Operational Safety Training Use of Force Dashboard: Technical Notes

Contents

GENERAL CAVEATS:

- Data Source(s): SCOPE.

- Effective from November 2018 Police Scotland transitioned to a new data collection process for Use of Force data, as such data is only available from 1 April 2019 onwards. As full data is not available prior to 2018/19 this cannot be compared.

- All statistics are provisional and should be treated as *management information*.

- Data extracted using 'Date of Incident''

- The fiscal year runs from 1 April to 31 March.

- Data will be refreshed once per month.

PERFORMANCE OVERVIEW

Page 1	PERFORMACNE OVERVIEW
Visual: Table	**TITLE: Total Reports**
Explanation	**To allow the users to quickly see the number of use of force reports this year, last year and the 3 year mean.**
Process / Calculation	**This Fiscal Year** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month. **Previous Fiscal Year** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month and previous fiscal year. **5 yr mean** = The Count of Rows in 'UoF Fact Table' previous five fiscal years / 5 from the 1 April to end of previous month.
Date Used for Calculation	Date of Incident
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports.
Data Source	**SCOPE/APU SharePoint**

Page 1	PERFORMACNE OVERVIEW
Visual: Table	**TITLE: Total Tactics**
Explanation	**To allow the users to quickly see the number of use of force tactics used this year, last year and the 3 year mean.**
Process / Calculation	**This Fiscal Year** = Count of Use of Force ID in Tactics Table 1 April to end of previous month. **Previous Fiscal Year** = Count of Use of Force ID in Tactics Table 1 April to end of previous month and fiscal year. **5 yr mean** = The Count of Use of Force ID in Tactics Table previous five fiscal years / 5. 1 April to end of previous month. **This Fiscal Year Effectiveness Rate** = $\dfrac{\text{Count of Use of Force ID in Tactics Table where was force effective = 'Y'}}{\text{Count of Use of Force ID in Tactics Table}}$ **Previous Fiscal Year Effectiveness Rate** = $\dfrac{\text{Count of Use of Force ID in Tactics Table where was force effective = 'Y'}}{\text{Count of Use of Force ID in Tactics Table, previous fiscal year}}$ **3 Year Effectiveness Rate** = Cumulative Previous 3 fiscal years where was force effective = 'Y'

	Cumulative total tactics previous 3 fiscal years *100
Date Used for Calculation	Date of Incident
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • More than one tactic can be recorded per use of force report • It is difficult to determine what tactic is associated with other parts of the dataset. E.g. having multiple subjects and multiple tactics it cannot be determined which tactic was effective against a specific individual – only that a tactic on the report was effective.
Data Source	SCOPE / APU SharePoint

Page 1	PERFORMACNE OVERVIEW
Visual: Multiple Row Card	**TITLE: Top three Impact Factors**
Explanation	**To allow users to quickly see what the top 3 impact factors were in the use of force in the current fiscal year.**
Process / Calculation	**Top 3 Impact Factors** = Count of Use of Force ID in Impact Factors From Table 1 April to end of previous month, this fiscal year. Using TOPN 3.
Date Used for Calculation	Date of Incident
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • More than one impact factor can be recorded per use of force report • Can have more than 3 values 3 when there is a tie. • I is difficult to determine what impact factor is associated with other parts of the dataset. For example, having multiple subjects and multiple impact factors it cannot be determined which impact factor was is related to a specific individual – only that a tactic on the report was effective.
Data Source	SCOPE / APU SharePoint

Page 1	TOP THREE LOCUS TYRES AND TACTICS
Visual: Multiple Row Card	**TITLE: Top three locus types and tactics**
Explanation	**To better allow the user to quickly see what the top 3 locus types and tactics used have been for use of force.**
Process / Calculation	**Top 3 Locus Types** = Count of Use of Force ID in Locus Table. From 1 April to end of previous month, this fiscal year. Using TOPN 3. **Top 3 Tactics** = Count of Use of Force ID in Locus Table. From 1 April to end of previous month, this fiscal year. Using TOPN 3.
Date Used for Calculation	Date of Incident

Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • More than one impact factor can be recorded per use of force report • Can have more than 3 values 3 when there is a tie. • I is difficult to determine what Locus types and tactics are associated with other parts of the dataset. For example, having multiple subjects and multiple locus types / tactics it cannot be determined which impact factor was is related to a specific individual – only that a tactic on the report was effective.
Data Source	SCOPE / APU SharePoint

