

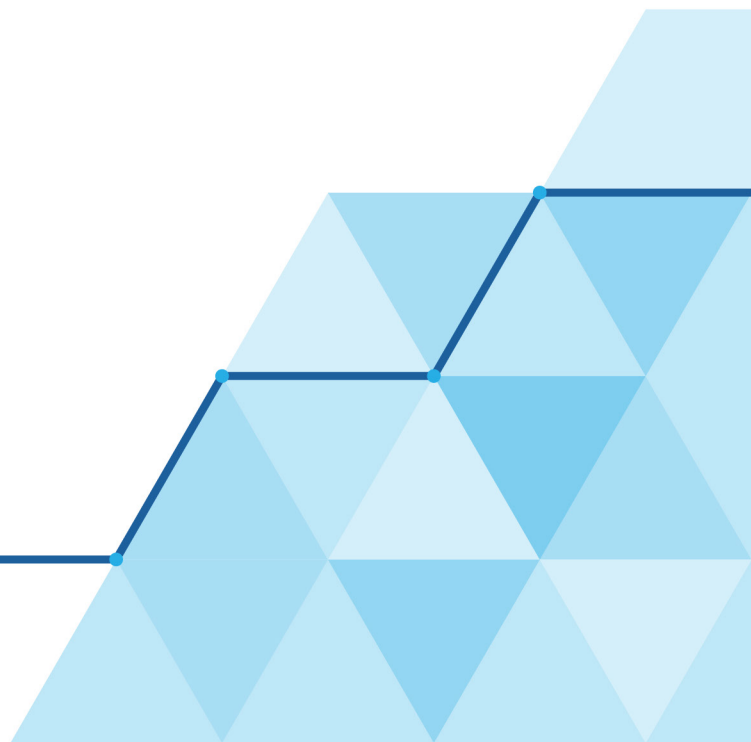


Ministry
of Justice

Revalidation: Risk of recidivism tools

**An evaluation of the actuarial instruments
developed to assess recidivism risk in
England and Wales – Technical Appendix**

Ministry of Justice Analytical Series
2024



Data and Analysis exists to improve policy making, decision taking and practice by the Ministry of Justice. It does this by providing robust, timely and relevant data and advice drawn from research and analysis undertaken by the department's analysts and by the wider research community.

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Appendix A. Tables of results

A.1 Starts tables

Descriptive statistics

Table A1: Population Statistics, by population subgroup and cohort, July to December 2018 starts

Subgroup	All Cases: Count	All cases: Column Percentage	With OASys: Count	With OASys: Column Percentage	Women and Men with no Sexual Offending History: Count	Women and Men with no Sexual Offending History: Column Percentage	Men with Sexual Offending History: Count	Men with Sexual Offending History: Column Percentage
All	81,258	100.00%	44,684	100.00%	75,263	100.00%	5,921	100.00%
Age: 18 - 20	5,997	7.38%	2,775	6.21%	5,804	7.71%	190	3.21%
Age: 21 - 24	10,225	12.58%	5,557	12.44%	9,649	12.82%	570	9.63%
Age: 25 - 29	15,033	18.50%	8,611	19.27%	14,176	18.84%	852	14.39%
Age: 30 - 39	26,411	32.50%	15,528	34.75%	24,830	32.99%	1,555	26.26%
Age: 40 - 49	14,472	17.81%	8,117	18.17%	13,270	17.63%	1,177	19.88%
Age: 50 - 59	6,515	8.02%	3,169	7.09%	5,624	7.47%	885	14.95%
Age: 60 and Over	2,211	2.72%	926	2.07%	1,516	2.01%	692	11.69%
Gender: Female	11,037	13.58%	5,677	12.70%	10,963	14.57%		
Gender: Male	70,221	86.42%	39,007	87.30%	64,300	85.43%	5,921	100.00%

Annex 1: Additional Materials

Subgroup	All Cases: Count	All cases: Column Percentage	With OASys: Count	With OASys: Column Percentage	Women and Men with no Sexual Offending History: Count	Women and Men with no Sexual Offending History: Column Percentage	Men with Sexual Offending History: Count	Men with Sexual Offending History: Column Percentage
Ethnicity: Asian	4,251	5.23%	1,987	4.45%	3,952	5.25%	296	5.00%
Ethnicity: Black	5,591	6.88%	2,945	6.59%	5,212	6.93%	374	6.32%
Ethnicity: Mixed	2,677	3.29%	1,553	3.48%	2,521	3.35%	153	2.58%
Ethnicity: Not Known	7,938	9.77%	2,153	4.82%	7,761	10.31%	175	2.96%
Ethnicity: White	59,834	73.63%	35,652	79.79%	54,920	72.97%	4,854	81.98%
Disability: Does not have disability	32,283	39.73%	18,320	41.00%	29,609	39.34%	2,652	44.79%
Disability: Has disability	48,975	60.27%	26,364	59.00%	45,654	60.66%	3,269	55.21%
LDC: Likely LDC	13,934	17.15%	13,934	31.18%	12,311	16.36%	1,592	26.89%
LDC: Not likely LDC	25,148	30.95%	25,148	56.28%	22,724	30.19%	2,396	40.47%
DV Perpetrator: Current DV Perpetrator	6,486	7.98%	6,486	14.52%	6,109	8.12%	375	6.33%

Subgroup	All Cases: Count	All cases: Column Percentage	With OASys: Count	With OASys: Column Percentage	Women and Men with no Sexual Offending History: Count	Women and Men with no Sexual Offending History: Column Percentage	Men with Sexual Offending History: Count	Men with Sexual Offending History: Column Percentage
DV Perpetrator: Former DV Perpetrator	13,988	17.21%	13,988	31.30%	12,623	16.77%	1,346	22.73%
DV Perpetrator: Never DV Perpetrator	24,210	29.79%	24,210	54.18%	21,601	28.70%	2,566	43.34%

Note: Some column percentages will add up to less than 100% as the denominator will include cases with missing data which have been omitted from the final table

Censoring statistics

Table A2: Censoring Statistics, All and OVP violence, by population subgroup, July to December 2018 starts

Subgroup	Number of cases	All offending: percent right censored	All offending: median days to right censor	OVP violence: percent right censored	OVP violence: median days to right censor
All	81,258	9.69%	31	14.48%	48
Age: 18 - 20	5,997	10.87%	29	14.41%	39
Age: 21 - 24	10,225	10.09%	34	14.32%	48
Age: 25 - 29	15,033	10.72%	34	15.39%	52
Age: 30 - 39	26,411	10.39%	29	16.36%	47

Annex 1: Additional Materials

Subgroup	Number of cases	All offending: percent right censored	All offending: median days to right censor	OVP violence: percent right censored	OVP violence: median days to right censor
Age: 40 - 49	14,472	8.88%	29	14.10%	47
Age: 50 - 59	6,515	6.37%	32	8.96%	52
Age: 60 and Over	2,211	3.71%	29	4.98%	42
Gender: Female	11,037	7.09%	28	11.39%	44
Gender: Male	70,221	10.10%	31	14.97%	48
Ethnicity: Asian	4,251	7.60%	42	11.01%	60
Ethnicity: Black	5,591	11.16%	41	16.35%	70
Ethnicity: Mixed	2,677	13.22%	36	19.54%	55
Ethnicity: Not Known	7,938	4.22%	24	5.64%	32
Ethnicity: White	59,834	10.30%	30	15.57%	46
Disability: Does not have disability	32,283	10.73%	40	16.56%	63
Disability: Has disability	48,975	9.01%	28	13.11%	39
LDC: Likely LDC	13,934	17.25%	28	26.92%	43
LDC: Not likely LDC	25,148	10.30%	28	15.54%	42
DV Perpetrator: Current DV Perpetrator	6,486	11.21%	22	13.43%	26
DV Perpetrator: Former DV Perpetrator	13,988	15.61%	26	23.07%	39

Subgroup	Number of cases	All offending: percent right censored	All offending: median days to right censor	OVP violence: percent right censored	OVP violence: median days to right censor
DV Perpetrator: Never DV Perpetrator	24,210	10.97%	29	18.27%	48

Table A3: Censoring Statistics, All serious reoffending including contact sexual, IIOC and SNSV, July to December 2018 starts

Subgroup	Number of cases	Contact sexual: percent right censored	Contact sexual: median days to right censor	Indecent images: percent right censored	Indecent images: median days to right censor	SNSV: percent right censored	SNSV: median days to right censor	All RSR: percent right censored	All RSR: median days to right censor
All	81,258	20.06%	73	20.13%	74	19.88%	72	19.76%	72
Age: 18 - 20	5,997	19.54%	62	19.58%	62	19.08%	59	18.98%	58
Age: 21 - 24	10,225	20.35%	77	20.48%	78	19.91%	75	19.78%	75
Age: 25 - 29	15,033	21.69%	82	21.80%	83	21.42%	81	21.28%	79
Age: 30 - 39	26,411	22.80%	73	22.86%	73	22.69%	72	22.59%	72
Age: 40 - 49	14,472	18.91%	69	18.98%	69	18.90%	68	18.78%	67
Age: 50 - 59	6,515	12.25%	72	12.23%	71	12.20%	71	12.10%	70
Age: 60 and Over	2,211	6.20%	56	6.29%	56	6.38%	56	6.11%	52
Gender: Female	11,037	14.27%	58	14.27%	58	14.20%	57	14.20%	57
Gender: Male	70,221	20.97%	76	21.05%	76	20.77%	74	20.63%	74

Annex 1: Additional Materials

Subgroup	Number of cases	Contact sexual: percent right censored	Contact sexual: median days to right censor	Indecent images: percent right censored	Indecent images: median days to right censor	SNSV: percent right censored	SNSV: median days to right censor	All RSR: percent right censored	All RSR: median days to right censor
Ethnicity: Asian	4,251	14.80%	91	14.87%	94	14.68%	90	14.61%	89
Ethnicity: Black	5,591	21.28%	96	21.41%	97	20.87%	94	20.75%	93
Ethnicity: Mixed	2,677	26.86%	83	26.97%	83	26.22%	79	26.11%	79
Ethnicity: Not Known	7,938	7.24%	51	7.26%	51	7.16%	50	7.12%	50
Ethnicity: White	59,834	21.83%	71	21.90%	71	21.67%	70	21.54%	70
Disability: Does not have disability	32,283	23.03%	93	23.12%	93	22.80%	91	22.65%	91
Disability: Has disability	48,975	18.10%	59	18.15%	59	17.95%	58	17.85%	58
LDC: Likely LDC	13,934	38.85%	67	38.98%	67	38.47%	66	38.28%	66
LDC: Not likely LDC	25,148	21.63%	68	21.70%	68	21.45%	66	21.32%	66

Subgroup	Number of cases	Contact sexual: percent right censored	Contact sexual: median days to right censor	Indecent images: percent right censored	Indecent images: median days to right censor	SNSV: percent right censored	SNSV: median days to right censor	All RSR: percent right censored	All RSR: median days to right censor
DV Perpetrator: Current DV Perpetrator	6,486	20.61%	50	20.77%	50	20.55%	50	20.41%	50
DV Perpetrator: Former DV Perpetrator	13,988	34.63%	67	34.72%	68	34.27%	66	34.14%	66
DV Perpetrator: Never DV Perpetrator	24,210	24.19%	69	24.25%	70	24.00%	69	23.85%	68

Rates of proven reoffending, not considering censoring

Table A4: Rates of proven reoffending in a two-year follow-up, not considering censoring, by subgroup and reoffending outcome, July to December 2018 starts: All Cases

Subgroup	Number of cases	All	OVP violence	Contact Sexual	Indecent images	SNSV	All RSR
All	81,258	45.07%	27.63%	0.40%	0.13%	1.62%	2.13%
Age: 18 - 20	5,997	50.51%	30.92%	0.53%	0.20%	3.25%	3.97%
Age: 21 - 24	10,225	46.86%	29.24%	0.41%	0.10%	2.53%	3.01%
Age: 25 - 29	15,033	48.39%	31.50%	0.53%	0.11%	2.02%	2.61%

Annex 1: Additional Materials

Subgroup	Number of cases	All	OVP violence	Contact Sexual	Indecent images	SNSV	All RSR
Age: 30 - 39	26,411	49.07%	30.20%	0.33%	0.12%	1.44%	1.86%
Age: 40 - 49	14,472	42.67%	24.34%	0.37%	0.07%	0.88%	1.32%
Age: 50 - 59	6,515	29.79%	17.22%	0.37%	0.26%	0.66%	1.27%
Age: 60 and Over	2,211	15.47%	8.19%	0.45%	0.36%	0.14%	0.95%
Gender: Female	11,037	38.55%	20.52%	0.06%	0.00%	0.53%	0.60%
Gender: Male	70,221	46.10%	28.75%	0.46%	0.15%	1.79%	2.37%
Ethnicity: Asian	4,251	38.06%	19.78%	0.38%	0.00%	1.39%	1.76%
Ethnicity: Black	5,591	47.58%	26.11%	0.61%	0.00%	2.59%	3.11%
Ethnicity: Mixed	2,677	52.30%	32.35%	0.56%	0.00%	3.21%	3.77%
Ethnicity: Not Known	7,938	26.47%	14.93%	0.18%	0.09%	0.78%	1.05%
Ethnicity: White	59,834	47.67%	29.94%	0.41%	0.16%	1.59%	2.14%
Disability: Does not have disability	32,283	47.65%	28.27%	0.38%	0.12%	1.72%	2.19%
Disability: Has disability	48,975	43.38%	27.21%	0.42%	0.13%	1.56%	2.09%
LDC: Likely LDC	13,934	68.14%	45.16%	0.74%	0.17%	3.17%	4.03%
LDC: Not likely LDC	25,148	49.84%	30.90%	0.45%	0.21%	1.73%	2.36%
DV Perpetrator: Current DV Perpetrator	6,486	47.30%	37.63%	0.48%	0.02%	2.14%	2.59%
DV Perpetrator: Former DV Perpetrator	13,988	65.29%	46.91%	0.51%	0.06%	3.04%	3.59%
DV Perpetrator: Never DV Perpetrator	24,210	52.86%	28.75%	0.56%	0.30%	1.66%	2.49%

Table A5: Rates of proven reoffending in a two-year follow-up, not considering censoring, by subgroup and reoffending outcome, July to December 2018 starts: With OASys

Subgroup	Number of cases	All	OVP violence	Contact Sexual	Indecent images	SNSV	All RSR
All	44,684	55.95%	35.73%	0.53%	0.19%	2.16%	2.85%
Age: 18 - 20	2,775	57.95%	38.49%	0.86%	0.32%	4.36%	5.51%
Age: 21 - 24	5,557	56.81%	37.83%	0.58%	0.14%	3.38%	4.08%
Age: 25 - 29	8,611	58.29%	39.87%	0.57%	0.15%	2.72%	3.39%
Age: 30 - 39	15,528	59.90%	37.94%	0.44%	0.15%	1.91%	2.46%
Age: 40 - 49	8,117	54.13%	31.61%	0.48%	0.12%	1.15%	1.74%
Age: 50 - 59	3,169	41.12%	24.52%	0.60%	0.41%	0.95%	1.92%
Age: 60 and Over	926	23.22%	13.50%	0.86%	0.65%	0.32%	1.84%
Gender: Female	5,677	49.45%	26.44%	0.09%	0.00%	0.56%	0.65%
Gender: Male	39,007	56.89%	37.08%	0.60%	0.21%	2.39%	3.17%
Ethnicity: Asian	1,987	49.77%	28.13%	0.60%	0.00%	1.76%	2.37%
Ethnicity: Black	2,945	58.23%	34.16%	0.88%	0.00%	3.50%	4.24%
Ethnicity: Mixed	1,553	62.40%	40.05%	0.64%	0.00%	3.93%	4.57%
Ethnicity: Not Known	2,153	36.51%	23.13%	0.19%	0.19%	1.35%	1.72%
Ethnicity: White	35,652	57.10%	36.93%	0.52%	0.22%	2.05%	2.76%
Disability: Does not have disability	18,320	59.19%	36.46%	0.49%	0.17%	2.17%	2.79%
Disability: Has disability	26,364	53.69%	35.21%	0.57%	0.20%	2.16%	2.89%
LDC: Likely LDC	13,934	68.14%	45.16%	0.74%	0.17%	3.17%	4.03%
LDC: Not likely LDC	25,148	49.84%	30.90%	0.45%	0.21%	1.73%	2.36%
DV Perpetrator: Current DV Perpetrator	6,486	47.30%	37.63%	0.48%	0.02%	2.14%	2.59%

Subgroup	Number of cases	All	OVP violence	Contact Sexual	Indecent images	SNSV	All RSR
DV Perpetrator: Former DV Perpetrator	13,988	65.29%	46.91%	0.51%	0.06%	3.04%	3.59%
DV Perpetrator: Never DV Perpetrator	24,210	52.86%	28.75%	0.56%	0.30%	1.66%	2.49%

Table A6: Rates of proven reoffending in a two-year follow-up, not considering censoring, by subgroup and reoffending outcome, July to December 2018 starts: Men with Sexual History

Subgroup	Number of cases	Indecent images	Contact Sexual
All	5,921	1.50%	2.16%
Age: 18 - 20	190	2.63%	5.26%
Age: 21 - 24	570	1.23%	2.63%
Age: 25 - 29	852	1.64%	2.70%
Age: 30 - 39	1,555	1.93%	1.93%
Age: 40 - 49	1,177	0.76%	2.21%
Age: 50 - 59	885	1.81%	1.69%
Age: 60 and Over	692	1.16%	1.30%
Ethnicity: Asian	296	0.00%	2.03%
Ethnicity: Black	374	0.00%	4.01%
Ethnicity: Mixed	153	0.00%	1.96%
Ethnicity: Not Known	175	2.86%	1.14%
Ethnicity: White	4,854	1.73%	2.10%
Disability: Does not have disability	2,652	1.24%	1.92%
Disability: Has disability	3,269	1.71%	2.36%
LDC: Likely LDC	1,592	1.32%	3.33%

Subgroup	Number of cases	Indecent images	Contact Sexual
LDC: Not likely LDC	2,396	1.96%	1.92%
DV Perpetrator: Current DV Perpetrator	375	0.27%	1.60%
DV Perpetrator: Former DV Perpetrator	1,346	0.52%	2.08%
DV Perpetrator: Never DV Perpetrator	2,566	2.53%	2.73%

Table A7: Rates of proven sexual reoffending in a two-year follow-up, not considering censoring, by gender subgroup and reoffending outcome, July to December 2018 starts: All Cases

