisional Summary
- A Weekly Force Tasking and Performance Board Report
- A Divisional Monthly Tasking and Performance Board Report
- Monthly Local Authority Scrutiny Board Reports

In addition, PS produces internal reports on topical issues such as Wildlife Crime and Stop & Search. The Stop & Search data are now reported publicly[15].

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[14] http://www.scotland.police.uk/about-us/our-performance/
[15] http://www.scotland.police.uk/about-us/police-scotland/stop-and-search-data-publication

Scrutiny and Quality Assurance processes

This section provides details about the scrutiny and quality assurance PS carry out in the process of preparing reports for public and internal consumption. This is set out in three sections: (a) routine data scrutiny and checking (b) diagnostic and analytical scrutiny; and (c) research and cross referencing of data.

(a) Routine data scrutiny and checking

There are currently a range of IT systems used to collect crime and incident data from across Scotland. The forthcoming moves to collect incident data consistently using the Storm Unity system will simplify some parts of the collection process. The current ScOMIS system was developed by PS to pull together crime data from the legacy forces and to aggregate the information needed for national reporting purposes.

For most reports and ad-hoc analyses produced by the Statistics section of the Analysis and Performance Unit (APU) within PS, the information is extracted from ScOMIS using SQL or the SPSS package. Where tables are routinely prepared (weekly, monthly, quarterly and annually) for the numerous MI reports (produced at force, division, council and ward levels), SPSS is used to process the data. Results are often exported to Excel as an intermediary step before preparing the final published product.

The SPSS code is often complex and well documented, with considerable attention to detail, e.g. re-coding records to correct recording differences between divisions. As part of the processing of data, the SPSS code often includes routines to produce frequencies and cross-tabulations of existing and derived variables. This acts as a double-check for potential errors occurring as a result of recoding and aggregation, mitigating the risk of errors being introduced in the processing stage.

Processed data are scrutinised carefully when translated into final reports. This involves consistency checking between tables, ensuring consistency between products, and checking totals, percentages etc. within tables are calculated correctly. Reports are peer reviewed and signed off at a senior level prior to publication.
It is important that the data underpinning publications is held in a snapshot form (so that the content of publications can be replicated) and that the option remains for additional historical scrutiny and analysis if required.

Reports are shared widely across the police service and with relevant partner bodies (such as local authorities and the SPA). Feedback received may include queries on the data itself, but more often will ask for reasons behind levels or changes in the data, in order to understand trends or unusual figures.

It is rare for errors to be made in publications. When made, these are corrected either immediately or in the next release (depending on severity and frequency).

(b) Diagnostic and analytical scrutiny

A considerable amount of scrutiny of data is conducted within PS, mainly looking at emerging trends, geospatial analysis and outlier/exception spotting. Much of this analysis feeds into internal strategic reports that provide intelligence complimenting the data. It is also worth noting that Police Scotland is currently developing a range of diagnostic products used to interrogate its data and analyse trends. Examples of this work include;

- Grid View - A GIS product used to study events on a monthly basis by force and division. The data held relates to where crimes occur, allowing PS to assess where the presence of police officers might prove the most effective deterrent.
- Business Intelligence Toolkit (BIT) – The BIT's aim is to deliver operationally useful intelligence across the organisation using an analytical approach built on data mining principles. Data are extracted from the ScOMIS system, processed using SPSS and the user front-end is carried out in Excel. This provides trend analysis for a range of geographies for crime relating to anti-social behaviour and violence. The main purpose is to identify areas of concern at low-level geographies, where trends are out of line with similar geographic areas. Users may apply a range of filters to allow for more focused investigation.
- Exception Reporting - Regular business intelligence analysis is carried out by staff in APU to understand trends for a range of crime types and performance indicators. This analysis is used to highlight both high and low levels of data in real time.

(c) Research and Cross-referencing of data

The incident recording system (STORM Unity for most divisions) gathers information about the incident leading to the decision of whether a crime has been committed, before opening a record in the crime management system. The crime record holds the incident reference numbers, so that crimes may be related to incidents. All crime should be associated with an incident record. Many incidents recorded do not result in a crime record and a unique incident may generate a number of different crimes.

At present the quarterly MI reports provide a table by total force, division and local authority on the number of incident types for the year to date compared with the previous year's figures for a select range of incidents.

As there is more than one incident recording system currently in operation, in depth analysis is difficult and subject to a degree of interpretation, as different divisions record events in different ways. However there remains scope to compare the number of crimes recorded to the number of incidents, as an additional level of quality assurance. This is something that both APU (and SG statistician's for the Official Statistics) continue to keep under review.

Stage Five
Scottish Government Quality Assurance and publication of Official Statistics on Recorded Crime in Scotland

Scottish Government statisticians receive data from Police Scotland (PS) on a quarterly basis. The data are in the form of aggregate information, showing the number of crimes and detections recorded each quarter by crime code for each local authority in Scotland. This data extract is referred to as MKQ (Made Known Quarterly) as the records are of crimes and offences that have been brought to the attention of the police.