Page 1	PERFORMANCE OVERVIEW
Visual: Table	TITLE: Day and Time Heatmap
Explanation	A matrix table with the incident hour as the row at the day of the week in the columns. This table allows the user to say the hour and the day of the week where officers/staff used Use of Force for the current fiscal year.
Process / Calculation	TOTAL = Count of Rows in 'UoF Fact Table' 1 April to end of previous month for the current fiscal year.
Date Used for Calculation	Date of Incident
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports.
Data Source	SCOPE / APU SharePoint

SUMMARY STATS

Page 2	SUMMARY STATS
Visual: Table	TITLE: Use of Force Reports Summary Table
Explanation	This table provides summary statistics Use of Force data based on the total reports, for the current year, the previous five years and the 3 year mean.
Process / Calculation	**This Fiscal Year** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month. **Previous Fiscal Years** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month and previous fiscal year(s). **5 yr mean** = The Count of Rows in 'UoF Fact Table' previous five fiscal years / 5 from the 1 April to end of previous month.
Date Used for Calculation	Date of Incident
Data Limitations	The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports.

Data Source	SCOPE / APU SharePoint

Page 2	**SUMMARY STATS**
Visual: Line	**TITLE: Use of Force Total Reports Time Series**
Explanation	**This line chart displays the total use of force reports this fiscal year, the previous fiscal year and the 3 year mean by month.**
Process / Calculation	**This Fiscal Year** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month. **Previous Fiscal Years** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month and previous fiscal year(s). **5 yr mean** = The Count of Rows in 'UoF Fact Table' previous five fiscal years / 5 from the 1 April to end of previous month.
Date Used for Calculation	Date of Incident
Data Limitations	The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports.
Data Source	**SCOPE / APU SharePoint**

TACTICS

Page 3	TACTICS
Visual: Card	**TITLE: Total Tactics Used This Fiscal Year**
Explanation	**The top card shows the total number of the tactics used this year.**
Process / Calculation	**This Fiscal Year** = Count of Use of Force ID in Tactics Table 1 April to end of previous month.
Date Used for Calculation	Date of Incident
Data Limitations	- The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. - More than one tactic can be recorded per use of force report - It is difficult to determine what tactic is associated with other parts of the dataset. E.g. having multiple subjects and multiple tactics it cannot be determined which tactic was effective against a specific individual – only that a tactic on the report was effective.
Data Source	**SCOPE / SharePoint**

Page 3	TACTICS
Visual: Card	**TITLE: Total Tactics Used Previous Fiscal Year**
Explanation	**The top card shows the total number of the tactics used this year.**
Process / Calculation	**Previous Fiscal Year** = Count of Use of Force ID in Tactics Table 1 April to end of previous month and fiscal year.
Date Used for Calculation	Date of Incident
Data Limitations	- The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. - More than one tactic can be recorded per use of force report - It is difficult to determine what tactic is associated with other parts of the dataset. E.g. having multiple subjects and multiple tactics it cannot be determined which tactic was effective against a specific individual – only that a tactic on the report was effective.
Data Source	**SCOPE / SharePoint**

Page 3	TACTICS
Visual: Card	**TITLE: Total Tactics Used Five Year Mean**
Explanation	**The top card shows the mean tactics used from the previous 3 fiscal years (excluding the current fiscal year)**
Process / Calculation	**5 yr mean** = The Count of Use of Force ID in Tactics Table previous five fiscal years / 5. 1 April to end of previous month.
Date Used for Calculation	Date of Incident

Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • More than one tactic can be recorded per use of force report • It is difficult to determine what tactic is associated with other parts of the dataset. E.g. having multiple subjects and multiple tactics it cannot be determined which tactic was effective against a specific individual – only that a tactic on the report was effective.
Data Source	SCOPE / SharePoint

Page 3	TACTICS
Visual: Table	TITLE: Use of Force Effectiveness Rate
Explanation	This clustered bar chart highlights the tactics used for the current fiscal year, the previous fiscal year and the 3 year mean. It only includes tactics grouped under the headings: • **Handcuffs Used** • **Empty Hand Strikes / Restraints** • **Fasttraps Used** • **Spit Hood / Mask Used** • **Baton Used** • **Pava Used**
Process / Calculation	**This Fiscal Year Effectiveness Rate** = $$\frac{\text{Count of Use of Force ID in Tactics Table where was force effective = 'Y'}}{\text{Count of Use of Force ID in Tactics Table}}$$ **Previous Fiscal Year Effectiveness Rate** = $$\frac{\text{Count of Use of Force ID in Tactics Table where was force effective = 'Y'}}{\text{Count of Use of Force ID in Tactics Table, previous fiscal year}}$$ **Handcuffs Used =** • HANDCUFFING: BACK TO BACK TO REAR • HANDCUFFING: HANDCUFF PULL DOWN • HANDCUFFING: STACKED – FRONT • HANDCUFFING: STACKED – REAR **Empty Hand Strikes / Restraints =** • EMPTY HAND RESTRAINT • EMPTY HAND STRIKE • EMPTY HAND TAKEDOWN **Fasttraps Used** • LEG RESTRAINTS **Spit Hood / Mask Used** • SPIT HOOD/MASK **Baton Used** • BATON (Draw only) • BATON RESTRAINT • BATON STRIKE