Subgroup	Number of cases	Indecent images	Contact Sexual
All	81,258	0.13%	0.40%
Women with history	74	0.00%	0.00%
Women without history	10,963	0.00%	0.06%
Men with history: Very High OSP/C	228	0.44%	8.33%
Men with history: High OSP/C	1,406	1.14%	2.92%
Men with history: Medium OSP/C	2,783	1.65%	2.01%
Men with history: Low OSP/C	1,504	1.73%	0.80%
Men with history: High OSP/I	233	15.45%	1.72%
Men with history: Medium OSP/I	896	3.68%	2.23%
Men with history: Low OSP/I	4,792	0.42%	2.17%
Men without history: Age 18 - 20	5,206	0.13%	0.38%
Men without history: Age 21 - 24	8,715	0.03%	0.31%
Men without history: Age 25 - 29	12,378	0.02%	0.45%
Men without history: Age 30 - 39	20,734	0.01%	0.27%
Men without history: Age 40 - 49	10,989	0.01%	0.23%

Subgroup	Number of cases	Indecent images	Contact Sexual
Men without history: Age 50 - 59	4,666	0.02%	0.19%
Men without history: Age 60 and Over	1,280	0.00%	0.08%

Model calibration

Table A8: Calibration of predicted and actual reoffending rates, by reoffending outcome, predictor and population subgroup, July to December 2018 starts: All Cases

Reoffending outcome	Predictor	Population subgroup	Number of cases	Predicted rate	Actual rate	Residual
All	OGP2	With OASys	42,269	55.86%	57.39%	1.52%
All	OGRS3	With OASys	43,311	58.41%	57.36%	-1.05%
All	OGRS3	All cases	77,870	50.32%	46.49%	-3.82%
All	OGRS4/G	With OASys	43,311	59.03%	57.36%	-1.67%
All	OGRS4/G	All cases	77,870	51.39%	46.49%	-4.90%
Contact Sexual	OSP/C	Sexual history: Men with	5,921	1.05%	2.16%	1.11%
Contact Sexual	OSP/C	Sexual history: Women and men without	75,337	0.00%	0.27%	0.27%
Indecent Images	OSP/I	Sexual history: Men with	5,921	0.84%	1.50%	0.66%
Indecent Images	OSP/I	Sexual history: Women and men without	75,337	0.00%	0.02%	0.02%
OVP Violence	OGRS4/V	With OASys	43,311	40.28%	36.68%	-3.59%
OVP Violence	OGRS4/V	All cases	77,870	33.62%	28.55%	-5.06%
OVP Violence	OVP1	With OASys	42,408	36.91%	36.68%	-0.23%
OVP Violence	OVP2	With OASys	42,269	37.04%	36.71%	-0.33%
RSR	RSR	With OASys	43,311	2.18%	2.90%	0.72%

Reoffending outcome	Predictor	Population subgroup	Number of cases	Predicted rate	Actual rate	Residual
RSR	RSR	All cases	77,870	1.76%	2.19%	0.44%
SNSV	RSR SNSV (static-dynamic)	With OASys	42,377	2.00%	2.23%	0.23%
SNSV	RSR SNSV (static)	With OASys	43,311	2.02%	2.22%	0.19%
SNSV	RSR SNSV (static)	All cases	77,870	1.63%	1.68%	0.05%

Table A9: Calibration of predicted and actual reoffending rates, all reoffending, by population subgroup, offending outcome and predictor, and by predictor band, July to December 2018 starts

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
OGP2	With OASys	All	A: Low 0 to 24	5,601	15.62%	14.80%	-0.82%
OGP2	With OASys	All	B: Medium 25 to 49	10,417	37.59%	38.57%	0.98%
OGP2	With OASys	All	C: High 50 to 74	14,665	62.80%	64.57%	1.77%
OGP2	With OASys	All	D: Very High 75 to 89	10,041	81.62%	84.65%	3.04%
OGP2	With OASys	All	E: Prolific 90 to 100	1,545	91.77%	93.27%	1.50%
OGP2	With OASys	All	All cases unbanded	42,269	55.86%	57.39%	1.52%
OGRS3	All cases	All	A: Low 0 to 24	17,567	14.18%	13.46%	-0.73%
OGRS3	All cases	All	B: Medium 25 to 49	19,093	37.22%	32.33%	-4.89%
OGRS3	All cases	All	C: High 50 to 74	23,041	62.46%	56.21%	-6.25%

Annex 1: Additional Materials

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
OGRS3	All cases	All	D: Very High 75 to 89	14,909	81.72%	78.93%	-2.79%
OGRS3	All cases	All	E: Prolific 90 to 100	3,260	92.25%	90.43%	-1.82%
OGRS3	All cases	All	All cases unbanded	77,870	50.32%	46.49%	-3.82%
OGRS3	With OASys	All	A: Low 0 to 24	5,970	14.33%	16.93%	2.60%
OGRS3	With OASys	All	B: Medium 25 to 49	8,605	37.73%	36.44%	-1.28%
OGRS3	With OASys	All	C: High 50 to 74	14,093	63.10%	60.66%	-2.44%
OGRS3	With OASys	All	D: Very High 75 to 89	11,706	81.95%	80.98%	-0.96%
OGRS3	With OASys	All	E: Prolific 90 to 100	2,937	92.28%	90.88%	-1.41%
OGRS3	With OASys	All	All cases unbanded	43,311	58.41%	57.36%	-1.05%
OGRS4/G	All cases	All	A: Low 0 to 24	14,444	15.47%	10.74%	-4.72%
OGRS4/G	All cases	All	B: Medium 25 to 49	21,334	37.18%	30.76%	-6.42%
OGRS4/G	All cases	All	C: High 50 to 74	24,513	62.35%	56.36%	-5.99%
OGRS4/G	All cases	All	D: Very High 75 to 89	15,400	81.61%	79.83%	-1.77%
OGRS4/G	All cases	All	E: Prolific 90 to 100	2,179	91.74%	90.96%	-0.78%

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
OGRS4/G	All cases	All	All cases unbanded	77,870	51.39%	46.49%	-4.90%
OGRS4/G	With OASys	All	A: Low 0 to 24	4,752	15.80%	13.97%	-1.82%
OGRS4/G	With OASys	All	B: Medium 25 to 49	9,373	37.70%	34.75%	-2.95%
OGRS4/G	With OASys	All	C: High 50 to 74	14,967	63.09%	60.66%	-2.43%
OGRS4/G	With OASys	All	D: Very High 75 to 89	12,233	81.90%	82.02%	0.13%
OGRS4/G	With OASys	All	E: Prolific 90 to 100	1,986	91.77%	91.19%	-0.59%
OGRS4/G	With OASys	All	All cases unbanded	43,311	59.03%	57.36%	-1.67%

Table A10: Calibration of predicted and actual reoffending rates, violent reoffending, by population subgroup, offending outcome and predictor, and by predictor band, July to December 2018 starts

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
OGRS4/V	All cases	OVP Violence	A: Low 0 to 24	30,474	12.64%	9.68%	-2.96%
OGRS4/V	All cases	OVP Violence	B: Medium 25 to 49	28,348	36.56%	30.03%	-6.53%
OGRS4/V	All cases	OVP Violence	C: High 50 to 74	16,412	59.77%	53.16%	-6.61%
OGRS4/V	All cases	OVP Violence	D: Very High 75 to 89	2,343	80.11%	76.31%	-3.80%
OGRS4/V	All cases	OVP Violence	E: Prolific 90 to 100	293	93.25%	88.40%	-4.86%

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
OGRS4/V	All cases	OVP Violence	All cases unbanded	77,870	33.62%	28.55%	-5.06%
OGRS4/V	With OASys	OVP Violence	A: Low 0 to 24	11,316	13.69%	12.20%	-1.49%
OGRS4/V	With OASys	OVP Violence	B: Medium 25 to 49	16,940	37.36%	33.06%	-4.30%
OGRS4/V	With OASys	OVP Violence	C: High 50 to 74	12,685	60.14%	55.46%	-4.68%
OGRS4/V	With OASys	OVP Violence	D: Very High 75 to 89	2,096	80.21%	77.67%	-2.54%
OGRS4/V	With OASys	OVP Violence	E: Prolific 90 to 100	274	93.26%	89.05%	-4.21%
OGRS4/V	With OASys	OVP Violence	All cases unbanded	43,311	40.28%	36.68%	-3.59%
OVP1	With OASys	OVP Violence	I: Low, 0-29%	17,812	17.48%	18.07%	0.58%
OVP1	With OASys	OVP Violence	II: Medium, 30-59%	17,747	43.01%	43.27%	0.26%
OVP1	With OASys	OVP Violence	III: High, 60-79%	5,572	68.84%	65.11%	-3.73%
OVP1	With OASys	OVP Violence	IV: Very High, 80-100%	1,277	83.87%	80.81%	-3.05%
OVP1	With OASys	OVP Violence	All cases unbanded	42,408	36.91%	36.68%	-0.23%
OVP2	With OASys	OVP Violence	I: Low, 0-29%	17,076	16.57%	16.64%	0.06%
OVP2	With OASys	OVP Violence	II: Medium, 30-59%	18,331	43.27%	43.06%	-0.21%
OVP2	With OASys	OVP Violence	III: High, 60-79%	5,558	68.01%	66.52%	-1.49%

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
OVP2	With OASys	OVP Violence	IV: Very High, 80-100%	1,304	85.49%	83.28%	-2.20%
OVP2	With OASys	OVP Violence	All cases unbanded	42,269	37.04%	36.71%	-0.33%

Table A11: Calibration of predicted and actual reoffending rates, sexual reoffending, by population subgroup, offending outcome and predictor, and by predictor band, July to December 2018 starts

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
OSP/C	Men with sexual offending history	Contact Sexual	Low	1,504	0.31%	0.80%	0.49%
OSP/C	Men with sexual offending history	Contact Sexual	Medium	2,783	0.84%	2.01%	1.17%
OSP/C	Men with sexual offending history	Contact Sexual	High	1,406	1.78%	2.92%	1.14%
OSP/C	Men with sexual offending history	Contact Sexual	Very High	228	4.04%	8.33%	4.29%
OSP/C	Men with sexual offending history	Contact Sexual	All cases unbanded	5,921	1.05%	2.16%	1.11%
OSP/I	Men with sexual offending history	Indecent Images	Low	4,792	0.23%	0.42%	0.19%
OSP/I	Men with sexual offending history	Indecent Images	Medium	896	2.80%	3.68%	0.88%
OSP/I	Men with sexual offending history	Indecent Images	High	233	5.79%	15.45%	9.66%

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
OSP/I	Men with sexual offending history	Indecent Images	All cases unbanded	5,921	0.84%	1.50%	0.66%

Table A12: Calibration of predicted and actual reoffending rates, RSR and SNSV reoffending, by population subgroup, offending outcome and predictor, and by predictor band, July to December 2018 starts

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
RSR	All cases	RSR	Low 0-0.99%	33,085	0.49%	0.63%	0.14%
RSR	All cases	RSR	Medium 1-2.99%	31,628	1.78%	2.37%	0.59%
RSR	All cases	RSR	High 3-6.89%	11,397	4.24%	4.89%	0.65%
RSR	All cases	RSR	Very High 6.9%+	1,760	9.04%	10.91%	1.86%
RSR	All cases	RSR	All cases unbanded	77,870	1.76%	2.19%	0.44%
RSR	With OASys	RSR	Low 0-0.99%	13,659	0.55%	0.76%	0.21%
RSR	With OASys	RSR	Medium 1-2.99%	19,423	1.82%	2.68%	0.86%
RSR	With OASys	RSR	High 3-6.89%	8,630	4.30%	5.28%	0.99%
RSR	With OASys	RSR	Very High 6.9%+	1,599	9.11%	11.13%	2.02%
RSR	With OASys	RSR	All cases unbanded	43,311	2.18%	2.90%	0.72%
RSR SNSV (static-dynamic)	With OASys	SNSV	Low 0-0.99%	15,103	0.52%	0.47%	-0.05%

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
RSR SNSV (static-dynamic)	With OASys	SNSV	Medium 1-2.99%	18,790	1.80%	2.27%	0.46%
RSR SNSV (static-dynamic)	With OASys	SNSV	High 3-6.89%	7,182	4.30%	4.43%	0.13%
RSR SNSV (static-dynamic)	With OASys	SNSV	Very High 6.9%+	1,302	9.19%	9.98%	0.79%
RSR SNSV (static-dynamic)	With OASys	SNSV	All cases unbanded	42,377	2.00%	2.23%	0.23%
RSR SNSV (static)	All cases	SNSV	Low 0-0.99%	33,852	0.46%	0.45%	-0.01%
RSR SNSV (static)	All cases	SNSV	Medium 1-2.99%	32,491	1.81%	1.95%	0.14%
RSR SNSV (static)	All cases	SNSV	High 3-6.89%	10,554	4.18%	4.18%	-0.00%
RSR SNSV (static)	All cases	SNSV	Very High 6.9%+	973	8.66%	8.22%	-0.44%
RSR SNSV (static)	All cases	SNSV	All cases unbanded	77,870	1.63%	1.68%	0.05%
RSR SNSV (static)	With OASys	SNSV	Low 0-0.99%	13,467	0.50%	0.53%	0.03%
RSR SNSV (static)	With OASys	SNSV	Medium 1-2.99%	20,718	1.87%	2.14%	0.28%
RSR SNSV (static)	With OASys	SNSV	High 3-6.89%	8,285	4.21%	4.50%	0.29%
RSR SNSV (static)	With OASys	SNSV	Very High 6.9%+	841	8.69%	8.56%	-0.13%
RSR SNSV (static)	With OASys	SNSV	All cases unbanded	43,311	2.02%	2.22%	0.19%

Table A13: Calibration for static predictors of all and violent reoffending, by population subgroup and reoffending outcome, July to December 2018 starts: All Cases

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGRS3)	All reoffending: residual (OGRS4/G)	OVP violence: actual rate	OVP violence: residual (OGRS4/V)
All	81,258	46.49%	-3.82%	-4.90%	28.55%	-5.06%
Age: 18 - 20	5,997	52.70%	-2.46%	-1.82%	32.54%	-4.22%
Age: 21 - 24	10,225	48.33%	-4.32%	-6.26%	30.25%	-6.32%
Age: 25 - 29	15,033	49.51%	-6.08%	-6.01%	32.25%	-5.42%
Age: 30 - 39	26,411	50.29%	-4.03%	-4.43%	30.99%	-5.11%
Age: 40 - 49	14,472	43.93%	-4.26%	-4.93%	25.08%	-5.36%
Age: 50 - 59	6,515	30.92%	2.04%	-4.74%	17.89%	-2.99%
Age: 60 and Over	2,211	16.38%	-1.32%	-4.85%	8.66%	-2.35%
Gender: Female	11,037	40.46%	-5.57%	-3.74%	21.54%	-3.63%
Gender: Male	70,221	47.42%	-3.55%	-5.07%	29.63%	-5.28%
Ethnicity: Asian	4,251	39.79%	-3.55%	-4.36%	20.73%	-5.48%
Ethnicity: Black	5,591	49.02%	-2.73%	-4.17%	26.97%	-6.72%
Ethnicity: Mixed	2,677	53.49%	-3.73%	-4.93%	33.01%	-6.36%
Ethnicity: Not Known	7,938	28.13%	-3.98%	-5.39%	15.88%	-3.46%
Ethnicity: White	59,834	48.91%	-3.90%	-4.92%	30.78%	-5.03%
Disability: Does not have disability	32,283	48.59%	-5.22%	-6.46%	28.84%	-7.22%
Disability: Has disability	48,975	45.08%	-2.88%	-3.84%	28.36%	-3.61%

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGRS3)	All reoffending: residual (OGRS4/G)	OVP violence: actual rate	OVP violence: residual (OGRS4/V)
LDC: Likely LDC	13,934	69.18%	0.85%	0.43%	45.91%	-2.87%
LDC: Not likely LDC	25,148	51.39%	-2.06%	-2.84%	31.90%	-4.30%
DV Perpetrator: Current DV Perpetrator	6,486	48.47%	-1.33%	-2.25%	38.56%	-0.45%
DV Perpetrator: Former DV Perpetrator	13,988	65.85%	1.29%	0.80%	47.32%	-1.05%
DV Perpetrator: Never DV Perpetrator	24,210	54.72%	-2.37%	-2.98%	29.82%	-5.96%

Table A14: Calibration for static predictors of serious reoffending, by population subgroup and reoffending outcome, July to December 2018 starts: All Cases

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
All	81,258	0.40%	0.33%	0.13%	0.07%	1.68%	0.05%	2.19%	0.44%
Age: 18 - 20	5,997	0.53%	0.49%	0.20%	0.18%	3.44%	0.84%	4.16%	1.45%
Age: 21 - 24	10,225	0.41%	0.32%	0.10%	0.06%	2.64%	0.34%	3.12%	0.65%
Age: 25 - 29	15,033	0.53%	0.44%	0.11%	0.07%	2.08%	0.05%	2.69%	0.53%
Age: 30 - 39	26,411	0.33%	0.26%	0.12%	0.08%	1.49%	-0.11%	1.91%	0.23%

Annex 1: Additional Materials

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
Age: 40 - 49	14,472	0.37%	0.31%	0.07%	0.00%	0.91%	-0.19%	1.35%	0.18%
Age: 50 - 59	6,515	0.37%	0.28%	0.26%	0.12%	0.67%	0.06%	1.28%	0.46%
Age: 60 and Over	2,211	0.45%	0.31%	0.36%	-0.02%	0.15%	-0.04%	1.03%	0.28%
Gender: Female	11,037	0.06%	0.06%	0.00%	0.00%	0.57%	-0.28%	0.64%	-0.18%
Gender: Male	70,221	0.46%	0.37%	0.15%	0.08%	1.85%	0.10%	2.43%	0.53%
Ethnicity: Asian	4,251	0.38%	0.29%	0.00%	-0.03%	1.47%	0.25%	1.87%	0.54%
Ethnicity: Black	5,591	0.61%	0.52%	0.00%	-0.02%	2.66%	0.96%	3.20%	1.37%
Ethnicity: Mixed	2,677	0.56%	0.48%	0.00%	-0.02%	3.30%	1.22%	3.88%	1.68%
Ethnicity: Not Known	7,938	0.18%	0.16%	0.09%	0.07%	0.84%	-0.01%	1.13%	0.25%
Ethnicity: White	59,834	0.41%	0.33%	0.16%	0.09%	1.64%	-0.10%	2.19%	0.31%
Disability: Does not have disability	32,283	0.38%	0.29%	0.12%	0.05%	1.75%	-0.04%	2.23%	0.28%
Disability: Has disability	48,975	0.42%	0.35%	0.13%	0.08%	1.63%	0.11%	2.17%	0.54%
LDC: Likely LDC	13,934	0.74%	0.59%	0.17%	0.11%	3.22%	0.56%	4.07%	1.13%
LDC: Not likely LDC	25,148	0.45%	0.35%	0.21%	0.11%	1.79%	0.06%	2.42%	0.56%