The data supplied is based on an extract from PS's live database - taken on the second of the month following the end of each quarter. The dataset contains revisions to earlier quarters, most often due to details changing as crime investigations progress (see Stage Three), as well as figures for the latest quarter.

Data is used to produce the annual statistical bulletin series "Recorded Crime in Scotland"[16] and to help with answers to ad-hoc queries, parliamentary questions and Freedom of Information requests. The statistical bulletin provides users with valuable insight into how the volume and nature of crime in Scotland changes over time. The latest publication was in September 2015, providing detailed information about crime trends over the past ten years to 2014-15, and graphs showing trends back to 1971.

Quality Assurance (QA) processes

Whilst Scottish Government statisticians investigate the data provided in detail each quarter, their main focus is on the end-year aggregates for inclusion in the annual statistical bulletin. The QA checks take two forms: an in-depth look at how the current years' figures compared with those of the previous year; and a trends analysis looking for irregularities in time series data for broad aggregates.

Detailed current year checks

These checks are generated by the Scottish Government's SAS system and used to process the long-term current and historic information for publication. The system compares the latest year's figures to previous years for crime codes, by each local authority. It highlights instances where the data might warrant further investigation based on whether all the following conditions are met:

- The absolute percentage difference is greater than or equal to 25%
- AND the absolute difference in number is greater than or equal to 20
- AND the previous year's figure was greater than or equal to 10.

This generates a detailed list of queries that the Scottish Government sends to PS for further investigation. This results in a report back explaining reasons for the differences based on their knowledge and intelligence.

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[16]http://www.gov.scot/Topics/Statistics/Browse/Crime-Justice/PubRecordedCrime

Manual long term analysis

This check looks at longer term trends at a crime group level for each local authority. This analysis highlights unusual breaks in the trend, prompting further investigation.

In response to the queries raised from the above checks, PS provide SG Statisticians with explanatory commentary, which is then reflected where appropriate in the statistical publication. When carried out for the 2014-15 bulletin, this exercise did not identify any issues with the data requiring a re-run or update of the figures provided. Following the conclusion of correspondence with PS, if SG Statisticians believe further investigation is required to understand the nature of any unusual or significant changes in the data, they have the option of raising this through the SCRB (see page 10). This could lead to the Board asking the Crime Registrars to conduct a tailored audit of the relevant crime type to determine whether any change in recording practice had affected the final statistics. Further to this, statisticians would also seek to explore other sources of information to assess if they corroborate any new or developing trends in recorded crime (covered in more detail below).

Corroborative analysis

Within the bulletins on recorded crime, Statisticians will provide comparisons with other published data where this is felt to be of value to users. To date the main focus has been on comparisons with the Scottish Crime and Justice Survey

a. Comparison with the Scottish Crime and Justice Survey (SCJS)

The Scottish Government's Recorded Crime bulletin contains a section (Chapter 4) – *Putting recorded crime in context – A comparison with the Scottish Crime and Justice Survey (SCJS).* At the time of the last publication (2014-15), the latest published SCJS data related to 2012-13. Updated analysis was produced for users when the SCJS results for 2014-15 were published on the 15th March 2016 (see Section 3[17]).

b. Homicide

In addition to the Recorded Crime Bulletin, the Scottish Government also publishes an annual bulletin on Homicides in Scotland – the latest "Homicide in Scotland, 2014-15"[18] was published on 29 September 2015. The data used in this bulletin are collected separately from the data included in the Recorded Crime in Scotland bulletin where the data are extracted from police recording systems at different time points. In this bulletin, homicide cases are included against the year in which the incident that led to the homicide is first recorded by the police. This is not necessarily the year in which the victim dies, the year in which the perpetrator is brought to trial for the crime, or the year in which the case is finally disposed of by the courts. This leads to minor differences between the figures reported in the Recorded Crime in Scotland bulletin and the Homicide publication, as well as those reported by PS. This is explained in greater detail in the Recorded Crime in Scotland publication.