	Pava Used IRRITANT SPRAY (Draw only) IRRITANT SPRAY DISCHARGE
Date Used for Calculation	Date of Incident
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • Effectives is officer/staff self-defined. • More than one tactic can be recorded per use of force report • It is difficult to determine what tactic is associated with other parts of the dataset. E.g. having multiple subjects and multiple tactics it cannot be determined which tactic was effective against a specific individual – only that a tactic on the report was effective.
Data Source	SCOPE / SharePoint

Page 3	TACTICS
Visual: Bar	**TITLE: Use of Force Comparison**
Explanation	This clustered bar chart highlights the tactics used for the current fiscal year, the previous fiscal year and the 3 year mean. It only includes tactics grouped under the headings: • **Handcuffs Used** • **Empty Hand Strikes / Restraints** • **Fasttraps Used** • **Spit Hood / Mask Used** • **Baton Used** • **Pava Used**
Process / Calculation	**This Fiscal Year** = Count of Use of Force ID in Tactics Table 1 April to end of previous month. **Previous Fiscal Year** = Count of Use of Force ID in Tactics Table 1 April to end of previous month and fiscal year. **5 yr mean** = The Count of Use of Force ID in Tactics Table previous five fiscal years / 5. 1 April to end of previous month. **Handcuffs Used =** • HANDCUFFING: BACK TO BACK TO REAR • HANDCUFFING: HANDCUFF PULL DOWN • HANDCUFFING: STACKED – FRONT • HANDCUFFING: STACKED – REAR **Empty Hand Strikes / Restraints =** • EMPTY HAND RESTRAINT • EMPTY HAND STRIKE • EMPTY HAND TAKEDOWN **Fasttraps Used** • LEG RESTRAINTS **Spit Hood / Mask Used** • SPIT HOOD/MASK

	Baton Used • BATON (Draw only) • BATON RESTRAINT • BATON STRIKE **Pava Used** IRRITANT SPRAY (Draw only) IRRITANT SPRAY DISCHARGE
Date Used for Calculation	Date of Incident
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • More than one tactic can be recorded per use of force report • It is difficult to determine what tactic is associated with other parts of the dataset. E.g. having multiple subjects and multiple tactics it cannot be determined which tactic was effective against a specific individual – only that a tactic on the report was effective.
Data Source	SCOPE / SharePoint

Page 3	TACTICS
Visual: Table	**TITLE:** Use of Force Tactics Used
Explanation	This table highlights the tactics used for the current fiscal year, the previous fiscal year and the 3 year mean. It only includes tactics grouped under the headings: • **Handcuffs Used** • **Empty Hand Strikes / Restraints** • **Fasttraps Used** • **Spit Hood / Mask Used** • **Baton Used** • **Pava Used**
Process / Calculation	**This Fiscal Year** = Count of Use of Force ID in Tactics Table 1 April to end of previous month. **Previous Fiscal Year** = Count of Use of Force ID in Tactics Table 1 April to end of previous month and fiscal year. **CHANGE =** This Fiscal Year - Previous Fiscal Year **Handcuffs Used =** • HANDCUFFING: BACK TO BACK TO REAR • HANDCUFFING: HANDCUFF PULL DOWN • HANDCUFFING: STACKED – FRONT • HANDCUFFING: STACKED – REAR **Empty Hand Strikes / Restraints =** • EMPTY HAND RESTRAINT • EMPTY HAND STRIKE • EMPTY HAND TAKEDOWN

	Fasttraps Used
	   • LEG RESTRAINTS
	
	Spit Hood / Mask Used
	   • SPIT HOOD/MASK
	
	Baton Used
	   • BATON (Draw only)
	   • BATON RESTRAINT
	   • BATON STRIKE
	
	Pava Used
	IRRITANT SPRAY (Draw only)
	IRRITANT SPRAY DISCHARGE

Date Used for Calculation	Date of Incident
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • Effectives is officer/staff self-defined. • More than one tactic can be recorded per use of force report • It is difficult to determine what tactic is associated with other parts of the dataset. E.g. having multiple subjects and multiple tactics it cannot be determined which tactic was effective against a specific individual – only that a tactic on the report was effective.
Data Source	SCOPE / SharePoint