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
DV Perpetrator: Current DV Perpetrator	6,486	0.48%	0.41%	0.02%	-0.00%	2.18%	0.29%	2.64%	0.56%
DV Perpetrator: Former DV Perpetrator	13,988	0.51%	0.40%	0.06%	0.03%	3.06%	0.57%	3.62%	0.83%
DV Perpetrator: Never DV Perpetrator	24,210	0.56%	0.45%	0.30%	0.18%	1.72%	-0.05%	2.55%	0.70%

Table A15: Calibration for static predictors of all and violent reoffending, by population subgroup and reoffending outcome, July to December 2018 starts: Men with sexual history

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGRS3)	All reoffending: residual (OGRS4/G)	OVP violence: actual rate	OVP violence: residual (OGRS4/V)
All	5,921	42.68%	1.57%	-1.98%	23.50%	-4.23%
Age: 18 - 20	190	56.84%	0.15%	-1.98%	34.21%	-3.00%
Age: 21 - 24	570	54.04%	1.48%	-2.97%	27.89%	-7.99%
Age: 25 - 29	852	52.00%	-0.02%	-2.45%	28.76%	-5.91%
Age: 30 - 39	1,555	50.77%	0.30%	-1.83%	30.57%	-3.74%
Age: 40 - 49	1,177	42.60%	0.78%	-1.64%	23.81%	-4.09%
Age: 50 - 59	885	30.73%	6.41%	-0.84%	14.46%	-2.87%
Age: 60 and Over	692	15.17%	1.98%	-2.95%	5.64%	-2.44%

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGRS3)	All reoffending: residual (OGRS4/G)	OVP violence: actual rate	OVP violence: residual (OGRS4/V)
Ethnicity: Asian	296	40.88%	2.47%	0.04%	21.96%	-0.92%
Ethnicity: Black	374	55.61%	3.00%	0.72%	31.02%	-3.53%
Ethnicity: Mixed	153	60.78%	2.91%	1.03%	36.60%	-4.69%
Ethnicity: Not Known	175	23.43%	0.82%	-4.24%	10.29%	-3.89%
Ethnicity: White	4,854	42.15%	1.57%	-2.16%	23.23%	-4.39%
Disability: Does not have disability	2,652	40.91%	0.44%	-3.28%	19.98%	-6.55%
Disability: Has disability	3,269	44.11%	2.49%	-0.92%	26.35%	-2.34%
LDC: Likely LDC	1,592	67.13%	6.88%	4.95%	41.36%	-2.37%
LDC: Not likely LDC	2,396	40.75%	1.17%	-2.01%	21.25%	-4.84%
DV Perpetrator: Current DV Perpetrator	375	52.00%	-2.80%	-3.96%	38.67%	-4.00%
DV Perpetrator: Former DV Perpetrator	1,346	67.09%	3.79%	2.33%	44.80%	-2.57%
DV Perpetrator: Never DV Perpetrator	2,566	42.78%	4.07%	0.50%	19.81%	-4.50%

Table A16: Calibration for static predictors of serious reoffending, by population subgroup and reoffending outcome, July to December 2018 starts: Men with sexual history

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
All	5,921	2.16%	1.11%	1.50%	0.66%	1.01%	-0.35%	4.49%	1.24%
Age: 18 - 20	190	5.26%	3.81%	2.63%	2.07%	3.68%	0.71%	11.58%	6.42%
Age: 21 - 24	570	2.63%	1.00%	1.23%	0.53%	1.75%	-0.69%	5.61%	0.78%
Age: 25 - 29	852	2.70%	1.14%	1.64%	0.99%	1.64%	-0.39%	5.63%	1.34%
Age: 30 - 39	1,555	1.93%	0.72%	1.93%	1.18%	0.90%	-0.76%	4.38%	0.76%
Age: 40 - 49	1,177	2.21%	1.41%	0.76%	-0.05%	0.85%	-0.24%	3.74%	1.09%
Age: 50 - 59	885	1.69%	1.08%	1.81%	0.76%	0.56%	0.06%	3.95%	1.80%
Age: 60 and Over	692	1.30%	0.86%	1.16%	-0.08%	0.00%	-0.12%	2.46%	0.66%
Ethnicity: Asian	296	2.03%	0.84%	0.00%	-0.38%	0.68%	-0.32%	2.70%	0.18%
Ethnicity: Black	374	4.01%	2.74%	0.00%	-0.29%	3.74%	2.07%	7.22%	4.00%
Ethnicity: Mixed	153	1.96%	0.60%	0.00%	-0.38%	1.96%	-0.30%	3.92%	-0.12%
Ethnicity: Not Known	175	1.14%	0.32%	2.86%	1.97%	0.00%	-0.64%	4.00%	1.64%
Ethnicity: White	4,854	2.10%	1.08%	1.73%	0.80%	0.85%	-0.52%	4.49%	1.17%
Disability: Does not have disability	2,652	1.92%	0.85%	1.24%	0.39%	0.75%	-0.55%	3.70%	0.47%
Disability: Has disability	3,269	2.36%	1.33%	1.71%	0.89%	1.22%	-0.19%	5.14%	1.86%

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
LDC: Likely LDC	1,592	3.33%	2.04%	1.32%	0.82%	2.14%	-0.21%	6.60%	2.39%
LDC: Not likely LDC	2,396	1.92%	0.94%	1.96%	0.91%	0.58%	-0.63%	4.22%	1.00%
DV Perpetrator: Current DV Perpetrator	375	1.60%	0.47%	0.27%	-0.01%	2.40%	0.32%	4.27%	0.56%
DV Perpetrator: Former DV Perpetrator	1,346	2.08%	0.85%	0.52%	0.13%	2.01%	-0.47%	4.38%	0.14%
DV Perpetrator: Never DV Perpetrator	2,566	2.73%	1.70%	2.53%	1.42%	0.59%	-0.61%	5.62%	2.39%

Table A17: Calibration for static predictors of all and violent reoffending, by population subgroup and reoffending outcome, July to December 2018 starts: With OASys

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGRS3)	All reoffending: residual (OGRS4/G)	OVP violence: actual rate	OVP violence: residual (OGRS4/V)
All	44,684	57.36%	-1.05%	-1.67%	36.68%	-3.59%
Age: 18 - 20	2,775	60.42%	-2.43%	-0.75%	40.27%	-3.40%
Age: 21 - 24	5,557	58.35%	-2.63%	-4.04%	38.98%	-5.34%
Age: 25 - 29	8,611	59.29%	-3.44%	-3.12%	40.60%	-3.65%
Age: 30 - 39	15,528	61.06%	-0.95%	-1.06%	38.72%	-3.66%

Annex 1: Additional Materials

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGRS3)	All reoffending: residual (OGRS4/G)	OVP violence: actual rate	OVP violence: residual (OGRS4/V)
Age: 40 - 49	8,117	55.66%	-0.53%	-0.72%	32.51%	-3.74%
Age: 50 - 59	3,169	42.51%	6.72%	0.06%	25.40%	-0.76%
Age: 60 and Over	926	24.97%	2.69%	-0.86%	14.58%	-0.25%
Gender: Female	5,677	51.34%	-3.75%	-1.64%	27.43%	-3.64%
Gender: Male	39,007	58.23%	-0.66%	-1.67%	38.01%	-3.59%
Ethnicity: Asian	1,987	51.58%	-0.52%	-0.59%	29.18%	-3.71%
Ethnicity: Black	2,945	59.52%	-0.07%	-0.82%	35.01%	-4.98%
Ethnicity: Mixed	1,553	63.27%	-0.12%	-0.81%	40.49%	-4.06%
Ethnicity: Not Known	2,153	38.65%	0.56%	-0.71%	24.46%	-0.40%
Ethnicity: White	35,652	58.40%	-1.29%	-1.90%	37.83%	-3.66%
Disability: Does not have disability	18,320	60.12%	-1.74%	-2.45%	37.06%	-5.44%
Disability: Has disability	26,364	55.41%	-0.56%	-1.12%	36.41%	-2.29%
LDC: Likely LDC	13,934	69.18%	0.85%	0.43%	45.91%	-2.87%
LDC: Not likely LDC	25,148	51.39%	-2.06%	-2.84%	31.90%	-4.30%
DV Perpetrator: Current DV Perpetrator	6,486	48.47%	-1.33%	-2.25%	38.56%	-0.45%

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGRS3)	All reoffending: residual (OGRS4/G)	OVP violence: actual rate	OVP violence: residual (OGRS4/V)
DV Perpetrator: Former DV Perpetrator	13,988	65.85%	1.29%	0.80%	47.32%	-1.05%
DV Perpetrator: Never DV Perpetrator	24,210	54.72%	-2.37%	-2.98%	29.82%	-5.96%

Table A18: Calibration for static predictors of serious reoffending, by population subgroup and reoffending outcome, July to December 2018 starts: With OASys

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
All	44,684	0.53%	0.43%	0.19%	0.11%	2.22%	0.19%	2.90%	0.72%
Age: 18 - 20	2,775	0.86%	0.79%	0.32%	0.30%	4.58%	1.27%	5.69%	2.19%
Age: 21 - 24	5,557	0.58%	0.44%	0.14%	0.08%	3.49%	0.53%	4.18%	0.95%
Age: 25 - 29	8,611	0.57%	0.44%	0.15%	0.10%	2.77%	0.29%	3.45%	0.78%
Age: 30 - 39	15,528	0.44%	0.34%	0.15%	0.10%	1.96%	0.03%	2.51%	0.49%
Age: 40 - 49	8,117	0.48%	0.40%	0.12%	0.04%	1.17%	-0.16%	1.77%	0.37%
Age: 50 - 59	3,169	0.60%	0.49%	0.41%	0.22%	0.95%	0.19%	1.91%	0.87%
Age: 60 and Over	926	0.86%	0.70%	0.65%	0.10%	0.36%	0.10%	2.03%	1.00%
Gender: Female	5,677	0.09%	0.09%	0.00%	0.00%	0.59%	-0.52%	0.68%	-0.37%

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
Gender: Male	39,007	0.60%	0.48%	0.21%	0.12%	2.45%	0.30%	3.22%	0.88%
Ethnicity: Asian	1,987	0.60%	0.48%	0.00%	-0.04%	1.84%	0.27%	2.47%	0.75%
Ethnicity: Black	2,945	0.88%	0.76%	0.00%	-0.03%	3.61%	1.56%	4.38%	2.14%
Ethnicity: Mixed	1,553	0.64%	0.53%	0.00%	-0.03%	3.95%	1.54%	4.61%	2.04%
Ethnicity: Not Known	2,153	0.19%	0.15%	0.19%	0.14%	1.41%	0.24%	1.81%	0.60%
Ethnicity: White	35,652	0.52%	0.42%	0.22%	0.13%	2.10%	0.01%	2.81%	0.56%
Disability: Does not have disability	18,320	0.49%	0.38%	0.17%	0.09%	2.20%	0.01%	2.83%	0.47%
Disability: Has disability	26,364	0.57%	0.46%	0.20%	0.12%	2.23%	0.32%	2.96%	0.90%
LDC: Likely LDC	13,934	0.74%	0.59%	0.17%	0.11%	3.22%	0.56%	4.07%	1.13%
LDC: Not likely LDC	25,148	0.45%	0.35%	0.21%	0.11%	1.79%	0.06%	2.42%	0.56%
DV Perpetrator: Current DV Perpetrator	6,486	0.48%	0.41%	0.02%	-0.00%	2.18%	0.29%	2.64%	0.56%
DV Perpetrator: Former DV Perpetrator	13,988	0.51%	0.40%	0.06%	0.03%	3.06%	0.57%	3.62%	0.83%

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
DV Perpetrator: Never DV Perpetrator	24,210	0.56%	0.45%	0.30%	0.18%	1.72%	-0.05%	2.55%	0.70%

Table A19: Calibration for dynamic predictors of all, violent and SNSV reoffending, by population subgroup and reoffending outcome, July to December 2018 starts: With OASys

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGP2)	OVP violence: actual rate	OVP violence: residual (OVP1)	OVP violence: residual (OVP2)	SNSV: actual rate	SNSV: residual (SNSV (Dynamic))
All	44,684	57.39%	1.52%	36.68%	-0.23%	-0.33%	2.23%	0.23%
Age: 18 - 20	2,775	60.43%	2.07%	40.38%	-3.40%	0.04%	4.69%	1.29%
Age: 21 - 24	5,557	58.35%	-1.06%	38.99%	-3.18%	-1.87%	3.52%	0.49%
Age: 25 - 29	8,611	59.23%	-0.05%	40.54%	0.19%	-0.41%	2.75%	0.25%
Age: 30 - 39	15,528	61.17%	2.36%	38.82%	0.87%	-0.23%	1.97%	0.11%
Age: 40 - 49	8,117	55.81%	2.84%	32.40%	0.57%	-0.45%	1.18%	-0.04%
Age: 50 - 59	3,169	42.22%	2.61%	25.38%	-0.35%	1.72%	0.97%	0.25%
Age: 60 and Over	926	25.21%	0.67%	14.72%	-2.76%	0.84%	0.37%	0.13%
Gender: Female	5,677	51.39%	2.23%	27.49%	3.74%	-0.03%	0.60%	-0.44%
Gender: Male	39,007	58.24%	1.42%	38.00%	-0.80%	-0.37%	2.46%	0.33%
Ethnicity: Asian	1,987	51.86%	2.85%	29.26%	-1.10%	-0.24%	1.88%	0.33%

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGP2)	OVP violence: actual rate	OVP violence: residual (OVP1)	OVP violence: residual (OVP2)	SNSV: actual rate	SNSV: residual (SNSV (Dynamic))
Ethnicity: Black	2,945	59.71%	2.96%	35.11%	-1.84%	-0.26%	3.56%	1.47%
Ethnicity: Mixed	1,553	63.39%	2.65%	40.69%	0.03%	0.34%	4.03%	1.61%
Ethnicity: Not Known	2,153	38.32%	2.37%	24.15%	-0.34%	2.15%	1.47%	0.36%
Ethnicity: White	35,652	58.38%	1.22%	37.81%	-0.06%	-0.53%	2.11%	0.06%
Disability: Does not have disability	18,320	60.16%	0.91%	37.00%	-1.50%	-1.97%	2.21%	0.05%
Disability: Has disability	26,364	55.42%	1.96%	36.46%	0.67%	0.83%	2.24%	0.37%
LDC: Likely LDC	13,934	69.18%	2.39%	45.90%	-0.66%	-0.45%	3.22%	0.48%
LDC: Not likely LDC	25,148	51.41%	1.07%	31.90%	-0.17%	-0.52%	1.78%	0.13%
DV Perpetrator: Current DV Perpetrator	6,486	48.38%	-0.01%	38.49%	-0.49%	0.70%	2.17%	0.17%
DV Perpetrator: Former DV Perpetrator	13,988	65.95%	2.98%	47.36%	1.68%	0.82%	3.08%	0.44%

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGP2)	OVP violence: actual rate	OVP violence: residual (OVP1)	OVP violence: residual (OVP2)	SNSV: actual rate	SNSV: residual (SNSV (Dynamic))
DV Perpetrator: Never DV Perpetrator	24,210	54.68%	1.06%	29.75%	-1.31%	-1.31%	1.74%	0.13%

Model discrimination

Table A20: Prediction of proven reoffending in a two-year follow-up, all reoffending, by population subgroup and predictor, July to December 2018 starts

Subgroup	OGRS3 (All Cases)	OGRS4/G (All Cases)	OGRS3 (with OASys)	OGRS4/G (with OASys)	OGP2 (with OASys)
All	0.736	0.737	0.711	0.711	0.717
Age: 18 - 20	0.677	0.678	0.668	0.665	0.675
Age: 21 - 24	0.699	0.702	0.679	0.679	0.688
Age: 25 - 29	0.715	0.713	0.699	0.697	0.705
Age: 30 - 39	0.740	0.739	0.714	0.714	0.717
Age: 40 - 49	0.753	0.752	0.721	0.720	0.726
Age: 50 - 59	0.765	0.769	0.738	0.741	0.753
Age: 60 and Over	0.754	0.763	0.773	0.773	0.784
Gender: Female	0.773	0.777	0.739	0.743	0.747
Gender: Male	0.730	0.730	0.706	0.706	0.712
Ethnicity: Asian	0.735	0.738	0.708	0.710	0.717
Ethnicity: Black	0.708	0.709	0.683	0.685	0.690

Subgroup	OGRS3 (All Cases)	OGRS4/G (All Cases)	OGRS3 (with OASys)	OGRS4/G (with OASys)	OGP2 (with OASys)
Ethnicity: Mixed	0.714	0.714	0.693	0.689	0.698
Ethnicity: Not Known	0.729	0.734	0.701	0.708	0.716
Ethnicity: White	0.732	0.732	0.711	0.711	0.717
Disability: Does not have disability	0.732	0.732	0.701	0.700	0.706
Disability: Has disability	0.739	0.741	0.718	0.719	0.725
LDC: Likely LDC	0.678	0.676	0.678	0.676	0.683
LDC: Not likely LDC	0.719	0.720	0.719	0.720	0.724
DV Perpetrator: Current DV Perpetrator	0.694	0.698	0.694	0.698	0.702
DV Perpetrator: Former DV Perpetrator	0.682	0.682	0.682	0.682	0.688
DV Perpetrator: Never DV Perpetrator	0.723	0.722	0.723	0.722	0.729

Table A21: Prediction of proven reoffending in a two-year follow-up, violent reoffending, by population subgroup and predictor, July to December 2018 starts

Subgroup	OGRS3 (All Cases)	OGRS4/V (All Cases)	OVP1 (with OASys)	OVP2 (with OASys)	OGRS4/V (with OASys)
All	0.704	0.742	0.709	0.720	0.712
Age: 18 - 20	0.674	0.703	0.691	0.698	0.687
Age: 21 - 24	0.709	0.738	0.699	0.715	0.710
Age: 25 - 29	0.697	0.727	0.699	0.709	0.700
Age: 30 - 39	0.693	0.727	0.691	0.702	0.697

Annex 1: Additional Materials

Subgroup	OGRS3 (All Cases)	OGRS4/V (All Cases)	OVP1 (with OASys)	OVP2 (with OASys)	OGRS4/V (with OASys)
Age: 40 - 49	0.692	0.745	0.720	0.730	0.720
Age: 50 - 59	0.735	0.790	0.763	0.774	0.765
Age: 60 and Over	0.785	0.843	0.819	0.837	0.833
Gender: Female	0.709	0.769	0.730	0.743	0.737
Gender: Male	0.703	0.736	0.703	0.714	0.706
Ethnicity: Asian	0.709	0.756	0.729	0.742	0.728
Ethnicity: Black	0.688	0.716	0.676	0.692	0.684
Ethnicity: Mixed	0.686	0.725	0.689	0.699	0.694
Ethnicity: Not Known	0.715	0.759	0.714	0.730	0.718
Ethnicity: White	0.695	0.734	0.707	0.718	0.711
Disability: Does not have disability	0.702	0.738	0.698	0.711	0.704
Disability: Has disability	0.708	0.746	0.716	0.727	0.719
LDC: Likely LDC	0.637	0.695	0.690	0.700	0.695
LDC: Not likely LDC	0.673	0.717	0.711	0.724	0.717
DV Perpetrator: Current DV Perpetrator	0.676	0.686	0.680	0.691	0.686
DV Perpetrator: Former DV Perpetrator	0.628	0.666	0.663	0.673	0.666
DV Perpetrator: Never DV Perpetrator	0.686	0.734	0.725	0.740	0.734