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[17] http://www.gov.scot/Publications/2016/03/5269/7
[18] http://www.gov.scot/Publications/2015/09/8172

c. Fire-raising

The 2014-15 bulletin included new analysis comparing the number of crimes for fire-raising collected by PS with data on the number of fires attended by the Scottish Fire and Rescue Service (SFRS). The SFRS took over responsibility for publishing these statistics as of the 2014-15 reporting year[19]. Whilst it is not possible to make direct comparisons between the two sources (as many fires are caused accidentally rather than as a result of a crime, and a fire may have ended before SFRS was required to attend), both relate to how Scotland's emergency services respond to fire. As such it would be anticipated that both should show similar trends over time. The analysis in the bulletin confirmed this was the case – with the same trend of significant reductions in activity apparent for both the police and fire services. This provided an additional level of assurance on the PS data regarding fire-raising.

d. International or sub national comparisons

Reassurance may also be gained if similar trends witnessed in Scottish data are seen by other countries, particularly those in the rest of the United Kingdom (accepting that definitions and counting rules are likely to be different). Shared knowledge and collaboration can lead to greater intelligence and insight into the data and the trends they show. One example is the current growth in the number of sexual crimes recorded by the Police, where the most recent bulletin provided users with additional context on this growth, reflecting that it was likely to be as a result of cross-UK influences rather than a specifically Scottish issue. Some caution should always be exercised with this kind of analysis – for example the Office for National Statistics have noted that recent increases in recorded crime in England & Wales may be a result of changes to recording practice, something which does not relate to the Scottish statistics.

Future Analysis

Scottish Government statisticians will continue to scope out further sources of information for new corroborative analysis in future bulletins, including a plan to incorporate comparisons of recorded crime data on assaults with related data on hospital admissions. This will be included in the 2015-16 bulletin, along with updates to the existing analysis outlined above.

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[19] http://www.firescotland.gov.uk/about-us/fire-and-rescue-statistics.aspx

ANNEX A

Details of Police Scotland Quality Audit Methodology

This annex sets out the types of audits that PS carries out. The vast majority of the PS internal audit function is a regular and systematic audit. At an agreed point of time every six months, an audit is undertaken by each Division using the same selection criteria, from which results will be collated to provide a snapshot of PS compliance with the SCRS (including the counting rules).

Types of Regular Audit

Police Scotland conducts three types of internal audit that tests the compliance with the SCRS:
- Audit Type 1: Crime Related Incidents and Associated Recorded Crime
  - Conducted biannually by crime registrars.
  - This audit type contains two tests
    - Test 1 – Correct assignment of an incident to crime or no-crime
      - Records misclassified or containing insufficient evidence to underpin the classification fail the audit
    - Test 2 – Correct classification of the crime type
      - Tests the correct application of the standards – crimes incorrectly classified in any way fail the audit.
- Audit Type 2: Recording of Specific Crime Types (divisional crime audit)
  - Conducted quarterly by Crime managers
  - Tests the correct application of the standards – crimes incorrectly classified in any way fail the audit.
- Audit Type 3: Crime records reclassified to no crime
  - Conducted biannually by Crime registrars
  - Tests the correct application of the standards – records wrongly reclassified to no crime fail the audit

Timing of Audits

In order to allow each of the 13 divisions a reasonable period of time to ensure that records are complete and compliant with the SCRS, PS's internal audits are generally undertaken three months after the date of the incident/crime. At the time of the audit, any records incomplete are audited based on the information available to the Crime Registrars or Crime Managers.

Sampling Regime

Audit 1
The audit sample was selected from Command and Control incidents over a specific four day period with initial call types CR-60 to CR-79 within the crime category, and incidents with initial call types ASB-58 Hate Crime, PW-40 Domestic Incident and PW-76 Child Protection. The incident sample selected for audit ensured, working to a 95% confidence level with a confidence interval of +/- 3%, that the sample audited was statistically representative of all incidents of this type recorded during the four day audit period. A formula was applied to the total number of incidents per

Command Area and apportioned out between Divisions in the Command Area in order to obtain sample sizes. These were subject to a minimum of 100 and a maximum of 300 per Division.

Audit 2
Specific sampling fractions were selected for various crime categories (domestic abuse, rape, assault, Groups 1-4, and other). While not as statistically representative of all records within the audit period as Audit 1, the sample sizes in Audit 2 were weighted to take into account higher volumes of crime being recorded in some Divisions subject to a minimum of 100 records and a maximum of 300 records.

Audit 3
The sample size in Audit 3 were weighted to take into account the higher number of records classified to "No Crime" in some Divisions subject to a minimum of 50 and a maximum of 100.

Audit Sample Formula

The formula for selecting the size of the sample selected is based on a standard statistical calculation. This is adjusted so that there is a minimum and maximum number for each division. The formula make an assumption that the estimated probability of misclassification is 50% (to maximise the estimate of the standard deviation - the actual realised estimates are more in the region of 90-95% compliance)

Consistency and Cross Scrutiny of Audits

Records of all audits undertaken are maintained by Crime Registrars. This enables the Police Scotland to demonstrate a high level of integrity for external scrutiny. In cases of non-compliance, brief details of the incident and/or crime record number, reason for non-compliance, and corrective action taken, must be recorded. In order to achieve greater transparency and consistency within the audit regime, divisions agree to co-ordinate their divisional crime audits so that each audit may be scrutinised by a Crime Registrar from a neighbouring force.

This scrutiny programme is viewed as an ideal way for Divisions to learn from and support each other in building a consistent approach to auditing compliance with the SCRS