SELECT TACTICS

Page 4	SELECT TACTICS
Visual: Line	**TITLE:** Total Tactics Over Time
Explanation	This visual allows the user to select the tactics they want to compare over time. Starting from the 1 April 2019. Each selected tactic will appear as a new line. It also provides a total of the tactics currently selected, over the time period.
Process / Calculation	**Total** = Count of Use of Force ID in Tactics Table
Date Used for Calculation	Date of Incident
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • More than one tactic can be recorded per use of force report • It is difficult to determine what tactic is associated with other parts of the dataset. E.g. having multiple subjects and multiple tactics it cannot be determined which tactic was effective against a specific individual – only that a tactic on the report was effective.
Data Source	SCOPE / SharePoint

XMR CONTROL / REPORTING

Page 5	XMR CONTROL / REPORTING
Visual: Line	**TITLE: XMR Control Chart: Report, Tactic Effectiveness, Subject Injury Rate**
Explanation	The XMR Chart is a type of control chart that is normally used with continuous data (e.g. decimal numbers 1.1, 1.2 etc.). Normally with attribute data (counting data e.g. whole numbers, 1, 2, 3 etc.) you could another type of chart such as a C or P chart. However, Wheeler (2000) states that attribute control charts like the C and P use theoretical models (i.e. poisson / binomial distribution) to create theoretical limits, which can result in overly tight or large control limits. This was the case for the Use of Force data, due to the increased reporting, and the large moving range from year to year resulted in extremely tight control limits, where almost every point was outwith the limits. Therefore, Wheeler (2000) suggests using an XmR Chart with count-based data, as this control chart creates empirical limits through looking at the moving range (difference). As such the XmR will still work because it uses an empirical approach rather than being based on a specific probability model (poisson / binomial). The XmR chart normally consists of two charts – the x chart highlighting the control of observed values (i.e. use of force reports submitted) and the mr – moving range chart showing the moving range month on month. However, this chart is not shown as it does not provide any extra value that the X chart provides, and reduces the need for the user to understand two different charts. The two charts displayed are the same, the current fiscal year chart, simply zooms to the current fiscal year, all the data is still the same. Wheeler, J. D. (2000) *Understanding Variation: The Key to Managing Chaos*, SPC Press, 2nd Edition. -- Reports = count of all reports Tactic Effectiveness Rate = Count of Tactic effectiveness Yes / Total Tactics Injury Rate = Count of Reports with Injury Yes / Total Reports
Process / Calculation	1. **Calculate the moving range** – difference per fiscal month for 60 months -1 (previous 5 years). 2. **Calculate the mean**– monthly mean over 60 months 3. **Control Limits** based on Shewhart three sigma limits with sigma (the process standard deviation) being estimated by the mean moving range (mr) divided by the empirical constant 1.123. 4. **Empirical Constant** 3 sigma divided by 1.128 = 2.66 (correction factor) 5. **Upper Limit =** Mean + 2.66 * mean moving range 6. **Lower Limit =** Mean - 2.66 * mean moving range 7. **Control Line** = Monthly Mean
Date Used for Calculation	Incident Date

Data Limitations	• Excludes the moving range chart, reducing some of the users' interpretability of the data. • Ignores seasonality (although sometimes that is the point. So we can examine what times of year use of force is being most and why). • The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports.
Data Source	Scope / APU SharePoint

Page 5	XMR CONTROL / REPORTING
Visual: Card	TITLE: Current Fiscal Year Avg Days to Report
Explanation	Enables the users to see the current fiscal years mean days to report
Process / Calculation	Current Fiscal Year mean by Use of Force ID and days to report (submitted date – incident date).
Date Used for Calculation	Incident Date
Data Limitations	• Excludes dates where the submitted date is before the incident date • Mean could be skewed by large outliers • The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports.
Data Source	Scope / APU SharePoint

Page 5	XMR CONTROL / REPORTING
Visual: Card	TITLE: Previous Fiscal Year Avg Days to Report
Explanation	Enables the users to see the previous fiscal years mean days to report
Process / Calculation	Previous Fiscal Year mean by Use of Force ID and days to report (submitted date – incident date).
Date Used for Calculation	Incident Date
Data Limitations	• Excludes dates where the submitted date is before the incident date • Mean could be skewed by large outliers • The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports.
Data Source	Scope / APU SharePoint