Table A22: Prediction of proven reoffending in a two-year follow-up, SNSV reoffending, by population subgroup and predictor, July to December 2018 starts

Subgroup	OGRS4/V (All Cases)	RSR SNSV (static) (All Cases)	OGRS4/V (with OASys)	OVP2 (with OASys)	RSR SNSV (static) (with OASys)	RSR SNSV (static-dynamic) (with OASys)
All	0.743	0.761	0.715	0.715	0.737	0.751
Age: 18 - 20	0.717	0.721	0.681	0.681	0.689	0.697
Age: 21 - 24	0.735	0.751	0.694	0.693	0.708	0.713
Age: 25 - 29	0.743	0.745	0.709	0.711	0.718	0.746
Age: 30 - 39	0.706	0.708	0.679	0.684	0.682	0.701
Age: 40 - 49	0.704	0.701	0.711	0.705	0.710	0.730
Age: 50 - 59	0.799	0.792	0.803	0.790	0.812	0.803
Age: 60 and Over	0.631	0.713	0.541	0.560	0.643	0.637
Gender: Female	0.740	0.742	0.711	0.690	0.728	0.712
Gender: Male	0.734	0.751	0.704	0.704	0.723	0.739
Ethnicity: Asian	0.818	0.835	0.762	0.760	0.771	0.785
Ethnicity: Black	0.692	0.723	0.637	0.649	0.686	0.713
Ethnicity: Mixed	0.701	0.727	0.680	0.704	0.696	0.751
Ethnicity: Not Known	0.764	0.756	0.815	0.810	0.823	0.822
Ethnicity: White	0.735	0.750	0.718	0.717	0.733	0.741
Disability: Does not have disability	0.723	0.749	0.692	0.688	0.718	0.742
Disability: Has disability	0.755	0.767	0.730	0.733	0.748	0.756
LDC: Likely LDC	0.676	0.697	0.676	0.671	0.697	0.717

Subgroup	OGRS4/V (All Cases)	RSR SNSV (static) (All Cases)	OGRS4/V (with OASys)	OVP2 (with OASys)	RSR SNSV (static) (with OASys)	RSR SNSV (static-dynamic) (with OASys)
LDC: Not likely LDC	0.722	0.746	0.722	0.718	0.746	0.758
DV Perpetrator: Current DV Perpetrator	0.719	0.718	0.719	0.719	0.718	0.723
DV Perpetrator: Former DV Perpetrator	0.682	0.692	0.682	0.677	0.692	0.703
DV Perpetrator: Never DV Perpetrator	0.716	0.757	0.716	0.721	0.757	0.777

Table A23: Prediction of proven reoffending in a two-year follow-up, sexual reoffending predicted by OSP/C and OSP/I, by population subgroup and predictor, July to December 2018 starts: Men with Sexual History

Subgroup	OSP/C (Men with Sexual History)	OSP/I (Men with Sexual History)
All	0.676	0.857
Age: 18 - 20	0.365	0.839
Age: 21 - 24	0.734	0.974
Age: 25 - 29	0.681	0.818
Age: 30 - 39	0.578	0.919
Age: 40 - 49	0.701	0.813
Age: 50 - 59	0.695	0.786
Age: 60 and Over	0.814	0.850
Ethnicity: Asian	0.707	
Ethnicity: Black	0.598	

Subgroup	OSP/C (Men with Sexual History)	OSP/I (Men with Sexual History)
Ethnicity: Mixed	0.356	
Ethnicity: Not Known	0.930	0.779
Ethnicity: White	0.681	0.847
Disability: Does not have disability	0.660	0.867
Disability: Has disability	0.689	0.851
LDC: Likely LDC	0.632	0.895
LDC: Not likely LDC	0.645	0.861
DV Perpetrator: Current DV Perpetrator	0.654	
DV Perpetrator: Former DV Perpetrator	0.666	0.983
DV Perpetrator: Never DV Perpetrator	0.673	0.836

Table A24: Prediction of proven reoffending in a two-year follow-up, serious reoffending predicted by RSR, by population subgroup and predictor, July to December 2018 starts

Subgroup	OGRS4/V (All Cases)	RSR total (All Cases)	OGRS4/V (with OASys)	OVP2 (with OASys)	RSR total (with OASys)
All	0.677	0.752	0.644	0.646	0.732
Age: 18 - 20	0.708	0.723	0.667	0.661	0.687
Age: 21 - 24	0.704	0.746	0.664	0.662	0.707
Age: 25 - 29	0.677	0.735	0.652	0.657	0.726
Age: 30 - 39	0.646	0.723	0.612	0.620	0.710
Age: 40 - 49	0.622	0.708	0.589	0.584	0.704
Age: 50 - 59	0.570	0.793	0.566	0.570	0.766
Age: 60 and Over	0.475	0.816	0.483	0.511	0.753

Annex 1: Additional Materials

Subgroup	OGRS4/V (All Cases)	RSR total (All Cases)	OGRS4/V (with OASys)	OVP2 (with OASys)	RSR total (with OASys)
Gender: Female	0.748	0.740	0.710	0.689	0.702
Gender: Male	0.664	0.739	0.630	0.633	0.716
Ethnicity: Asian	0.782	0.812	0.756	0.770	0.761
Ethnicity: Black	0.691	0.728	0.642	0.654	0.702
Ethnicity: Mixed	0.685	0.737	0.669	0.686	0.737
Ethnicity: Not Known	0.720	0.751	0.714	0.726	0.811
Ethnicity: White	0.653	0.739	0.629	0.630	0.723
Disability: Does not have disability	0.655	0.740	0.613	0.616	0.719
Disability: Has disability	0.691	0.759	0.665	0.666	0.740
LDC: Likely LDC	0.612	0.701	0.612	0.607	0.701
LDC: Not likely LDC	0.646	0.738	0.646	0.645	0.738
DV Perpetrator: Current DV Perpetrator	0.717	0.733	0.717	0.722	0.733
DV Perpetrator: Former DV Perpetrator	0.653	0.682	0.653	0.651	0.682
DV Perpetrator: Never DV Perpetrator	0.603	0.757	0.603	0.607	0.757

A.2 Caseload tables

Descriptive statistics

Table A25: Population Statistics, by population subgroup and cohort, 30 June 2018 caseload

Subgroup	All Cases: Count	All cases: Column Percentage	With OASys: Count	With OASys: Column Percentage	Women and Men with no Sexual Offending History: Count	Women and Men with no Sexual Offending History: Column Percentage	Men with Sexual Offending History: Count	Men with Sexual Offending History: Column Percentage
All	189,097	100.00%	127,265	100.00%	166,605	100.00%	22,231	100.00%
Age: 18 - 20	10,576	5.59%	5,822	4.57%	9,963	5.98%	604	2.72%
Age: 21 - 24	23,469	12.41%	14,814	11.64%	21,689	13.02%	1,753	7.89%
Age: 25 - 29	34,654	18.33%	22,931	18.02%	31,930	19.17%	2,692	12.11%
Age: 30 - 39	59,006	31.20%	40,520	31.84%	53,496	32.11%	5,429	24.42%
Age: 40 - 49	34,715	18.36%	24,099	18.94%	30,327	18.20%	4,327	19.46%
Age: 50 - 59	18,368	9.71%	13,189	10.36%	14,208	8.53%	4,121	18.54%
Age: 60 and Over	7,349	3.89%	5,888	4.63%	4,039	2.42%	3,300	14.84%
Gender: Female	22,522	11.91%	12,793	10.05%	22,261	13.36%		
Gender: Male	166,575	88.09%	114,472	89.95%	144,344	86.64%	22,231	100.00%
Ethnicity: Asian	11,432	6.05%	7,771	6.11%	10,278	6.17%	1,149	5.17%
Ethnicity: Black	14,747	7.80%	10,598	8.33%	13,472	8.09%	1,255	5.65%

Subgroup	All Cases: Count	All cases: Column Percentage	With OASys: Count	With OASys: Column Percentage	Women and Men with no Sexual Offending History: Count	Women and Men with no Sexual Offending History: Column Percentage	Men with Sexual Offending History: Count	Men with Sexual Offending History: Column Percentage
Ethnicity: Mixed	6,367	3.37%	4,564	3.59%	5,915	3.55%	442	1.99%
Ethnicity: Not Known	18,606	9.84%	7,533	5.92%	17,835	10.70%	760	3.42%
Ethnicity: White	135,448	71.63%	95,289	74.87%	116,898	70.16%	18,337	82.48%
Disability: Does not have disability	128,420	67.91%	83,855	65.89%	114,427	68.68%	13,861	62.35%
Disability: Has disability	60,677	32.09%	43,410	34.11%	52,178	31.32%	8,370	37.65%
LDC: Likely LDC	31,954	16.90%	31,954	25.11%	26,850	16.12%	5,030	22.63%
LDC: Not likely LDC	83,121	43.96%	83,121	65.31%	68,113	40.88%	14,850	66.80%
DV Perpetrator: Current DV Perpetrator	16,672	8.82%	16,672	13.10%	15,313	9.19%	1,348	6.06%
DV Perpetrator: Former DV Perpetrator	32,249	17.05%	32,249	25.34%	28,275	16.97%	3,933	17.69%

Subgroup	All Cases: Count	All cases: Column Percentage	With OASys: Count	With OASys: Column Percentage	Women and Men with no Sexual Offending History: Count	Women and Men with no Sexual Offending History: Column Percentage	Men with Sexual Offending History: Count	Men with Sexual Offending History: Column Percentage
DV Perpetrator: Never DV Perpetrator	78,344	41.43%	78,344	61.56%	62,486	37.51%	15,662	70.45%
OFM: 0 to 2 months	41,853	22.13%	25,478	20.02%	38,373	23.03%	3,432	15.44%
OFM: 3 to 5 months	36,921	19.52%	24,445	19.21%	33,572	20.15%	3,315	14.91%
OFM: 6 to 11 months	58,847	31.12%	38,883	30.55%	53,056	31.85%	5,721	25.73%
OFM: 12+ months	51,476	27.22%	38,459	30.22%	41,604	24.97%	9,763	43.92%

Note: Some column percentages will add up to less than 100% as the denominator will include cases with missing data which have been omitted from the final table

Censoring statistics

Table A26: Censoring Statistics, All and OVP violence, by population subgroup, 30 June 2018 caseload

Subgroup	Number of cases	All offending: percent right censored	All offending: median days to right censor	OVP violence: percent right censored	OVP violence: median days to right censor
All	189,097	2.71%	117	4.92%	174
Age: 18 - 20	10,576	1.96%	98	3.91%	172
Age: 21 - 24	23,469	2.49%	112	4.35%	161
Age: 25 - 29	34,654	3.06%	114	5.44%	166
Age: 30 - 39	59,006	3.04%	107	5.85%	171
Age: 40 - 49	34,715	2.81%	125	5.15%	180
Age: 50 - 59	18,368	1.95%	245	2.96%	257
Age: 60 and Over	7,349	1.32%	227	2.01%	220
Gender: Female	22,522	1.80%	91	3.76%	170
Gender: Male	166,575	2.83%	121	5.08%	175
Ethnicity: Asian	11,432	2.15%	132	3.98%	202
Ethnicity: Black	14,747	3.71%	161	6.48%	215
Ethnicity: Mixed	6,367	3.91%	116	6.88%	170
Ethnicity: Not Known	18,606	0.97%	175	1.63%	200
Ethnicity: White	135,448	2.85%	111	5.23%	167
Disability: Does not have disability	128,420	2.68%	125	4.87%	184
Disability: Has disability	60,677	2.76%	101	5.04%	163
LDC: Likely LDC	31,954	5.13%	87	9.68%	144

Subgroup	Number of cases	All offending: percent right censored	All offending: median days to right censor	OVP violence: percent right censored	OVP violence: median days to right censor
LDC: Not likely LDC	83,121	3.39%	138	5.74%	189
DV Perpetrator: Current DV Perpetrator	16,672	2.83%	131	3.72%	157
DV Perpetrator: Former DV Perpetrator	32,249	5.04%	103	8.64%	154
DV Perpetrator: Never DV Perpetrator	78,344	3.35%	122	6.38%	180
OFM: 0 to 2 months	41,853	4.44%	76	8.35%	132
OFM: 3 to 5 months	36,921	2.58%	122	5.22%	191
OFM: 6 to 11 months	58,847	1.64%	158	3.21%	221
OFM: 12+ months	51,476	2.62%	171	3.89%	210

Table A27: Censoring Statistics, All serious reoffending including contact sexual, IIOC and SNSV, 30 June 2018 caseload

Subgroup	Number of cases	Contact sexual: percent right censored	Contact sexual: median days to right censor	Indecent images: percent right censored	Indecent images: median days to right censor	SNSV: percent right censored	SNSV: median days to right censor	All RSR: percent right censored	All RSR: median days to right censor
All	189,097	8.12%	235	8.16%	236	7.97%	235	7.88%	234
Age: 18 - 20	10,576	7.49%	284	7.55%	285	7.11%	276	7.03%	272
Age: 21 - 24	23,469	7.87%	220	7.95%	222	7.61%	221	7.54%	220
Age: 25 - 29	34,654	9.34%	231	9.39%	233	9.11%	230	9.03%	230
Age: 30 - 39	59,006	9.75%	234	9.79%	234	9.60%	233	9.53%	231

Annex 1: Additional Materials

Subgroup	Number of cases	Contact sexual: percent right censored	Contact sexual: median days to right censor	Indecent images: percent right censored	Indecent images: median days to right censor	SNSV: percent right censored	SNSV: median days to right censor	All RSR: percent right censored	All RSR: median days to right censor
Age: 40 - 49	34,715	7.64%	227	7.65%	228	7.57%	227	7.47%	226
Age: 50 - 59	18,368	4.42%	273	4.48%	277	4.44%	282	4.32%	282
Age: 60 and Over	7,349	2.45%	255	2.39%	251	2.46%	251	2.31%	248
Gender: Female	22,522	5.40%	227	5.40%	228	5.37%	226	5.36%	224
Gender: Male	166,575	8.49%	236	8.53%	236	8.32%	235	8.22%	234
Ethnicity: Asian	11,432	5.88%	250	5.97%	250	5.79%	250	5.72%	250
Ethnicity: Black	14,747	9.84%	242	9.96%	243	9.57%	243	9.47%	242
Ethnicity: Mixed	6,367	11.78%	233	11.86%	233	11.47%	233	11.39%	233
Ethnicity: Not Known	18,606	2.92%	270	2.95%	271	2.81%	260	2.78%	260
Ethnicity: White	135,448	8.73%	231	8.76%	231	8.58%	230	8.49%	229
Disability: Does not have disability	128,420	7.76%	235	7.78%	235	7.58%	234	7.51%	233

Subgroup	Number of cases	Contact sexual: percent right censored	Contact sexual: median days to right censor	Indecent images: percent right censored	Indecent images: median days to right censor	SNSV: percent right censored	SNSV: median days to right censor	All RSR: percent right censored	All RSR: median days to right censor
Disability: Has disability	60,677	8.89%	236	8.96%	237	8.79%	235	8.67%	234
LDC: Likely LDC	31,954	16.68%	210	16.77%	212	16.38%	209	16.20%	208
LDC: Not likely LDC	83,121	9.00%	233	9.04%	233	8.82%	233	8.71%	230
DV Perpetrator: Current DV Perpetrator	16,672	8.01%	247	8.07%	249	7.76%	247	7.70%	244
DV Perpetrator: Former DV Perpetrator	32,249	15.65%	223	15.73%	224	15.35%	223	15.26%	221
DV Perpetrator: Never DV Perpetrator	78,344	9.40%	223	9.43%	223	9.23%	223	9.09%	222
OFM: 0 to 2 months	41,853	13.98%	199	14.03%	199	13.78%	198	13.67%	196
OFM: 3 to 5 months	36,921	8.96%	252	9.01%	254	8.77%	251	8.69%	251
OFM: 6 to 11 months	58,847	5.70%	289	5.73%	290	5.57%	289	5.50%	286

Subgroup	Number of cases	Contact sexual: percent right censored	Contact sexual: median days to right censor	Indecent images: percent right censored	Indecent images: median days to right censor	SNSV: percent right censored	SNSV: median days to right censor	All RSR: percent right censored	All RSR: median days to right censor
OFM: 12+ months	51,476	5.53%	236	5.56%	236	5.41%	237	5.32%	235

Rates of proven reoffending, not considering censoring

Table A28: Rates of proven reoffending in a two-year follow-up, not considering censoring, by subgroup and reoffending outcome, 30 June 2018 caseload: All Cases

Subgroup	Number of cases	All	OVP violence	Contact Sexual	Indecent images	SNSV	All RSR
All	189,097	32.15%	18.62%	0.34%	0.20%	1.22%	1.71%
Age: 18 - 20	10,576	43.67%	26.20%	0.47%	0.09%	2.70%	3.21%
Age: 21 - 24	23,469	38.31%	22.57%	0.36%	0.16%	2.13%	2.58%
Age: 25 - 29	34,654	37.25%	22.72%	0.41%	0.16%	1.63%	2.15%
Age: 30 - 39	59,006	34.81%	20.38%	0.31%	0.18%	1.11%	1.55%
Age: 40 - 49	34,715	28.21%	14.86%	0.31%	0.18%	0.60%	1.07%
Age: 50 - 59	18,368	17.47%	9.36%	0.32%	0.31%	0.38%	0.96%
Age: 60 and Over	7,349	8.35%	3.67%	0.27%	0.65%	0.08%	0.99%
Gender: Female	22,522	27.03%	13.93%	0.04%	0.00%	0.40%	0.44%
Gender: Male	166,575	32.84%	19.25%	0.38%	0.23%	1.33%	1.88%
Ethnicity: Asian	11,432	26.66%	12.53%	0.31%	0.04%	0.88%	1.21%
Ethnicity: Black	14,747	35.21%	18.55%	0.50%	0.02%	1.70%	2.16%