IMPACT FACTORS

Page 6	IMPACT FACTORS
Visual: Card	**TITLE: Impact Factors Comparison**
Explanation	**Enables the users to see the 3 year mean days to report.**
Process / Calculation	**Current Fiscal Year =** Count of Use of Force ID in Impact Factors From Table 1 April to end of previous month, this fiscal year. **Previous Fiscal Year =** Count of Use of Force ID in Impact Factors From Table 1 April to end of previous month and fiscal year, this fiscal year. **Five Year Mean =** Count of Use of Force ID in Impact Factors, previous five fiscal years / 5 from the 1 April to end of previous month.
Date Used for Calculation	Incident Date
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • More than one impact factor can be recorded per use of force report • I is difficult to determine what impact factor is associated with other parts of the dataset. For example, having multiple subjects and multiple impact factors it cannot be determined which impact factor was is related to a specific individual – only that a tactic on the report was effective.
Data Source	**Scope / APU SharePoint**

Page 6	IMPACT FACTORS
Visual: Column	**TITLE: Impact Factors Time Series**
Explanation	**Enables the users to view the impact factors by month, fiscal quarter and fiscal year.**
Process / Calculation	**Total =** Count of Use of Force ID in Impact Factors From Table 1 April 2019 to end of previous month, this fiscal year.
Date Used for Calculation	Incident Date
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • More than one impact factor can be recorded per use of force report • I is difficult to determine what impact factor is associated with other parts of the dataset. For example, having multiple subjects and multiple impact factors it cannot be determined which impact factor was is related to a specific individual – only that a tactic on the report was effective.
Data Source	**Scope / APU SharePoint**

Page 6	IMPACT FACTORS
Visual: Line	**TITLE: Impact Factors Time Series**
Explanation	**Enables the users to view the impact factors by month, fiscal quarter and fiscal year.**
Process / Calculation	**Total =** Count of Use of Force ID in Impact Factors From Table 1 April 2019 to end of previous month, this fiscal year.
Date Used for Calculation	Incident Date
Data Limitations	- The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. - More than one impact factor can be recorded per use of force report - I is difficult to determine what impact factor is associated with other parts of the dataset. For example, having multiple subjects and multiple impact factors it cannot be determined which impact factor was is related to a specific individual – only that a tactic on the report was effective.
Data Source	**Scope / APU SharePoint**

LOCUS

Page 7	LOCUS
Visual: Card	**TITLE: Locus Comparison**
Explanation	**Displays Locus Use of Force reports.**
Process / Calculation	**Current Fiscal Year =** Count of Use of Force ID in Locus From Table 1 April to end of previous month, this fiscal year. **Previous Fiscal Year =** Count of Use of Force ID in Locus From Table 1 April to end of previous month and fiscal year, this fiscal year. **Five Year Mean =** Count of Use of Force ID in Locus, previous five fiscal years / 5 from the 1 April to end of previous month.
Date Used for Calculation	Incident Date
Data Limitations	- The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. - More than one Locus can be recorded per use of force report - I is difficult to determine what locus is associated with other parts of the dataset. For example, having multiple subjects and multiple impact factors it cannot be determined which impact factor was is related to a specific individual – only that a tactic on the report was effective.
Data Source	**Scope / APU SharePoint**

Page 7	LOCUS
Visual: Card	**TITLE: Locus Comparison**
Explanation	he Pareto chart provides a graphic depiction of the Pareto principle, a theory maintaining that 80% of the output in a given situation or system is produced by 20% of the input. Pareto charts are extremely useful for analysing what problems need attention first because the taller bars on the chart, which represent frequency, and clearly illustrate which variables (in this case what locations) have the greatest cumulative effect on Use of Force Reports. **Total Reports by Location and cumulative total**
Process / Calculation	**Current Fiscal Year** = Count of Use of Force ID in Locus From Table 1 April to end of previous month, this fiscal year. **Cumulative Percentage** = Locus type / Locus Total
Date Used for Calculation	Incident Date
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • More than one Locus can be recorded per use of force report • I is difficult to determine what locus is associated with other parts of the dataset. For example, having multiple subjects and multiple impact factors it cannot be determined which impact factor was is related to a specific individual – only that a tactic on the report was effective.
Data Source	**Scope / APU SharePoint**

Page 7	LOCUS
Visual: Table	**TITLE: This Fiscal Years vs Previous Fiscal Year**
Explanation	**This table highlights the current, previous, the change and % change.**
Process / Calculation	**Current Fiscal Year** = Count of Use of Force ID in Locus From Table 1 April to end of previous month, this fiscal year. **Previous Fiscal Year** = Count of Use of Force ID in Locus From Table 1 April to end of previous month and fiscal year, this fiscal year. **CHANGE =** current fiscal year – previous fiscal year **% CHAGNE =** current fiscal year – previous fiscal year Previous Fiscal year X100
Date Used for Calculation	Incident Date

Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • More than one Locus can be recorded per use of force report • I is difficult to determine what locus is associated with other parts of the dataset. For example, having multiple subjects and multiple impact factors it cannot be determined which impact factor was is related to a specific individual – only that a tactic on the report was effective.
Data Source	Scope / APU SharePoint

LENGTH OF SERVICE AND INCIDENTS

Page 8	LENGTH OF SERICE AND INCIDENTS
Visual: Table	TITLE: Length of Service, current fiscal year vs previous fiscal year
Explanation	This table highlights total reports by length of service. Length of service has been grouped into the regular grouping used by SCOPE and Health and Safety for consistency. • Less than one Year • 1 year to less than 5 • 5 years to less than 10 • 10 years to less than 15 • 15 years to less than 20 • 20 years to less than 25 • 25 years to less than 30 • 30 years of over
Process / Calculation	This Fiscal Year = Count of Rows in 'UoF Fact Table' 1 April to end of previous month. Previous Fiscal Years = Count of Rows in 'UoF Fact Table' 1 April to end of previous month and previous fiscal year(s). CHANGE = current fiscal year – previous fiscal year % CHAGNE = $\frac{current\ fiscal\ year\ -\ previous\ fiscal\ year}{Previous\ Fiscal\ year} \times 100$
Date Used for Calculation	Incident Date
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports.
Data Source	Scope / APU SharePoint

Page 8	LENGTH OF SERICE AND INCIDENTS
Visual: Table	TITLE: Total Incidents

Explanation	This table highlights total reports by total incidents created.
Process / Calculation	**NUMBER OF USE OF FORCE FROMS SUBMITTED** **This Fiscal Year** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month. **Previous Fiscal Years** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month and previous fiscal year(s). **CHANGE =** current fiscal year – previous fiscal year **% CHAGNE** = current fiscal year – previous fiscal year Previous Fiscal year X100 **NUMBER OF INCIDENTS RECORDED BY POLICE SCOTLAND** **This Fiscal Year** = Total Incidents in current fiscal year to previous fiscal month **Previous Fiscal Years** = Total Incidents in current fiscal year to previous fiscal month and fiscal year **CHANGE =** current fiscal year – previous fiscal year **% CHAGNE** = current fiscal year – previous fiscal year Previous Fiscal year X100 **PERCENTAGE OF INCIDENTS RECORDED WHERE A USE OF FORCE FORM WAS SUBMITTED. (NUMBER OF USE OF FORCE FORMS DIVIDED BY NUMBER OF INCIDENTS)** **This Fiscal Year** = Total Incidents this fiscal year UoF Form this fiscal year **Previous Fiscal Years** = Total Incidents pv fiscal year UoF Form pv fiscal year **CHANGE =** current fiscal year – previous fiscal year (percentage points) **% CHAGNE** = N/A
Date Used for Calculation	Incident Date (Use of Force) Created Date (Incident data – SEBP)

Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • Incident data only updated quarterly, to ensure it is the official incident data being used.
Data Source	Scope / APU SharePoint / SEBP (DPU Statistical Unit - official incident data)

Page 8	LENGTH OF SERICE AND INCIDENTS
Visual: Table	TITLE: Total Incidents Attended
Explanation	This table highlights total reports by total incidents attended, this allows Police Scotland to determine the rate of use of force when officers were present at an incident.

Process / Calculation	**NUMBER OF USE OF FORCE FROMS SUBMITTED**
	
	 This Fiscal Year = Count of Rows in 'UoF Fact Table' 1 April to end of previous month.
	
	 Previous Fiscal Years = Count of Rows in 'UoF Fact Table' 1 April to end of previous month and previous fiscal year(s).
	
	 CHANGE = current fiscal year – previous fiscal year
	
	 % CHAGNE =
	
	 current fiscal year – previous fiscal year
	        Previous Fiscal year X100
	
	 NUMBER OF INCIDENTS ATTENDED BY POLICE SCOTLAND
	
	 This Fiscal Year = Total Incidents attended in current fiscal year to previous fiscal month
	
	 Previous Fiscal Years = Total Incidents attended in current fiscal year to previous fiscal month and fiscal year
	
	 CHANGE = current fiscal year – previous fiscal year
	
	 % CHAGNE =
	
	 current fiscal year – previous fiscal year
	        Previous Fiscal year X100
	
	 PERCENTAGE OF INCIDENTS RECORDED WHERE A USE OF FORCE FORM WAS SUBMITTED. (NUMBER OF USE OF FORCE FORMS DIVIDED BY NUMBER OF INCIDENTS)
	
	 This Fiscal Year = Total Incidents attended this fiscal year
	               UoF Form this fiscal year
	
	 Previous Fiscal Years = Total Incidents attended pv fiscal year

	UoF Form pv fiscal year **CHANGE =** current fiscal year – previous fiscal year (percentage points) **% CHAGNE =** N/A
Date Used for Calculation	Incident Date (Use of Force) Created Date (Incident data – SEBP)
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports.
Data Source	**Scope / APU SharePoint / SEBP (Incident Table)**

SUBJECTS

Page 9	SUBJECTS
Visual: Table	**TITLE: Use of Force Reports: Subjects Under 18,**
Explanation	This Table highlights the total reports where a subject is under 18. It is count of reports not a count of subjects.
Process / Calculation	**This Fiscal Year** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month, where subject under 18 = "Y". **Previous Fiscal Years** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month and previous fiscal year(s), where subject under 18 = "Y". **CHANGE =** current fiscal year – previous fiscal year **% CHAGNE =** current fiscal year – previous fiscal year Previous Fiscal year X100
Date Used for Calculation	Incident Date
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • No way to determine if the same nominal has been added to the use of force report. To minimise this we count reports where at least one nominal has been marked as under 18. This ensures we're not double counting the same nominal.
Data Source	**Scope / APU SharePoint**

Page 9	SUBJECTS
Visual: Table	**TITLE: Use of Force Reports: Subjects Ethnicity**
Explanation	This Table highlights the total reports by a subjects ethnicity.
Process / Calculation	**This Fiscal Year** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month **Previous Fiscal Years** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month and previous fiscal year(s). **CHANGE =** current fiscal year – previous fiscal year **% CHAGNE =** current fiscal year – previous fiscal year Previous Fiscal year X100
Date Used for Calculation	Incident Date
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • No way to determine if the same nominal has been added to the use of force report. To minimise this we count reports where at least one nominal has been marked as a certain ethnicity. This ensures we're not double counting the same nominal. • A report will be counted more than once if multiple different ethnicities' are stated on the report.
Data Source	**Scope / APU SharePoint**

Page 9	SUBJECTS
Visual: Table	**TITLE: Use of Force Reports: Subjects Ethnicity Population Table**
Explanation	**This Table highlights the % of total reports against Black and Minority Ethnic Communities** **Census Ethnicity Groupings:**

Census Ethnicity Groupings:	
AFRICAN OTHER	BME
AFRICAN, AFRICAN SCOTTISH OR AFRICAN BRITISH	BME
ARAB, ARAB SCOTTISH OR ARAB BRITISH	BME
ASIAN OTHER	BME
BANGLADESHI	BME
BLACK OTHER	BME
BLACK, BLACK SCOTTISH OR BLACK BRITISH	BME
CARIBBEAN, CARIBBEAN SCOTTISH OR CARIBBEAN BRITISH	BME
CHINESE	BME
INDIAN	BME
OTHER ETHNIC GROUP	BME
PAKISTANI	BME

WHITE BRITISHOTHER	WHITE
WHITE GYPSY TRAVELLER	WHITE
WHITE IRISH	WHITE
WHITE OTHER	WHITE
WHITE POLISH	WHITE
WHITE SCOTTISH	WHITE

UoF Ethnicity Groupings:

BME	AFRICAN, AFRICAN SCOTTISH OR AFRICAN BRITISH
BME	ARAB, ARAB SCOTTISH OR ARAB BRITISH
BME	BANGLADESHI, BANGLADESHI SCOTTISH OR BANGLADESHI BRITISH
BME	BLACK, BLACK SCOTTISH OR BLACK BRITISH
BME	CARIBBEAN, CARIBBEAN SCOTTISH OR CARIBBEAN BRITISH
BME	CHINESE, CHINESE SCOTTISH OR CHINESE BRITISH
BME	INDIAN, INDIAN SCOTTISH OR INDIAN BRITISH
BME	MIXED OR MULTIPLE ETHNIC GROUP
BME	OTHER AFRICAN BACKGROUND
BME	OTHER ASIAN BACKGROUND
BME	OTHER CARIBBEAN OR BLACK BACKGROUND
BME	OTHER ETHNIC GROUP
BME	PAKISTANI, PAKISTANI SCOTTISH OR PAKISTANI BRITISH
UNKNOWN	CHOOSE NOT TO DISCLOSE
UNKNOWN	UNKNOWN
WHITE	OTHER WHITE BRITISH
WHITE	OTHER WHITE ETHNIC GROUP
WHITE	WHITE ENGLISH
WHITE	WHITE GYPSY/TRAVELLER
WHITE	WHITE IRISH
WHITE	WHITE NORTHERN IRISH
WHITE	WHITE POLISH
WHITE	WHITE SCOTTISH
WHITE	WHITE WELSH