Annex 1: Additional Materials

Subgroup	Number of cases	All	OVP violence	Contact Sexual	Indecent images	SNSV	All RSR
Ethnicity: Mixed	6,367	40.29%	23.64%	0.38%	0.13%	2.20%	2.67%
Ethnicity: Not Known	18,606	21.24%	11.73%	0.21%	0.04%	0.81%	1.01%
Ethnicity: White	135,448	33.57%	19.98%	0.35%	0.26%	1.21%	1.77%
Disability: Does not have disability	128,420	29.95%	16.55%	0.27%	0.16%	1.16%	1.55%
Disability: Has disability	60,677	36.80%	23.00%	0.48%	0.28%	1.35%	2.05%
LDC: Likely LDC	31,954	47.55%	29.34%	0.67%	0.26%	2.01%	2.86%
LDC: Not likely LDC	83,121	30.62%	17.47%	0.34%	0.32%	1.21%	1.82%
DV Perpetrator: Current DV Perpetrator	16,672	33.78%	25.30%	0.38%	0.07%	1.61%	2.00%
DV Perpetrator: Former DV Perpetrator	32,249	46.15%	31.17%	0.45%	0.09%	1.96%	2.45%
DV Perpetrator: Never DV Perpetrator	78,344	31.60%	15.71%	0.41%	0.40%	1.15%	1.91%
OFM: 0 to 2 months	41,853	42.67%	26.11%	0.40%	0.15%	1.62%	2.11%
OFM: 3 to 5 months	36,921	37.45%	21.79%	0.35%	0.17%	1.41%	1.90%
OFM: 6 to 11 months	58,847	31.97%	18.63%	0.30%	0.15%	1.16%	1.59%
OFM: 12+ months	51,476	20.00%	10.23%	0.33%	0.30%	0.82%	1.39%

Table A29: Rates of proven reoffending in a two-year follow-up, not considering censoring, by subgroup and reoffending outcome, 30 June 2018 caseload: With OASys

Subgroup	Number of cases	All	OVP violence	Contact Sexual	Indecent images	SNSV	All RSR
All	127,265	35.57%	20.89%	0.42%	0.28%	1.42%	2.06%
Age: 18 - 20	5,822	48.47%	30.04%	0.58%	0.12%	3.35%	3.98%
Age: 21 - 24	14,814	43.96%	26.70%	0.45%	0.22%	2.69%	3.29%
Age: 25 - 29	22,931	42.17%	26.46%	0.51%	0.22%	1.92%	2.59%
Age: 30 - 39	40,520	38.85%	22.94%	0.37%	0.24%	1.32%	1.88%
Age: 40 - 49	24,099	31.19%	16.54%	0.39%	0.26%	0.72%	1.34%
Age: 50 - 59	13,189	18.99%	10.02%	0.40%	0.42%	0.40%	1.15%
Age: 60 and Over	5,888	8.53%	3.50%	0.31%	0.82%	0.08%	1.19%
Gender: Female	12,793	32.31%	16.67%	0.03%	0.00%	0.40%	0.43%
Gender: Male	114,472	35.94%	21.36%	0.46%	0.31%	1.53%	2.24%
Ethnicity: Asian	7,771	28.75%	13.56%	0.41%	0.04%	1.04%	1.47%
Ethnicity: Black	10,598	38.21%	20.49%	0.57%	0.01%	1.97%	2.50%
Ethnicity: Mixed	4,564	44.06%	26.01%	0.46%	0.18%	2.56%	3.16%
Ethnicity: Not Known	7,533	25.78%	14.87%	0.25%	0.08%	0.94%	1.22%
Ethnicity: White	95,289	36.35%	21.87%	0.41%	0.35%	1.37%	2.08%
Disability: Does not have disability	83,855	33.64%	18.91%	0.34%	0.24%	1.37%	1.90%
Disability: Has disability	43,410	39.30%	24.69%	0.56%	0.36%	1.50%	2.36%
LDC: Likely LDC	31,954	47.55%	29.34%	0.67%	0.26%	2.01%	2.86%
LDC: Not likely LDC	83,121	30.62%	17.47%	0.34%	0.32%	1.21%	1.82%

Subgroup	Number of cases	All	OVP violence	Contact Sexual	Indecent images	SNSV	All RSR
DV Perpetrator: Current DV Perpetrator	16,672	33.78%	25.30%	0.38%	0.07%	1.61%	2.00%
DV Perpetrator: Former DV Perpetrator	32,249	46.15%	31.17%	0.45%	0.09%	1.96%	2.45%
DV Perpetrator: Never DV Perpetrator	78,344	31.60%	15.71%	0.41%	0.40%	1.15%	1.91%
OFM: 0 to 2 months	25,478	50.46%	31.47%	0.51%	0.22%	2.07%	2.73%
OFM: 3 to 5 months	24,445	42.69%	25.04%	0.42%	0.25%	1.60%	2.23%
OFM: 6 to 11 months	38,883	36.11%	21.37%	0.39%	0.23%	1.39%	1.97%
OFM: 12+ months	38,459	20.64%	10.74%	0.39%	0.40%	0.88%	1.59%

Table A30: Rates of proven reoffending in a two-year follow-up, not considering censoring, by subgroup and reoffending outcome, 30 June 2018 caseload: Men with Sexual History

Subgroup	Number of cases	Indecent images	Contact Sexual
All	22,231	1.55%	1.37%
Age: 18 - 20	604	1.32%	3.15%
Age: 21 - 24	1,753	1.60%	1.71%
Age: 25 - 29	2,692	1.78%	1.93%
Age: 30 - 39	5,429	1.75%	1.53%
Age: 40 - 49	4,327	1.43%	1.41%
Age: 50 - 59	4,121	1.33%	1.02%
Age: 60 and Over	3,300	1.45%	0.52%
Ethnicity: Asian	1,149	0.35%	1.22%

Subgroup	Number of cases	Indecent images	Contact Sexual
Ethnicity: Black	1,255	0.24%	2.63%
Ethnicity: Mixed	442	1.58%	1.81%
Ethnicity: Not Known	760	0.66%	0.92%
Ethnicity: White	18,337	1.76%	1.31%
Disability: Does not have disability	13,861	1.37%	1.07%
Disability: Has disability	8,370	1.84%	1.86%
LDC: Likely LDC	5,030	1.49%	2.39%
LDC: Not likely LDC	14,850	1.68%	1.06%
DV Perpetrator: Current DV Perpetrator	1,348	0.22%	0.89%
DV Perpetrator: Former DV Perpetrator	3,933	0.61%	1.75%
DV Perpetrator: Never DV Perpetrator	15,662	1.95%	1.32%
OFM: 0 to 2 months	3,432	1.66%	2.13%
OFM: 3 to 5 months	3,315	1.63%	1.60%
OFM: 6 to 11 months	5,721	1.45%	1.49%
OFM: 12+ months	9,763	1.54%	0.95%

Table A31: Rates of proven sexual reoffending in a two-year follow-up, not considering censoring, by gender subgroup and reoffending outcome, 30 June 2018 caseload: All Cases

Subgroup	Number of cases	Indecent images	Contact Sexual
All	189,097	0.20%	0.34%
Women with history	261	0.00%	0.38%
Women without history	22,261	0.00%	0.03%
Men with history: Very High OSP/C	927	0.76%	4.31%

Subgroup	Number of cases	Indecent images	Contact Sexual
Men with history: High OSP/C	4,243	0.94%	2.22%
Men with history: Medium OSP/C	9,594	1.75%	1.39%
Men with history: Low OSP/C	7,467	1.73%	0.50%
Men with history: High OSP/I	858	10.61%	1.98%
Men with history: Medium OSP/I	6,504	3.14%	1.05%
Men with history: Low OSP/I	14,869	0.33%	1.47%
Men without history: Age 18 - 20	8,944	0.01%	0.34%
Men without history: Age 21 - 24	19,498	0.05%	0.27%
Men without history: Age 25 - 29	28,399	0.03%	0.32%
Men without history: Age 30 - 39	45,818	0.02%	0.21%
Men without history: Age 40 - 49	25,438	0.01%	0.17%
Men without history: Age 50 - 59	11,920	0.02%	0.14%
Men without history: Age 60 and Over	3,497	0.00%	0.09%

Model calibration

Table A32: Calibration of predicted and actual reoffending rates, by reoffending outcome, predictor and population subgroup, 30 June 2018 caseload: All Cases

Reoffending outcome	Predictor	Population subgroup	Number of cases	Predicted rate	Actual rate	Residual
All	OGP2	With OASys	123,795	39.08%	35.91%	-3.18%
All	OGRS3	With OASys	125,604	47.11%	36.00%	-11.11%
All	OGRS3	All cases	184,980	44.51%	32.77%	-11.74%
All	OGRS4/G	With OASys	125,604	40.99%	36.00%	-4.99%

Reoffending outcome	Predictor	Population subgroup	Number of cases	Predicted rate	Actual rate	Residual
All	OGRS4/G	All cases	184,980	38.26%	32.77%	-5.49%
Contact Sexual	OSP/C	Sexual history: Men with	22,231	0.95%	1.37%	0.41%
Contact Sexual	OSP/C	Sexual history: Women and men without	166,866	0.00%	0.20%	0.20%
Indecent Images	OSP/I	Sexual history: Men with	22,231	1.20%	1.55%	0.34%
Indecent Images	OSP/I	Sexual history: Women and men without	166,866	0.00%	0.02%	0.02%
OVP Violence	OGRS4/V	With OASys	125,604	26.46%	21.15%	-5.31%
OVP Violence	OGRS4/V	All cases	184,980	24.28%	18.98%	-5.30%
OVP Violence	OVP1	With OASys	124,066	29.19%	21.08%	-8.11%
OVP Violence	OVP2	With OASys	123,795	24.11%	21.08%	-3.03%
RSR	RSR	With OASys	125,604	1.67%	2.09%	0.41%
RSR	RSR	All cases	184,980	1.44%	1.74%	0.30%
SNSV	RSR SNSV (static-dynamic)	With OASys	123,984	1.31%	1.43%	0.12%
SNSV	RSR SNSV (static)	With OASys	125,604	1.35%	1.43%	0.09%
SNSV	RSR SNSV (static)	All cases	184,980	1.20%	1.24%	0.03%

Table A33: Calibration of predicted and actual reoffending rates, all reoffending, by population subgroup, offending outcome and predictor, and by predictor band, 30 June 2018 caseload

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
OGP2	With OASys	All	A: Low 0 to 24	42,563	13.15%	10.00%	-3.15%
OGP2	With OASys	All	B: Medium 25 to 49	38,422	36.62%	32.14%	-4.48%
OGP2	With OASys	All	C: High 50 to 74	30,800	61.36%	58.84%	-2.51%
OGP2	With OASys	All	D: Very High 75 to 89	10,998	80.85%	80.00%	-0.85%
OGP2	With OASys	All	E: Prolific 90 to 100	1,012	91.60%	91.21%	-0.39%
OGP2	With OASys	All	All cases unbanded	123,795	39.08%	35.91%	-3.18%
OGRS3	All cases	All	A: Low 0 to 24	53,418	13.42%	9.19%	-4.23%
OGRS3	All cases	All	B: Medium 25 to 49	50,066	37.09%	23.54%	-13.55%
OGRS3	All cases	All	C: High 50 to 74	52,410	62.01%	44.89%	-17.11%
OGRS3	All cases	All	D: Very High 75 to 89	24,875	81.29%	67.88%	-13.40%
OGRS3	All cases	All	E: Prolific 90 to 100	4,211	92.10%	83.45%	-8.65%
OGRS3	All cases	All	All cases unbanded	184,980	44.51%	32.77%	-11.74%
OGRS3	With OASys	All	A: Low 0 to 24	32,774	12.64%	9.29%	-3.35%
OGRS3	With OASys	All	B: Medium 25 to 49	31,263	37.39%	24.27%	-13.13%

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
OGRS3	With OASys	All	C: High 50 to 74	37,688	62.35%	46.25%	-16.10%
OGRS3	With OASys	All	D: Very High 75 to 89	20,132	81.41%	69.59%	-11.82%
OGRS3	With OASys	All	E: Prolific 90 to 100	3,747	92.13%	84.04%	-8.09%
OGRS3	With OASys	All	All cases unbanded	125,604	47.11%	36.00%	-11.11%
OGRS4/G	All cases	All	A: Low 0 to 24	65,477	13.48%	9.54%	-3.94%
OGRS4/G	All cases	All	B: Medium 25 to 49	58,774	36.44%	29.38%	-7.06%
OGRS4/G	All cases	All	C: High 50 to 74	44,370	61.25%	54.71%	-6.54%
OGRS4/G	All cases	All	D: Very High 75 to 89	15,091	80.85%	77.56%	-3.30%
OGRS4/G	All cases	All	E: Prolific 90 to 100	1,268	91.50%	89.67%	-1.83%
OGRS4/G	All cases	All	All cases unbanded	184,980	38.26%	32.77%	-5.49%
OGRS4/G	With OASys	All	A: Low 0 to 24	39,920	13.27%	9.63%	-3.63%
OGRS4/G	With OASys	All	B: Medium 25 to 49	38,056	36.79%	30.01%	-6.79%
OGRS4/G	With OASys	All	C: High 50 to 74	33,562	61.58%	56.05%	-5.54%
OGRS4/G	With OASys	All	D: Very High 75 to 89	12,882	80.99%	78.25%	-2.74%
OGRS4/G	With OASys	All	E: Prolific 90 to 100	1,184	91.50%	89.86%	-1.64%

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
OGRS4/G	With OASys	All	All cases unbanded	125,604	40.99%	36.00%	-4.99%

Table A34: Calibration of predicted and actual reoffending rates, violent reoffending, by population subgroup, offending outcome and predictor, and by predictor band, 30 June 2018 caseload

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
OGRS4/V	All cases	OVP Violence	A: Low 0 to 24	106,921	10.95%	7.37%	-3.58%
OGRS4/V	All cases	OVP Violence	B: Medium 25 to 49	56,653	35.50%	27.78%	-7.72%
OGRS4/V	All cases	OVP Violence	C: High 50 to 74	19,111	58.81%	51.23%	-7.58%
OGRS4/V	All cases	OVP Violence	D: Very High 75 to 89	2,078	79.84%	73.58%	-6.26%
OGRS4/V	All cases	OVP Violence	E: Prolific 90 to 100	217	93.56%	80.18%	-13.37%
OGRS4/V	All cases	OVP Violence	All cases unbanded	184,980	24.28%	18.98%	-5.30%
OGRS4/V	With OASys	OVP Violence	A: Low 0 to 24	65,917	10.91%	7.36%	-3.55%
OGRS4/V	With OASys	OVP Violence	B: Medium 25 to 49	41,676	35.87%	28.41%	-7.46%
OGRS4/V	With OASys	OVP Violence	C: High 50 to 74	15,913	59.00%	52.21%	-6.80%
OGRS4/V	With OASys	OVP Violence	D: Very High 75 to 89	1,891	79.91%	73.77%	-6.14%
OGRS4/V	With OASys	OVP Violence	E: Prolific 90 to 100	207	93.55%	81.16%	-12.39%

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
OGRS4/V	With OASys	OVP Violence	All cases unbanded	125,604	26.46%	21.15%	-5.31%
OVP1	With OASys	OVP Violence	I: Low, 0-29%	71,447	15.60%	9.22%	-6.37%
OVP1	With OASys	OVP Violence	II: Medium, 30-59%	42,297	42.10%	32.15%	-9.95%
OVP1	With OASys	OVP Violence	III: High, 60-79%	8,855	68.24%	55.53%	-12.71%
OVP1	With OASys	OVP Violence	IV: Very High, 80-100%	1,467	83.66%	71.64%	-12.02%
OVP1	With OASys	OVP Violence	All cases unbanded	124,066	29.19%	21.08%	-8.11%
OVP2	With OASys	OVP Violence	I: Low, 0-29%	82,137	12.75%	10.20%	-2.56%
OVP2	With OASys	OVP Violence	II: Medium, 30-59%	34,373	41.56%	37.69%	-3.87%
OVP2	With OASys	OVP Violence	III: High, 60-79%	6,245	67.34%	63.04%	-4.29%
OVP2	With OASys	OVP Violence	IV: Very High, 80-100%	1,040	84.92%	79.71%	-5.21%
OVP2	With OASys	OVP Violence	All cases unbanded	123,795	24.11%	21.08%	-3.03%

Table A35: Calibration of predicted and actual reoffending rates, sexual reoffending, by population subgroup, offending outcome and predictor, and by predictor band, 30 June 2018 caseload

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
OSP/C	Men with sexual offending history	Contact Sexual	Low	7,467	0.29%	0.50%	0.21%
OSP/C	Men with sexual offending history	Contact Sexual	Medium	9,594	0.81%	1.39%	0.58%
OSP/C	Men with sexual offending history	Contact Sexual	High	4,243	1.78%	2.22%	0.44%
OSP/C	Men with sexual offending history	Contact Sexual	Very High	927	4.10%	4.31%	0.22%
OSP/C	Men with sexual offending history	Contact Sexual	All cases unbanded	22,231	0.95%	1.37%	0.41%
OSP/I	Men with sexual offending history	Indecent Images	Low	14,869	0.24%	0.33%	0.09%
OSP/I	Men with sexual offending history	Indecent Images	Medium	6,504	2.80%	3.14%	0.33%
OSP/I	Men with sexual offending history	Indecent Images	High	858	5.79%	10.61%	4.81%
OSP/I	Men with sexual offending history	Indecent Images	All cases unbanded	22,231	1.20%	1.55%	0.34%

Table A36: Calibration of predicted and actual reoffending rates, RSR and SNSV reoffending, by population subgroup, offending outcome and predictor, and by predictor band, 30 June 2018 caseload

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
RSR	All cases	RSR	Low 0-0.99%	95,302	0.47%	0.61%	0.15%
RSR	All cases	RSR	Medium 1-2.99%	65,762	1.74%	2.13%	0.39%
RSR	All cases	RSR	High 3-6.89%	21,891	4.08%	4.65%	0.58%
RSR	All cases	RSR	Very High 6.9%+	2,025	8.76%	10.81%	2.06%
RSR	All cases	RSR	All cases unbanded	184,980	1.44%	1.74%	0.30%
RSR	With OASys	RSR	Low 0-0.99%	55,514	0.50%	0.70%	0.20%
RSR	With OASys	RSR	Medium 1-2.99%	48,834	1.76%	2.24%	0.47%
RSR	With OASys	RSR	High 3-6.89%	19,331	4.09%	4.80%	0.70%
RSR	With OASys	RSR	Very High 6.9%+	1,925	8.75%	10.81%	2.06%
RSR	With OASys	RSR	All cases unbanded	125,604	1.67%	2.09%	0.41%
RSR SNSV (static-dynamic)	With OASys	SNSV	Low 0-0.99%	68,505	0.43%	0.45%	0.02%
RSR SNSV (static-dynamic)	With OASys	SNSV	Medium 1-2.99%	43,182	1.73%	1.99%	0.26%
RSR SNSV (static-dynamic)	With OASys	SNSV	High 3-6.89%	10,984	4.21%	4.36%	0.15%