Process / Calculation	**Census 2011 Data** - % of grand total census population data **Use of Force Data** - % grand total of use of force ethnicity reports for current fiscal year
Date Used for Calculation	Incident Date
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • No way to determine if the same nominal has been added to the use of force report. To minimise this we count reports where at least one nominal has been marked as a certain ethnicity. This ensures we're not double counting the same nominal. • A report will be counted more than once if multiple different ethnicities' are stated on the report.

	• Lack of nominal id means data could be counting the same nominal multiple times, potentially skewing the calculation of % of grand total compared to the census (where an individual is only counted once).
Data Source	**Scope / APU SharePoint**

Page 9	SUBJECTS
Visual: Table	**TITLE: Use of Force Reports: Subject and Officer Gender**
Explanation	**This Table highlights the total reports by officer's gender (columns) by subject's perceived gender.** **This is count of reports, rather than a count of subjects.**
Process / Calculation	**Fiscal Years** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month and fiscal year(s), all years are YTD.
Date Used for Calculation	Incident Date
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • No way to determine if the same nominal has been added to the use of force report. To minimise this we count reports where at least one nominal has been marked as a certain gender. This ensures we're not double counting the same nominal. • A report will be counted more than once if multiple different genders are stated on the report. • Only have the gender details for the reporting officer – if multiple officers used force at the same 'event' the gender is not recorded, only the number of assisting officers.
Data Source	**Scope / APU SharePoint**

Page 9	SUBJECTS
Visual: Donut	**TITLE: Use of Force Reports: Subject Gender, This Fiscal Year**
Explanation	**This visual illustrates the portion of subject ethnicity as a percentage and displays the total reports.**
Process / Calculation	**Current Fiscal Year** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month and is the current fiscal year, by subject gender. **% of grand total** = Count of Rows in 'UoF Fact Table' 1 April to end of previous month by and is the current fiscal year bu gender / total reports by gender *100
Date Used for Calculation	Incident Date
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • No way to determine if the same nominal has been added to the use of force report. To minimise this we count reports where at least one nominal has been marked as a certain gender. This ensures we're not double counting the same nominal.

	• A report will be counted more than once if multiple different genders are stated on the report.
Data Source	**Scope / APU SharePoint**

Page 9	**SUBJECTS**
Visual: Table	**TITLE: Use of Force Reports: Subject Injury Reports**
Explanation	**This visual highlights the number of reports across the previous years (YTD) when at least one subject was injured, the total use of force reports and then the injury rate of subjects.**
Process / Calculation	**Injury Reports** = Total Reports when subject injured = "yes" **Total Reports** = Total Use of Force Reports submitted **Subject Injury Rate** = Injury Reports / Total Reports
Date Used for Calculation	Incident Date
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • Subject Injury is a yes or no dropbox and is not linked to the subjects section of the report. Therefore, we cannot link the subject injury to an individual subject. E.g. if four subjects (additionally no way to determine if these four subjects are the same nominal or not) are on a single report it is not possible to say how many of these were injured.
Data Source	**Scope / APU SharePoint**

Page 9	**SUBJECTS**
Visual: Line	**TITLE: Use of Force Reports: Subject Injury Reports Over Time**
Explanation	**This visual highlights the injury rate across the previous years, quarters and months when at least one subject was injured**
Process / Calculation	**Subject Injury Rate** = Injury Reports / Total Reports
Date Used for Calculation	Incident Date
Data Limitations	• The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. • Subject Injury is a yes or no dropbox and is not linked to the subjects section of the report. Therefore, we cannot link the subject injury to an individual subject. E.g. if four subjects (additionally no way to determine if these four subjects are the same nominal or not) are on a single report it is not possible to say how many of these were injured.
Data Source	**Scope / APU SharePoint**

Date Used for Calculation	Incident Date
Data Limitations	- The use of date of incident date can result in a lower count of use of force compared to the previous month and/or year due to late reports. - Relies on Census data from 2011, so may not provide an accurate up-to-date picture of ethnicity population in Scotland. This will be updated when Scotland's new census data is released. - Potentially double counting nominals as no way to determine if the same nominal. - A report will be counted more than once if multiple different genders are stated on the report.
Data Source	**Scope / APU SharePoint / Scotland 2011 Census Data**