Predictor	Population subgroup	Reoffending Outcome	Band	Number of cases	Mean Predicted	Mean Actual	Residual
RSR SNSV (static-dynamic)	With OASys	SNSV	Very High 6.9%+	1,313	8.91%	9.90%	0.99%
RSR SNSV (static-dynamic)	With OASys	SNSV	All cases unbanded	123,984	1.31%	1.43%	0.12%
RSR SNSV (static)	All cases	SNSV	Low 0-0.99%	104,335	0.42%	0.40%	-0.03%
RSR SNSV (static)	All cases	SNSV	Medium 1-2.99%	65,805	1.74%	1.83%	0.09%
RSR SNSV (static)	All cases	SNSV	High 3-6.89%	13,975	4.08%	4.25%	0.17%
RSR SNSV (static)	All cases	SNSV	Very High 6.9%+	865	8.64%	9.13%	0.49%
RSR SNSV (static)	All cases	SNSV	All cases unbanded	184,980	1.20%	1.24%	0.03%
RSR SNSV (static)	With OASys	SNSV	Low 0-0.99%	63,792	0.43%	0.41%	-0.02%
RSR SNSV (static)	With OASys	SNSV	Medium 1-2.99%	49,211	1.76%	1.92%	0.15%
RSR SNSV (static)	With OASys	SNSV	High 3-6.89%	11,818	4.10%	4.44%	0.34%
RSR SNSV (static)	With OASys	SNSV	Very High 6.9%+	783	8.60%	9.07%	0.47%
RSR SNSV (static)	With OASys	SNSV	All cases unbanded	125,604	1.35%	1.43%	0.09%

Table A37: Calibration for static predictors of all and violent reoffending, by population subgroup and reoffending outcome, 30 June 2018 caseload: All Cases

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGRS3)	All reoffending: residual (OGRS4/G)	OVP violence: actual rate	OVP violence: residual (OGRS4/V)
All	189,097	32.77%	-11.74%	-5.49%	18.98%	-5.30%
Age: 18 - 20	10,576	44.28%	-9.08%	-2.14%	26.58%	-4.24%
Age: 21 - 24	23,469	38.76%	-11.40%	-5.25%	22.84%	-5.64%
Age: 25 - 29	34,654	37.71%	-13.69%	-6.06%	23.01%	-5.75%
Age: 30 - 39	59,006	35.31%	-13.09%	-5.76%	20.69%	-5.54%
Age: 40 - 49	34,715	28.77%	-12.10%	-5.77%	15.15%	-5.81%
Age: 50 - 59	18,368	17.82%	-7.15%	-5.81%	9.55%	-4.04%
Age: 60 and Over	7,349	8.59%	-6.18%	-4.12%	3.79%	-2.51%
Gender: Female	22,522	27.70%	-13.49%	-5.17%	14.28%	-4.22%
Gender: Male	166,575	33.46%	-11.50%	-5.53%	19.61%	-5.45%
Ethnicity: Asian	11,432	27.36%	-11.20%	-4.53%	12.87%	-5.53%
Ethnicity: Black	14,747	35.78%	-10.51%	-3.12%	18.83%	-4.94%
Ethnicity: Mixed	6,367	40.93%	-11.81%	-4.49%	23.98%	-6.00%
Ethnicity: Not Known	18,606	22.04%	-10.33%	-4.87%	12.17%	-3.29%
Ethnicity: White	135,448	34.13%	-12.08%	-5.95%	20.32%	-5.56%
Disability: Does not have disability	128,420	30.59%	-12.30%	-5.86%	16.90%	-5.69%
Disability: Has disability	60,677	37.36%	-10.56%	-4.71%	23.35%	-4.50%

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGRS3)	All reoffending: residual (OGRS4/G)	OVP violence: actual rate	OVP violence: residual (OGRS4/V)
LDC: Likely LDC	31,954	48.06%	-9.87%	-3.63%	29.67%	-5.16%
LDC: Not likely LDC	83,121	31.01%	-11.69%	-5.65%	17.71%	-5.44%
DV Perpetrator: Current DV Perpetrator	16,672	34.19%	-11.10%	-3.58%	25.61%	-3.30%
DV Perpetrator: Former DV Perpetrator	32,249	46.59%	-10.50%	-3.68%	31.48%	-4.72%
DV Perpetrator: Never DV Perpetrator	78,344	32.01%	-11.36%	-5.83%	15.93%	-5.99%
OFM: 0 to 2 months	41,853	44.04%	-5.29%	-4.95%	26.93%	-4.92%
OFM: 3 to 5 months	36,921	37.99%	-9.00%	-4.69%	22.10%	-5.49%
OFM: 6 to 11 months	58,847	32.46%	-12.67%	-4.74%	18.93%	-5.09%
OFM: 12+ months	51,476	20.37%	-17.79%	-7.35%	10.43%	-5.72%

Table A38: Calibration for static predictors of serious reoffending, by population subgroup and reoffending outcome, 30 June 2018 caseload: All Cases

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
All	189,097	0.34%	0.23%	0.20%	0.06%	1.24%	0.03%	1.74%	0.30%
Age: 18 - 20	10,576	0.47%	0.39%	0.09%	0.03%	2.74%	0.60%	3.25%	0.95%
Age: 21 - 24	23,469	0.36%	0.24%	0.16%	0.08%	2.16%	0.38%	2.61%	0.64%
Age: 25 - 29	34,654	0.41%	0.30%	0.16%	0.09%	1.65%	0.08%	2.18%	0.43%
Age: 30 - 39	59,006	0.31%	0.20%	0.18%	0.07%	1.13%	-0.06%	1.57%	0.20%
Age: 40 - 49	34,715	0.31%	0.21%	0.18%	0.03%	0.61%	-0.18%	1.09%	0.10%
Age: 50 - 59	18,368	0.32%	0.19%	0.31%	0.00%	0.39%	-0.07%	0.98%	0.09%
Age: 60 and Over	7,349	0.27%	0.08%	0.65%	-0.00%	0.08%	-0.08%	1.03%	-0.00%
Gender: Female	22,522	0.04%	0.04%	0.00%	0.00%	0.41%	-0.21%	0.45%	-0.16%
Gender: Male	166,575	0.38%	0.26%	0.23%	0.07%	1.35%	0.07%	1.92%	0.37%
Ethnicity: Asian	11,432	0.31%	0.19%	0.04%	-0.01%	0.91%	-0.01%	1.24%	0.18%
Ethnicity: Black	14,747	0.50%	0.38%	0.02%	-0.01%	1.72%	0.46%	2.19%	0.78%
Ethnicity: Mixed	6,367	0.38%	0.29%	0.13%	0.07%	2.24%	0.63%	2.72%	0.94%
Ethnicity: Not Known	18,606	0.21%	0.18%	0.04%	-0.01%	0.83%	0.08%	1.04%	0.22%
Ethnicity: White	135,448	0.35%	0.22%	0.26%	0.08%	1.23%	-0.04%	1.79%	0.25%

Annex 1: Additional Materials

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
Disability: Does not have disability	128,420	0.27%	0.17%	0.16%	0.03%	1.18%	0.04%	1.58%	0.23%
Disability: Has disability	60,677	0.48%	0.35%	0.28%	0.11%	1.36%	0.02%	2.07%	0.45%
LDC: Likely LDC	31,954	0.67%	0.48%	0.26%	0.14%	2.03%	0.16%	2.89%	0.67%
LDC: Not likely LDC	83,121	0.34%	0.19%	0.32%	0.06%	1.22%	0.07%	1.84%	0.34%
DV Perpetrator: Current DV Perpetrator	16,672	0.38%	0.29%	0.07%	0.04%	1.63%	0.26%	2.03%	0.48%
DV Perpetrator: Former DV Perpetrator	32,249	0.45%	0.30%	0.09%	0.02%	1.97%	0.14%	2.47%	0.36%
DV Perpetrator: Never DV Perpetrator	78,344	0.41%	0.24%	0.40%	0.11%	1.17%	0.03%	1.94%	0.42%
OFM: 0 to 2 months	41,853	0.40%	0.32%	0.15%	0.07%	1.66%	0.12%	2.17%	0.47%
OFM: 3 to 5 months	36,921	0.35%	0.26%	0.17%	0.08%	1.43%	0.12%	1.92%	0.46%
OFM: 6 to 11 months	58,847	0.30%	0.21%	0.15%	0.04%	1.18%	0.06%	1.62%	0.31%

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
OFM: 12+ months	51,476	0.33%	0.16%	0.30%	0.05%	0.83%	-0.12%	1.42%	0.05%

Table A39: Calibration for static predictors of all and violent reoffending, by population subgroup and reoffending outcome, 30 June 2018 caseload: Men with sexual history

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGRS3)	All reoffending: residual (OGRS4/G)	OVP violence: actual rate	OVP violence: residual (OGRS4/V)
All	22,231	21.77%	-5.82%	-3.26%	10.02%	-3.58%
Age: 18 - 20	604	35.26%	-6.83%	-4.80%	17.72%	-4.14%
Age: 21 - 24	1,753	30.00%	-7.23%	-5.52%	14.11%	-4.68%
Age: 25 - 29	2,692	30.39%	-9.00%	-4.95%	15.79%	-4.44%
Age: 30 - 39	5,429	27.35%	-7.65%	-3.28%	13.59%	-4.04%
Age: 40 - 49	4,327	22.02%	-5.76%	-2.13%	9.62%	-3.68%
Age: 50 - 59	4,121	14.20%	-3.17%	-2.96%	5.68%	-2.73%
Age: 60 and Over	3,300	7.85%	-2.67%	-2.23%	1.82%	-2.34%
Ethnicity: Asian	1,149	21.15%	-8.79%	-4.28%	9.23%	-4.23%
Ethnicity: Black	1,255	32.27%	-9.54%	-3.30%	17.53%	-3.59%
Ethnicity: Mixed	442	35.52%	-7.96%	-2.82%	18.78%	-5.20%
Ethnicity: Not Known	760	14.10%	-6.22%	-5.34%	6.19%	-3.07%
Ethnicity: White	18,337	21.20%	-5.21%	-3.06%	9.58%	-3.49%

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGRS3)	All reoffending: residual (OGRS4/G)	OVP violence: actual rate	OVP violence: residual (OGRS4/V)
Disability: Does not have disability	13,861	19.62%	-6.64%	-3.87%	8.52%	-3.73%
Disability: Has disability	8,370	25.34%	-4.46%	-2.24%	12.50%	-3.33%
LDC: Likely LDC	5,030	34.33%	-5.43%	-1.53%	18.40%	-3.52%
LDC: Not likely LDC	14,850	17.25%	-5.42%	-3.40%	6.90%	-3.36%
DV Perpetrator: Current DV Perpetrator	1,348	30.04%	-14.42%	-6.42%	20.18%	-5.82%
DV Perpetrator: Former DV Perpetrator	3,933	36.59%	-8.14%	-3.07%	21.55%	-4.15%
DV Perpetrator: Never DV Perpetrator	15,662	17.30%	-4.10%	-2.68%	6.13%	-3.13%
OFM: 0 to 2 months	3,432	34.69%	-1.25%	-4.36%	19.88%	-3.27%
OFM: 3 to 5 months	3,315	29.66%	-2.45%	-2.41%	13.94%	-4.52%
OFM: 6 to 11 months	5,721	24.78%	-4.95%	-1.92%	11.80%	-3.46%
OFM: 12+ months	9,763	12.79%	-9.08%	-3.95%	4.17%	-3.44%

Table A40: Calibration for static predictors of serious reoffending, by population subgroup and reoffending outcome, 30 June 2018 caseload: Men with sexual history

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
All	22,231	1.37%	0.41%	1.55%	0.34%	0.57%	-0.12%	3.27%	0.44%
Age: 18 - 20	604	3.15%	1.62%	1.32%	0.44%	1.66%	-0.07%	5.63%	1.45%
Age: 21 - 24	1,753	1.71%	0.08%	1.60%	0.60%	1.14%	-0.13%	4.23%	0.31%
Age: 25 - 29	2,692	1.93%	0.43%	1.78%	0.83%	1.41%	0.21%	4.75%	1.12%
Age: 30 - 39	5,429	1.53%	0.37%	1.75%	0.63%	0.59%	-0.29%	3.54%	0.41%
Age: 40 - 49	4,327	1.41%	0.63%	1.43%	0.21%	0.35%	-0.21%	3.10%	0.56%
Age: 50 - 59	4,121	1.02%	0.45%	1.33%	-0.04%	0.24%	-0.07%	2.40%	0.17%
Age: 60 and Over	3,300	0.52%	0.10%	1.45%	-0.01%	0.06%	-0.03%	2.00%	0.03%
Ethnicity: Asian	1,149	1.22%	0.02%	0.35%	-0.16%	0.35%	-0.33%	1.91%	-0.43%
Ethnicity: Black	1,255	2.63%	1.30%	0.24%	-0.14%	1.43%	0.38%	4.30%	1.53%
Ethnicity: Mixed	442	1.81%	0.59%	1.58%	0.81%	1.58%	0.28%	4.75%	1.43%
Ethnicity: Not Known	760	0.92%	0.10%	0.66%	-0.44%	0.13%	-0.34%	1.45%	-0.93%
Ethnicity: White	18,337	1.31%	0.40%	1.76%	0.43%	0.52%	-0.14%	3.34%	0.47%
Disability: Does not have disability	13,861	1.07%	0.12%	1.37%	0.17%	0.51%	-0.12%	2.76%	0.01%
Disability: Has disability	8,370	1.86%	0.89%	1.84%	0.62%	0.67%	-0.11%	4.11%	1.17%

Annex 1: Additional Materials

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
LDC: Likely LDC	5,030	2.39%	1.17%	1.49%	0.72%	1.11%	-0.05%	4.71%	1.54%
LDC: Not likely LDC	14,850	1.06%	0.20%	1.68%	0.28%	0.39%	-0.12%	2.95%	0.20%
DV Perpetrator: Current DV Perpetrator	1,348	0.89%	-0.27%	0.22%	-0.06%	1.04%	-0.23%	2.08%	-0.71%
DV Perpetrator: Former DV Perpetrator	3,933	1.75%	0.57%	0.61%	0.06%	1.30%	0.02%	3.54%	0.48%
DV Perpetrator: Never DV Perpetrator	15,662	1.32%	0.44%	1.95%	0.47%	0.36%	-0.12%	3.40%	0.60%
OFM: 0 to 2 months	3,432	2.13%	1.13%	1.66%	0.64%	1.17%	0.05%	4.55%	1.41%
OFM: 3 to 5 months	3,315	1.60%	0.62%	1.63%	0.58%	0.97%	0.10%	4.10%	1.22%
OFM: 6 to 11 months	5,721	1.49%	0.54%	1.45%	0.27%	0.56%	-0.15%	3.38%	0.56%
OFM: 12+ months	9,763	0.95%	0.02%	1.54%	0.21%	0.24%	-0.23%	2.48%	-0.23%

Table A41: Calibration for static predictors of all and violent reoffending, by population subgroup and reoffending outcome, 30 June 2018 caseload: With OASys

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGRS3)	All reoffending: residual (OGRS4/G)	OVP violence: actual rate	OVP violence: residual (OGRS4/V)
All	127,265	36.00%	-11.11%	-4.99%	21.15%	-5.31%
Age: 18 - 20	5,822	48.92%	-8.44%	-1.55%	30.33%	-4.49%
Age: 21 - 24	14,814	44.26%	-10.14%	-4.29%	26.90%	-5.56%
Age: 25 - 29	22,931	42.48%	-12.56%	-5.17%	26.66%	-5.37%
Age: 30 - 39	40,520	39.24%	-12.47%	-5.19%	23.19%	-5.64%
Age: 40 - 49	24,099	31.70%	-12.07%	-5.62%	16.82%	-6.01%
Age: 50 - 59	13,189	19.32%	-7.23%	-5.70%	10.20%	-4.25%
Age: 60 and Over	5,888	8.73%	-5.70%	-3.79%	3.60%	-2.49%
Gender: Female	12,793	32.74%	-13.64%	-5.38%	16.89%	-4.97%
Gender: Male	114,472	36.37%	-10.83%	-4.94%	21.62%	-5.35%
Ethnicity: Asian	7,771	29.21%	-11.19%	-4.62%	13.79%	-5.98%
Ethnicity: Black	10,598	38.54%	-9.88%	-2.74%	20.68%	-5.02%
Ethnicity: Mixed	4,564	44.37%	-10.90%	-3.72%	26.19%	-6.04%
Ethnicity: Not Known	7,533	26.25%	-7.99%	-3.19%	15.16%	-2.33%
Ethnicity: White	95,289	36.79%	-11.48%	-5.46%	22.14%	-5.49%
Disability: Does not have disability	83,855	34.07%	-11.54%	-5.23%	19.17%	-5.64%
Disability: Has disability	43,410	39.73%	-10.29%	-4.52%	24.97%	-4.68%

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGRS3)	All reoffending: residual (OGRS4/G)	OVP violence: actual rate	OVP violence: residual (OGRS4/V)
LDC: Likely LDC	31,954	48.06%	-9.87%	-3.63%	29.67%	-5.16%
LDC: Not likely LDC	83,121	31.01%	-11.69%	-5.65%	17.71%	-5.44%
DV Perpetrator: Current DV Perpetrator	16,672	34.19%	-11.10%	-3.58%	25.61%	-3.30%
DV Perpetrator: Former DV Perpetrator	32,249	46.59%	-10.50%	-3.68%	31.48%	-4.72%
DV Perpetrator: Never DV Perpetrator	78,344	32.01%	-11.36%	-5.83%	15.93%	-5.99%
OFM: 0 to 2 months	25,478	50.95%	-4.22%	-3.95%	31.79%	-4.86%
OFM: 3 to 5 months	24,445	43.15%	-7.68%	-3.75%	25.31%	-5.54%
OFM: 6 to 11 months	38,883	36.50%	-11.81%	-4.11%	21.62%	-4.97%
OFM: 12+ months	38,459	20.97%	-17.17%	-7.35%	10.92%	-5.82%

Table A42: Calibration for static predictors of serious reoffending, by population subgroup and reoffending outcome, 30 June 2018 caseload: With OASys

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
All	127,265	0.42%	0.26%	0.28%	0.08%	1.43%	0.09%	2.09%	0.41%
Age: 18 - 20	5,822	0.58%	0.44%	0.12%	0.04%	3.38%	0.85%	4.03%	1.23%
Age: 21 - 24	14,814	0.45%	0.27%	0.22%	0.11%	2.72%	0.60%	3.31%	0.91%
Age: 25 - 29	22,931	0.51%	0.34%	0.22%	0.12%	1.93%	0.12%	2.60%	0.55%
Age: 30 - 39	40,520	0.37%	0.23%	0.24%	0.10%	1.33%	-0.02%	1.90%	0.32%
Age: 40 - 49	24,099	0.39%	0.25%	0.26%	0.05%	0.73%	-0.15%	1.37%	0.20%
Age: 50 - 59	13,189	0.40%	0.23%	0.42%	0.01%	0.41%	-0.09%	1.17%	0.11%
Age: 60 and Over	5,888	0.31%	0.08%	0.82%	0.01%	0.09%	-0.07%	1.23%	0.02%
Gender: Female	12,793	0.03%	0.03%	0.00%	0.00%	0.40%	-0.37%	0.44%	-0.31%
Gender: Male	114,472	0.46%	0.29%	0.31%	0.09%	1.55%	0.14%	2.27%	0.49%
Ethnicity: Asian	7,771	0.41%	0.25%	0.04%	-0.03%	1.06%	0.05%	1.49%	0.28%
Ethnicity: Black	10,598	0.57%	0.42%	0.01%	-0.03%	1.99%	0.61%	2.53%	0.95%
Ethnicity: Mixed	4,564	0.46%	0.35%	0.18%	0.10%	2.58%	0.81%	3.18%	1.19%
Ethnicity: Not Known	7,533	0.25%	0.19%	0.08%	-0.02%	0.96%	0.10%	1.25%	0.26%
Ethnicity: White	95,289	0.41%	0.25%	0.35%	0.11%	1.39%	-0.01%	2.10%	0.34%

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
Disability: Does not have disability	83,855	0.34%	0.20%	0.24%	0.05%	1.39%	0.11%	1.93%	0.34%
Disability: Has disability	43,410	0.56%	0.39%	0.36%	0.14%	1.51%	0.04%	2.38%	0.55%
LDC: Likely LDC	31,954	0.67%	0.48%	0.26%	0.14%	2.03%	0.16%	2.89%	0.67%
LDC: Not likely LDC	83,121	0.34%	0.19%	0.32%	0.06%	1.22%	0.07%	1.84%	0.34%
DV Perpetrator: Current DV Perpetrator	16,672	0.38%	0.29%	0.07%	0.04%	1.63%	0.26%	2.03%	0.48%
DV Perpetrator: Former DV Perpetrator	32,249	0.45%	0.30%	0.09%	0.02%	1.97%	0.14%	2.47%	0.36%
DV Perpetrator: Never DV Perpetrator	78,344	0.41%	0.24%	0.40%	0.11%	1.17%	0.03%	1.94%	0.42%
OFM: 0 to 2 months	25,478	0.51%	0.39%	0.22%	0.10%	2.09%	0.25%	2.76%	0.71%
OFM: 3 to 5 months	24,445	0.42%	0.29%	0.25%	0.11%	1.62%	0.12%	2.25%	0.52%
OFM: 6 to 11 months	38,883	0.39%	0.25%	0.23%	0.06%	1.41%	0.15%	2.00%	0.47%

Subgroup	Number of cases	Contact sexual: actual rate	Contact sexual: residual (OSP/C)	Indecent images: actual rate	Indecent images: residual (OSP/I)	SNSV: actual rate	SNSV: residual (SNSV (Static))	All RSR: actual rate	All RSR: residual (RSR)
OFM: 12+ months	38,459	0.39%	0.16%	0.40%	0.07%	0.90%	-0.10%	1.62%	0.09%

Table A43: Calibration for dynamic predictors of all, violent and SNSV reoffending, by population subgroup and reoffending outcome, 30 June 2018 caseload: With OASys

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGP2)	OVP violence: actual rate	OVP violence: residual (OVP1)	OVP violence: residual (OVP2)	SNSV: actual rate	SNSV: residual (SNSV (Dynamic))
All	127,265	35.91%	-3.18%	21.08%	-8.11%	-3.03%	1.43%	0.12%
Age: 18 - 20	5,822	48.75%	-0.22%	30.23%	-9.93%	-1.83%	3.40%	0.84%
Age: 21 - 24	14,814	44.20%	-2.67%	26.92%	-9.59%	-2.99%	2.70%	0.59%
Age: 25 - 29	22,931	42.53%	-3.17%	26.63%	-7.52%	-2.79%	1.92%	0.14%
Age: 30 - 39	40,520	39.19%	-3.12%	23.15%	-7.63%	-3.14%	1.33%	0.04%
Age: 40 - 49	24,099	31.56%	-3.58%	16.69%	-8.01%	-3.81%	0.74%	-0.08%
Age: 50 - 59	13,189	19.14%	-4.43%	10.08%	-8.51%	-2.74%	0.41%	-0.06%
Age: 60 and Over	5,888	8.66%	-3.31%	3.55%	-7.70%	-1.98%	0.09%	-0.06%
Gender: Female	12,793	32.65%	-3.35%	16.89%	-3.44%	-2.83%	0.40%	-0.33%
Gender: Male	114,472	36.27%	-3.16%	21.55%	-8.63%	-3.05%	1.54%	0.17%
Ethnicity: Asian	7,771	29.14%	-2.94%	13.66%	-9.55%	-3.93%	1.06%	0.09%
Ethnicity: Black	10,598	38.54%	-0.70%	20.65%	-8.73%	-1.89%	1.98%	0.59%

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGP2)	OVP violence: actual rate	OVP violence: residual (OVP1)	OVP violence: residual (OVP2)	SNSV: actual rate	SNSV: residual (SNSV (Dynamic))
Ethnicity: Mixed	4,564	44.36%	-1.60%	26.18%	-8.73%	-2.89%	2.55%	0.74%
Ethnicity: Not Known	7,533	26.03%	-1.58%	15.06%	-6.06%	-0.62%	0.97%	0.15%
Ethnicity: White	95,289	36.67%	-3.66%	22.07%	-8.04%	-3.28%	1.38%	0.04%
Disability: Does not have disability	83,855	33.97%	-3.29%	19.09%	-8.61%	-3.30%	1.39%	0.15%
Disability: Has disability	43,410	39.63%	-2.95%	24.91%	-7.16%	-2.51%	1.50%	0.07%
LDC: Likely LDC	31,954	47.98%	-2.81%	29.61%	-9.26%	-3.41%	2.02%	0.11%
LDC: Not likely LDC	83,121	30.99%	-3.43%	17.69%	-7.76%	-2.94%	1.22%	0.13%
DV Perpetrator: Current DV Perpetrator	16,672	34.17%	-3.01%	25.65%	-8.63%	-2.62%	1.64%	0.21%
DV Perpetrator: Former DV Perpetrator	32,249	46.57%	-2.66%	31.43%	-7.72%	-3.23%	1.97%	0.07%

Subgroup	Number of cases	All reoffending: actual rate	All reoffending: residual (OGP2)	OVP violence: actual rate	OVP violence: residual (OVP1)	OVP violence: residual (OVP2)	SNSV: actual rate	SNSV: residual (SNSV (Dynamic))
DV Perpetrator: Never DV Perpetrator	78,344	31.85%	-3.43%	15.81%	-8.17%	-3.04%	1.16%	0.13%
OFM: 0 to 2 months	25,478	50.92%	-1.26%	31.76%	-2.93%	-1.77%	2.07%	0.26%
OFM: 3 to 5 months	24,445	43.15%	-2.32%	25.29%	-6.45%	-3.20%	1.61%	0.15%
OFM: 6 to 11 months	38,883	36.41%	-3.07%	21.55%	-8.31%	-2.92%	1.42%	0.19%
OFM: 12+ months	38,459	20.90%	-5.09%	10.88%	-12.40%	-3.86%	0.90%	-0.06%

Model discrimination

Table A44: Prediction of proven reoffending in a two-year follow-up, all reoffending, by population subgroup and predictor, 30 June 2018 caseload

Subgroup	OGRS3 (All Cases)	OGRS4/G (All Cases)	OGRS3 (with OASys)	OGRS4/G (with OASys)	OGP2 (with OASys)
All	0.741	0.754	0.742	0.753	0.757
Age: 18 - 20	0.674	0.684	0.674	0.681	0.686
Age: 21 - 24	0.687	0.702	0.682	0.696	0.700
Age: 25 - 29	0.709	0.720	0.703	0.712	0.715
Age: 30 - 39	0.736	0.749	0.732	0.745	0.749

Annex 1: Additional Materials

Subgroup	OGRS3 (All Cases)	OGRS4/G (All Cases)	OGRS3 (with OASys)	OGRS4/G (with OASys)	OGP2 (with OASys)
Age: 40 - 49	0.758	0.772	0.754	0.767	0.771
Age: 50 - 59	0.765	0.790	0.764	0.788	0.793
Age: 60 and Over	0.721	0.752	0.717	0.746	0.758
Gender: Female	0.782	0.797	0.772	0.784	0.787
Gender: Male	0.735	0.747	0.738	0.750	0.754
Ethnicity: Asian	0.740	0.752	0.744	0.756	0.760
Ethnicity: Black	0.707	0.729	0.709	0.728	0.734
Ethnicity: Mixed	0.706	0.723	0.705	0.723	0.726
Ethnicity: Not Known	0.731	0.748	0.730	0.744	0.750
Ethnicity: White	0.742	0.753	0.744	0.755	0.759
Disability: Does not have disability	0.741	0.755	0.743	0.756	0.760
Disability: Has disability	0.734	0.744	0.735	0.746	0.750
LDC: Likely LDC	0.708	0.721	0.708	0.721	0.725
LDC: Not likely LDC	0.746	0.759	0.746	0.759	0.762
DV Perpetrator: Current DV Perpetrator	0.709	0.722	0.709	0.722	0.725
DV Perpetrator: Former DV Perpetrator	0.704	0.715	0.704	0.715	0.719
DV Perpetrator: Never DV Perpetrator	0.755	0.768	0.755	0.768	0.772
OFM: 0 to 2 months	0.739	0.741	0.729	0.729	0.734
OFM: 3 to 5 months	0.734	0.739	0.724	0.726	0.730

Subgroup	OGRS3 (All Cases)	OGRS4/G (All Cases)	OGRS3 (with OASys)	OGRS4/G (with OASys)	OGP2 (with OASys)
OFM: 6 to 11 months	0.732	0.737	0.726	0.730	0.733
OFM: 12+ months	0.719	0.735	0.724	0.738	0.742

Table A45: Prediction of proven reoffending in a two-year follow-up, violent reoffending, by population subgroup and predictor, 30 June 2018 caseload

Subgroup	OGRS3 (All Cases)	OGRS4/V (All Cases)	OVP1 (with OASys)	OVP2 (with OASys)	OGRS4/V (with OASys)
All	0.731	0.769	0.751	0.773	0.768
Age: 18 - 20	0.679	0.705	0.688	0.708	0.706
Age: 21 - 24	0.703	0.736	0.711	0.731	0.728
Age: 25 - 29	0.711	0.744	0.714	0.737	0.732
Age: 30 - 39	0.712	0.753	0.726	0.752	0.747
Age: 40 - 49	0.729	0.776	0.755	0.779	0.771
Age: 50 - 59	0.771	0.826	0.813	0.841	0.833
Age: 60 and Over	0.810	0.865	0.857	0.884	0.872
Gender: Female	0.739	0.793	0.753	0.779	0.774
Gender: Male	0.730	0.765	0.751	0.772	0.767
Ethnicity: Asian	0.731	0.771	0.765	0.784	0.775
Ethnicity: Black	0.701	0.741	0.720	0.746	0.738
Ethnicity: Mixed	0.689	0.729	0.701	0.729	0.724
Ethnicity: Not Known	0.729	0.770	0.742	0.764	0.759
Ethnicity: White	0.729	0.767	0.753	0.775	0.770

Subgroup	OGRS3 (All Cases)	OGRS4/V (All Cases)	OVP1 (with OASys)	OVP2 (with OASys)	OGRS4/V (with OASys)
Disability: Does not have disability	0.734	0.770	0.752	0.774	0.768
Disability: Has disability	0.717	0.757	0.744	0.765	0.761
LDC: Likely LDC	0.689	0.732	0.712	0.736	0.732
LDC: Not likely LDC	0.744	0.779	0.760	0.783	0.779
DV Perpetrator: Current DV Perpetrator	0.701	0.722	0.700	0.724	0.722
DV Perpetrator: Former DV Perpetrator	0.674	0.709	0.694	0.714	0.709
DV Perpetrator: Never DV Perpetrator	0.757	0.789	0.768	0.794	0.789
OFM: 0 to 2 months	0.707	0.745	0.726	0.739	0.732
OFM: 3 to 5 months	0.714	0.748	0.727	0.742	0.736
OFM: 6 to 11 months	0.722	0.755	0.733	0.750	0.747
OFM: 12+ months	0.747	0.773	0.766	0.787	0.780

Table A46: Prediction of proven reoffending in a two-year follow-up, SNSV reoffending, by population subgroup and predictor, 30 June 2018 caseload

Subgroup	OGRS4/V (All Cases)	RSR SNSV (static) (All Cases)	OGRS4/V (with OASys)	OVP2 (with OASys)	RSR SNSV (static) (with OASys)	RSR SNSV (static-dynamic) (with OASys)
All	0.754	0.766	0.746	0.747	0.761	0.771
Age: 18 - 20	0.704	0.709	0.693	0.695	0.701	0.710
Age: 21 - 24	0.715	0.724	0.697	0.698	0.704	0.715

Subgroup	OGRS4/V (All Cases)	RSR SNSV (static) (All Cases)	OGRS4/V (with OASys)	OVP2 (with OASys)	RSR SNSV (static) (with OASys)	RSR SNSV (static-dynamic) (with OASys)
Age: 25 - 29	0.718	0.716	0.704	0.708	0.703	0.718
Age: 30 - 39	0.733	0.736	0.709	0.709	0.716	0.727
Age: 40 - 49	0.754	0.751	0.740	0.734	0.737	0.746
Age: 50 - 59	0.722	0.715	0.749	0.755	0.750	0.775
Age: 60 and Over	0.752	0.769	0.771	0.775	0.785	0.796
Gender: Female	0.781	0.769	0.758	0.765	0.738	0.747
Gender: Male	0.746	0.757	0.741	0.742	0.753	0.764
Ethnicity: Asian	0.757	0.766	0.742	0.742	0.748	0.745
Ethnicity: Black	0.707	0.732	0.704	0.717	0.732	0.751
Ethnicity: Mixed	0.689	0.688	0.673	0.695	0.675	0.709
Ethnicity: Not Known	0.806	0.807	0.825	0.832	0.829	0.848
Ethnicity: White	0.756	0.767	0.752	0.751	0.764	0.771
Disability: Does not have disability	0.757	0.769	0.749	0.751	0.761	0.771
Disability: Has disability	0.745	0.758	0.743	0.742	0.760	0.769
LDC: Likely LDC	0.706	0.733	0.706	0.709	0.733	0.747
LDC: Not likely LDC	0.754	0.765	0.754	0.754	0.765	0.773
DV Perpetrator: Current DV Perpetrator	0.745	0.749	0.745	0.739	0.749	0.749

Subgroup	OGRS4/V (All Cases)	RSR SNSV (static) (All Cases)	OGRS4/V (with OASys)	OVP2 (with OASys)	RSR SNSV (static) (with OASys)	RSR SNSV (static-dynamic) (with OASys)
DV Perpetrator: Former DV Perpetrator	0.694	0.702	0.694	0.690	0.702	0.716
DV Perpetrator: Never DV Perpetrator	0.764	0.784	0.764	0.770	0.784	0.796
OFM: 0 to 2 months	0.738	0.757	0.712	0.712	0.735	0.749
OFM: 3 to 5 months	0.738	0.755	0.728	0.733	0.750	0.766
OFM: 6 to 11 months	0.747	0.759	0.737	0.735	0.750	0.756
OFM: 12+ months	0.768	0.774	0.770	0.770	0.777	0.784

Table A47: Prediction of proven reoffending in a two-year follow-up, sexual reoffending predicted by OSP/C and OSP/I, by population subgroup and predictor, 30 June 2018 caseload: Men with Sexual History

Subgroup	OSP/C (Men with Sexual History)	OSP/I (Men with Sexual History)
All	0.678	0.808
Age: 18 - 20	0.595	0.877
Age: 21 - 24	0.679	0.810
Age: 25 - 29	0.639	0.822
Age: 30 - 39	0.601	0.824
Age: 40 - 49	0.688	0.802
Age: 50 - 59	0.678	0.792
Age: 60 and Over	0.754	0.804
Ethnicity: Asian	0.825	0.939

Subgroup	OSP/C (Men with Sexual History)	OSP/I (Men with Sexual History)
Ethnicity: Black	0.744	0.964
Ethnicity: Mixed	0.713	0.840
Ethnicity: Not Known	0.740	0.863
Ethnicity: White	0.656	0.789
Disability: Does not have disability	0.630	0.816
Disability: Has disability	0.723	0.797
LDC: Likely LDC	0.654	0.858
LDC: Not likely LDC	0.680	0.787
DV Perpetrator: Current DV Perpetrator	0.636	0.866
DV Perpetrator: Former DV Perpetrator	0.642	0.896
DV Perpetrator: Never DV Perpetrator	0.701	0.772
OFM: 0 to 2 months	0.660	0.814
OFM: 3 to 5 months	0.697	0.831
OFM: 6 to 11 months	0.724	0.831
OFM: 12+ months	0.635	0.786

Table A48: Prediction of proven reoffending in a two-year follow-up, serious reoffending predicted by RSR, by population subgroup and predictor, 30 June 2018 caseload

Subgroup	OGRS4/V (All Cases)	RSR total (All Cases)	OGRS4/V (with OASys)	OVP2 (with OASys)	RSR total (with OASys)
All	0.647	0.745	0.620	0.622	0.731
Age: 18 - 20	0.666	0.697	0.655	0.656	0.693
Age: 21 - 24	0.663	0.709	0.633	0.634	0.681

Annex 1: Additional Materials

Subgroup	OGRS4/V (All Cases)	RSR total (All Cases)	OGRS4/V (with OASys)	OVP2 (with OASys)	RSR total (with OASys)
Age: 25 - 29	0.655	0.713	0.631	0.636	0.702
Age: 30 - 39	0.632	0.733	0.591	0.595	0.708
Age: 40 - 49	0.579	0.749	0.548	0.546	0.728
Age: 50 - 59	0.503	0.764	0.479	0.488	0.770
Age: 60 and Over	0.421	0.820	0.439	0.447	0.805
Gender: Female	0.779	0.778	0.765	0.772	0.761
Gender: Male	0.634	0.730	0.612	0.614	0.717
Ethnicity: Asian	0.715	0.749	0.704	0.709	0.733
Ethnicity: Black	0.686	0.730	0.680	0.689	0.726
Ethnicity: Mixed	0.667	0.697	0.653	0.671	0.687
Ethnicity: Not Known	0.771	0.785	0.773	0.780	0.808
Ethnicity: White	0.621	0.741	0.595	0.596	0.727
Disability: Does not have disability	0.658	0.744	0.631	0.633	0.727
Disability: Has disability	0.621	0.741	0.599	0.601	0.735
LDC: Likely LDC	0.600	0.713	0.600	0.604	0.713
LDC: Not likely LDC	0.605	0.730	0.605	0.607	0.730
DV Perpetrator: Current DV Perpetrator	0.718	0.720	0.718	0.714	0.720
DV Perpetrator: Former DV Perpetrator	0.642	0.698	0.642	0.642	0.698
DV Perpetrator: Never DV Perpetrator	0.584	0.747	0.584	0.589	0.747

Subgroup	OGRS4/V (All Cases)	RSR total (All Cases)	OGRS4/V (with OASys)	OVP2 (with OASys)	RSR total (with OASys)
OFM: 0 to 2 months	0.667	0.750	0.630	0.633	0.727
OFM: 3 to 5 months	0.652	0.736	0.623	0.627	0.729
OFM: 6 to 11 months	0.646	0.744	0.615	0.617	0.731
OFM: 12+ months	0.602	0.743	0.579	0.581	0.727

Appendix B. Types of reoffending

The report focusses on five main types of reoffending:

- All (or general) reoffending
- Broad violence (under the OVP definition)
- Serious (under the RSR definition) including:
 - Serious nonsexual violence
 - Contact sexual; and
 - Indecent images.

B.1 All Reoffending

Covers all **recordable offences**, everything except for minor speeding and parking offences.

B.2 Broad Violence (OVP definition)

Broad violence are those violent offences that OVP1, OVP2 and (OGRS4/V) were designed to predict. These include the following offences, as described in Table 54, as well as all offences included in Table 55 (i.e. Offence codes for serious nonsexual violence (SNSV) offences, predicted by RSR SNSV).

Table B1: Broad (OVP-type) offence categories

Category description	Offence specialisation group
Violence against the person	Threats to kill
Violence against the person	Putting people in fear of violence
Violence against the person	ABH and misc indictable violence
Violence against the person	Weapons offences
Violence against the person	Racially aggravated assault
Violence against the person	Child neglect
Violence against the person	Blackmail
Violence against the person	Witness intimidation
Violence against the person	Firearms offences (minor)

Category description	Offence specialisation group
Violence against the person	Assault constable
Violence against the person	Resist or obstruct constable
Violence against the person	Dangerous dogs
Violence against the person	Common and other summary assault
Acquisitive violence	Robbery
Public order and harassment	Indictable non-racial harassment
Public order and harassment	Affray violent disorder etc
Public order and harassment	Indictable racial harassment
Public order and harassment	Outraging public decency
Public order and harassment	Indictable fear or provocation of violence (all racial)
Public order and harassment	Summary intentional harassment
Public order and harassment	Summary fear or provocation of violence
Public order and harassment	Summary harassment alarm or distress
Public order and harassment	Summary racially aggravated harassment
Public order and harassment	Begging and sleeping out
Public order and harassment	Summary harassment (simple)
Public order and harassment	Football offences
Public order and harassment	Communications (electronic or malicious)
Public order and harassment	Indictable terrorism, SOC and spying offences
Public order and harassment	All other public order
Drunkenness	Drunkenness
Criminal damage	Other indictable criminal damage
Criminal damage	Threat of criminal damage
Criminal damage	Summary criminal damage

B.3 Serious (or RSR-type) offences

The tables below give the Police National Computer (PNC) offence code for each offence or group of offences. Where no subcode is given, all offences are included (e.g., all rape offences are included).

During the development of RSR it was recognised that, in addition to the offences listed below, child neglect and some specific terrorism-related offences should also be considered as serious by practitioners. During this development phase it was determined that reoffending for neglect and terrorism could not be predicted effectively, therefore practitioner guidance emphasises the need to consider such risks separately in the Risk of Serious Harm (RoSH) process.

Table B2: Offence codes for serious nonsexual violence (SNSV) offences, predicted by RSR SNSV

PNC offence code	Offence
1	Murder
2	Attempted murder
3/2-6	Conspiracy to, soliciting, assisting and/or encouraging murder
4	Manslaughter
5	Wounding and other acts endangering life
6/1, 6/4	Endangering railway passengers
7/14	Destroying ships or fixed platforms endangering their safety
7/15	Other acts endangering or likely to endanger safe navigation
8/1	Wounding or inflicting grievous bodily harm ¹
8/13-15	Possessing firearm or imitation firearm at time of committing or being arrested
8/16-18	Possessing firearms or imitation firearm with intent to commit an indictable offence or resist arrest etc.
8/23-8/25	Possession of a firearm or imitation firearm, with intent to cause fear of violence
8/33	Racially aggravated wounding or inflicting grievous bodily harm
8/40	Religiously aggravated malicious wounding or GBH
8/46	Racially or religiously aggravated malicious wounding or GBH
8/54	Use another to look after, hide or transport a firearm
8/59	Racially or religiously aggravated wounding or grievous bodily harm
29	Aggravated burglary in a dwelling
32	Entering with intent to commit felony

¹ This is “section 20” wounding (i.e., under the Offences against the Person Act 1861), while “section 18” wounding is code 5/01. Therefore, both types of wounding are considered serious offences.

PNC offence code	Offence
36	Kidnap
37/1	Aggravated vehicle taking resulting in accident causing death
56/1	Arson endangering life
57 (not 57/2)	Criminal damage endangering life

Table B3: Offence codes for contact sexual offences, predicted by OSP/C

PNC offence code	Offence
16.	Buggery
17.	Sexual assault on a male
19.	Rape
20.	Sexual assault on a female
21.	Sexual activity etc. with a child aged under 13
22.	Sexual activity etc. with a child aged under 16
23.	Incest
25.	Abduction
70.	Sexual activity etc. with a person with a mental disorder or learning disability
71.	Abuse of children through prostitution or pornography
72.	Trafficking for sexual exploitation
73.	Abuse of a position of trust
74.	Gross indecency with children
88/1-2	Meeting a female/male child following sexual grooming etc.
88/5	Administering a substance with intent
88/6	Committing an offence with intent to commit a sexual offence
88/7	Trespass with intent to commit a sexual offence

Table B4: Offence codes for indecent image offences, predicted by OSP/I

PNC offence code	Offence
86/2	Taking, permitting to be taken or making, distributing or publishing indecent photographs or pseudo photographs of children
86/10	Possession of indecent photograph of a child
86/15	Possessing prohibited images of children

Appendix C. Method for evaluation of models

C.1 Analytical dataset creation

For the purpose of the validation study, two datasets were derived: the probation caseload (the caseload) and a cohort of starts.

The production of the datasets relied on matching individuals in the caseload (from the probation case management systems National Delius) with OASys and the PNC, respectively.

Caseload

The caseload dataset is based on the England and Wales probation caseload as of 30 June 2018. Every individual in the caseload has the same date for the start of the study (30 June 2018) and is serving a community sentence (community orders or suspended sentences) or released on licence after serving a custodial sentence. Every person will have been in the community for zero, one, two or more months, which we refer to as offence-free months (or offence-free time).

Predictions of reoffending that do not encompass offence-free time are not accurate for offenders who have been on the community caseload for some time, and so validity for the caseload dataset is relevant if HMPPS introduces policies that reference changes in risk, whilst on the community caseload.

Starts

The starts dataset is based on a random sample of individuals who have commenced community supervision between 1 July 2018 and 31 December 2018 (a six month period of starts). An individual may have commenced multiple periods of supervision in that time – we selected one date, at random, for each individual. As a result, individuals will have their own study start date within the period of 1 July 2018 to 31 December 2018 (based on the randomly selected 'start' for a spell of community supervision). Every individual was followed up for a maximum of 731 days.

Starts – Offence-free months

An important distinction between the caseload and starts cohort is that every individual in the ‘starts’ data will have zero offence-free months. Some risk predictors (for example OGRS4/G) make use of ‘offence-free time’ as people are less likely to reoffend after they have spent some time in the community.² For example, the SNSV algorithm includes ‘points’ for being offence-free: for every complete month (capped at a maximum of 36) that the individual has spent in the community, their SNSV probability (and therefore their total RSR probability is lower).

As such, results from the caseload dataset are more relevant to the validity of risk tools across the entire period of supervision, and provide evidence on whether these tools should be used to inform operational decisions across that entire period. However, the starts cohort contains a larger number of offenders at the start of their supervision period and, given that most decisions about sentence planning and risk management are made at the start of the supervision period, its results have more practical relevance under current HMPPS working arrangements.

Starts – Selecting a start date for the study

When an individual had more than one start in the July to December 2018 period, one of these appearances was randomly selected for inclusion in the reoffending follow-up.

Alternate strategies would have been to:

- (a) always select the first appearance
- (b) always select the last appearance, and
- (c) include all appearances.

Strategies (a) and (b) would tend to bias estimates of reoffending upwards and downwards respectively. The selected strategy and strategies (a) and (b) all arguably underestimate reoffending rates compared with the methods used to construct OGRS4, OGP2 and OVP2, where all appearances were included, as each appearance by a multiple-appearance individual is more likely than the sole appearance of a single-appearance individual to involve reoffending.

² For SNSV (and most other offences), this is a rapid process. For sexual offending, it is more gradual

However, strategy (c) would be very complex to implement when studying multiple forms of reoffending. For example, consider an individual with a start in July, who commits a nonsexual nonviolent offence in August for which they are convicted and given an additional noncustodial sentence in September, who then commits a violent offence in October. When studying all reoffending, the July start unproblematically results in August proven reoffending, which ‘cleanly’ leads on to a new appearance at the September conviction/start. When studying violent reoffending, however, the October reoffence is double-counted, for the July and September starts. In extremis, given the low base rate of the serious reoffending targeted by RSR, a persistent nonviolent offender could have several appearances all tracking parts of the same time interval in which serious reoffending does or does not occur. The statistical dependencies are problematic, and it was not feasible to develop and test a range of approaches to this problem. As such, the ‘random selection’ strategy was the most defensible approach.

OASys (Layer 3) assessments

When giving an OASys assessment, assessors can choose which layer OASys assessment they create; a basic assessment (Layer 1), or a full assessment (Layer 3). A basic Layer 1 assessment is a reduced version of an assessment. It does not include criminogenic needs sections and contains a basic sentence plan.

A Layer 3 assessment contains all sections of OASys including criminogenic needs sections, risk sections, risk management plan and sentence plan.

There are eight criminogenic needs and three additional ‘responsivity measures’ that are used to aid practitioners in how an offender may respond to support. The three responsivity measures are: learning disability and challenges, mental health conditions and an indicator of low maturity levels.

Criminogenic needs

Criminogenic needs are dynamic risk factors that are directly linked to criminal behaviour.

Eight criminogenic needs are measured in OASys:

- Accommodation
- Employability
- Relationships

- Lifestyle and Associates
- Drug Misuse
- Alcohol Misuse
- Thinking & Behaviour and Attitudes.

C.2 Model Calibration

Calibration was measured by calculating the mean “predicted scores” for each predictor rates, across several subgroups. This predicted rate of reoffending was then subtracted from the actual rate of reoffending for the same subgroups to produce residuals.

A negative residual indicates that the predicted rate was higher than the actual rate (i.e. an over-prediction) and a positive rate indicates that the predicted rate was lower (i.e. an under-prediction). To assess whether the difference between the actual and predicted rates was real, a statistical test was utilised.

Statistical tests of equality (Z-test)

When comparing two proportions for the same sample (i.e. comparing the actual rate of reoffending with the predicted rate for the same subgroup) a one-sample Z-test was utilised. The hypothesised (predicted) rate of reoffending is compared with the observed (actual) rate.³

The test results in a z-value (or z-statistic) which can be compared with the standard normal distribution (z-distribution) to calculate a probability (or p) value. The p-value gives a measure of how likely (or extreme) the difference was. The smaller the p-value, the more ‘extreme’ the difference is considered to be. Or, rather, that the difference observed was unlikely to be due to chance (small probability). Results with a p-value smaller than a threshold are referred to as ‘statistically significant’.

Within this report, values less than 0.05 were considered as statistically significant.

³ This formula and calculation are available online: <https://www.statology.org/one-proportion-z-test-calculator/>

Measurement of effect size (Odds ratios)

A significant p-value identifies if two groups are statistically different from one another but does not provide a measure of the size of that difference. A measure of the 'effect size' is utilised for that purpose in this report.

Odds ratios were calculated for predicted (p) and actual (a) rates of reoffending using the formula

$$OR = \frac{a / (1 - a)}{p / (1 - p)}$$

Odds ratios are the difference in the likelihood of an event and present on a continuous scale, therefore, to gauge the calibration of a predictor thresholds of 25, 50, 75 and 100 per cent change in odds were selected to describe small, medium, large and very large effects respectively. The same residual (i.e. the percentage point difference between the actual and predicted rates) will give a different odds ratio for different predicted rates of reoffending.

As an example, the 100 per cent threshold equates to reoffending being twice as likely, or unlikely, according to the predictor when compared to the actual rate of reoffending. Therefore, in a hypothetical situation where the predicted rate of reoffending was 1 per cent (odds; 1:99), then actual rates of reoffending of 0.5 (odds; 1:198) and 1.98 per cent (odds; 2:99) would represent the lower and upper thresholds for a very large effect respectively (Table 58). The odds of 1:198 and 2:99 are each a 100 per cent change from the predicted odds (1:99) and represent odds ratios of 0.5 and 2 (Table 4). Alternatively, if the predicted rate of reoffending was 20 per cent (odds; 2:8) then actual rates of reoffending of 11.11 (odds; 1:8) and 33.33 per cent (odds; 4:8) would represent a 100 per cent change in odds from the predicted rate and also represent a very large effect.

Combinations of statistical significance and measurement of effect size were used to determine if a predictor was well calibrated or not.

Table C1: Example rates of reoffending that equate to upper and lower odds ratio thresholds for various predicted rates of reoffending

Predicted rate of reoffending	25% threshold (lower; upper)	50% threshold (lower; upper)	75% threshold (lower; upper)	100% threshold (lower; upper)
1%	0.802%; 1.247%	0.669%; 1.493%	0.574%; 1.737%	0.503%; 1.980%
5%	4.040%; 6.173%	3.390%; 7.317%	2.920%; 8.434%	2.564%; 9.524%
10%	8.163%; 12.194%	6.897%; 14.286%	5.970%; 16.279%	5.263%; 18.182%
50%	44.444%; 55.556%	40.000%; 60.000%	36.364%; 63.636%	33.333%; 66.667%
90%	87.805%; 91.837%	85.714%; 93.103%	83.721%; 94.030%	81.818%; 94.737%
99%	98.753%; 99.198%	98.508%; 99.331%	98.263%; 99.426%	98.020%; 99.498%

C.3 Model discrimination - Harrell's C-Index

Harrell's C-Index (or concordance index) was utilised to measure discrimination. That is, how well a risk score (the prediction) was at discriminating between lower- and higher-risk offenders. The higher the value of the C-Index, the better discrimination. A C-Index of 1 suggests perfect discrimination, whereas a C-Index of 0.5 suggests the predictor is as good as random guessing, and therefore poor discrimination. The C-Index is essentially equal to the probability that if two offenders in the study are selected at random, the individual who reoffends earlier (or at all) has the higher risk score.

C-Index scores are often split into 'very poor', 'poor', 'acceptable', 'good' and 'excellent' categories at thresholds of 0.5, 0.7, 0.8, 0.9.⁴ However, Rice and Harris (2005) proposed new thresholds specifically for risk assessment based on the common effect size measure Cohen's *d* in order to account for models in this field rarely achieving C-Indices above 0.8.⁵ Thresholds of 0.556, 0.639 and 0.714 were chosen for 'poor', 'acceptable', 'good' and

⁴ Hosmer, D. W., Lemeshow, S., & Sturdivant, R. (2013). Assessing the Fit of the Model. In Hosmer, D. W., Lemeshow, S., & Sturdivant, R. *Applied Logistic Regression*. (3rd ed., pp. 153-225). John Wiley & Sons

⁵ Fazel, S., Singh, J. P., Doll, H., & Grann, M. (2012). Use of risk assessment instruments to predict violence and antisocial behaviour in 73 samples involving 24 827 people: systematic review and meta-analysis. *Bmj*, 345.

‘excellent’ which correspond to common Cohen’s *d* effect size cut-offs of 0.2, 0.5 and 0.8. However, to better differentiate between ‘good’ and ‘excellent’ models these thresholds were extended in this study to include 0.785 (Table 5) – the equivalent of a Cohen’s *d* of 1.1.

The Cox proportional hazards survival model was applied to population subgroups to understand how well risk scores discriminate between offenders, based on the time taken (in days) from the start of the study to the event of interest. For example, OGRS4/V risk scores were applied to the event of proven OVP-type violent reoffending.

The benefit of the survival model is the ability to account for censoring in the data. Censoring occurs when an individual is removed from the study partway (for example, being imprisoned for another offence, not of interest), and therefore ensures information is not lost for those that were ‘removed’ from the study before the end of the 731 days follow-up period. For example, when studying OGRS4/V, censoring would be noted for those imprisoned for nonviolent reoffences at the number of days from start of follow-up to this imprisonment, if they did not violently reoffend (or incur another type of censoring event) on a prior date.

Discriminative validity was tested for several offender subgroups, as it is important to consider whether each predictor can distinguish between higher- and lower-risk individuals in each group. For example, if a predictor has a low C-Index for people with learning disabilities and challenges (LDC), it might be appropriate to recommend an enhanced role for professional judgement when deciding whether a person with LDC should receive an intervention whose suitability criteria include scores on that predictor.

However, discriminative validity for subgroups should be interpreted cautiously: while a predictor can achieve a low C-Index because the predictor fails to reflect true risk (e.g., gives low scores to those whose risk is truly low-medium, and high scores to those whose risk is truly medium-high), C-Index variations can also occur because the distribution of risk scores (e.g., higher or lower standard deviation) reflects the inherent ease of discrimination. That is, assuming that risk is estimated correctly by a given predictor, a cohort comprised of some high risk and some low risk people will have a higher C-Index than a cohort comprised mostly of medium risk people. If choosing a subgroup inherently

reduces the range of variation in risk, this subgroup is likely to have a lower C-Index. (For example, age is a risk factor for most types of reoffending, so the C-Index for a given age group is likely to be lower than that across all cases as the 'age' risk factor is very homogeneous within the subgroup.) Howard (2017) used synthetic reoffending data to demonstrate that, for OGRS3 and OVP scores on a real HMPPS sample, women should achieve higher discriminative validity, and subgroups selected on offence and/or sentence should achieve lower discriminative validity, because of the distribution of their scores – independently of whether these scores correctly estimate risk of reoffending for the given offender subgroup.