

# Suicide and Violence Perpetration Risk Assessments in the Canadian Armed Forces Health Information System: A Population-Based Analysis

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Canadian Forces  
Health Services Group



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# Suicide in the Canadian Armed Forces (CAF)

- 3<sup>rd</sup> leading cause of death in active-duty personnel 1983 -2007 (17%) (Tien et al. 2010)
- 23.5 deaths per 100,000 person-years (Rolland-Harris et al, 2016)
- 4.3% of CAF service members seriously consider suicide (Mann et al, 2005; Rusu et al, 2016)
- 9% of CAF personnel with suicidal ideation attempt suicide (Rusu et al, 2016)
- 93% of CAF suicide deaths (83% civilian pop.) accessed health care in previous 12 months (Mann, 2005; Rolland-Harris et al, 2016)







Alert



# Clinical Documentation Process (User View)

## Handwritten/Free Text

male pt presented w weakness of  
R side of face & arm & leg & slurred  
speech following CVA on 14th Dec 2009.  
He was operated on 5/10/08 for tear  
out of an independent ambulator and  
now for neuro-rehabilitation. His previous  
CT scan brain (on 1/15/08) shows gliotic lesion  
in R ACA territory infarct.

HE - R side - pt is conscious, oriented  
and speaks clearly.

Inspected nerves - R side - deviation of face

Summary system - R side - hyperreflexia on R side & left  
Ankle reflexes - R side - hyperreflexia on R side & left

Power - R side - 4/5 - 5/5  
① U/L - Shoulder - 2+/5 - 1/5 Grip -  
Elbow - 1+/5 -  
Wrist - 2/5  
② U/L - Wrist - 2+/5 - 3/5  
Elbow - 3+/5  
Ankle - 2+/5 - 1/5 2+/5

DTR - 3+ on R side  
- 2+ on L side  
Plantars - P.D.

Investigations:  
CBC - 11/20/09  
U&E - 4/2  
Prothrombin - 3/14/09  
- 1/1 - 3/14/09

Glucose - 101  
Urea - 15  
Creatinine - 0.9  
Total protein - 7.35 (4.3-7.3) A/C  
- 1/1 - 1/1

## Transcribed

DATE OF ADMISSION: MM/DD/YYYY

**INQUIRY OF PRESENT ILLNESS:** This is a (XX)-year-old white male who went to the ER which showed no evidence of renal calculi. He was referred for urologic evaluation. His CT scan which demonstrated a low-lying malrotated right kidney. There was no evidence of stones which appeared to be an infarction of an area of the lower pole of the left kidney which is admitted at this time for complete urologic evaluation.

**PAST MEDICAL HISTORY:** He had surgery on his right knee two years ago.

**EDUCATIONS:** He takes Diovan 80 mg with hydrochlorothiazide 12.5 mg daily and hyd

**ALLERGIES:** There are no known drug allergies.

**SOCIAL HISTORY:** He is single. Denies use of alcohol. Smokes one pack of cigarettes

**FAMILY HISTORY:** Father died of cancer, type unknown. Mother is living and well.

**REVIEW OF SYSTEMS:** Neurologic: Denies vertigo, syncope, convulsions or headache  
gastrointestinal: He has occasional indigestion. Denies emesis, melena, constipation, d

**PHYSICAL EXAMINATION:**  
VITAL SIGNS: Pulse is 72 and regular, respirations 18 and regular, blood pressure 122/7  
GENERAL: Well-developed, well-nourished white male in no acute distress. Alert and c  
EYES: Pupils are equal, round and reactive to light and accommodation. Extraocular m  
EARS: Supple. No thyromegaly. No cervical adenopathy.  
NECK: Symmetrical with equal expansion.  
LUNGS: Clear to percussion and auscultation.  
HEART: No cardiomegaly. No thrills or murmurs. Normal sinus rate and rhythm. ABDOM  
EXTREMITIES: No peripheral edema or varicosities.  
GENITALIA: Normal external male genitalia. No penile lesions. Testes are descended b  
RECTAL: The prostate is small, benign and nontender.

## Structured Documentation Problem List (EMR/EHR/CIS)

### Acute Medical Admissions

#### Problem List and/or Differential Diagnosis

##### Acute diagnosis

DVT

##### Differential diagnosis

Cellulitis

Lymphoedema










Pressure ulcers

Source:  
[http://www.mscui.net/Components/SingleConceptMat  
ching.aspx](http://www.mscui.net/Components/SingleConceptMatching.aspx)










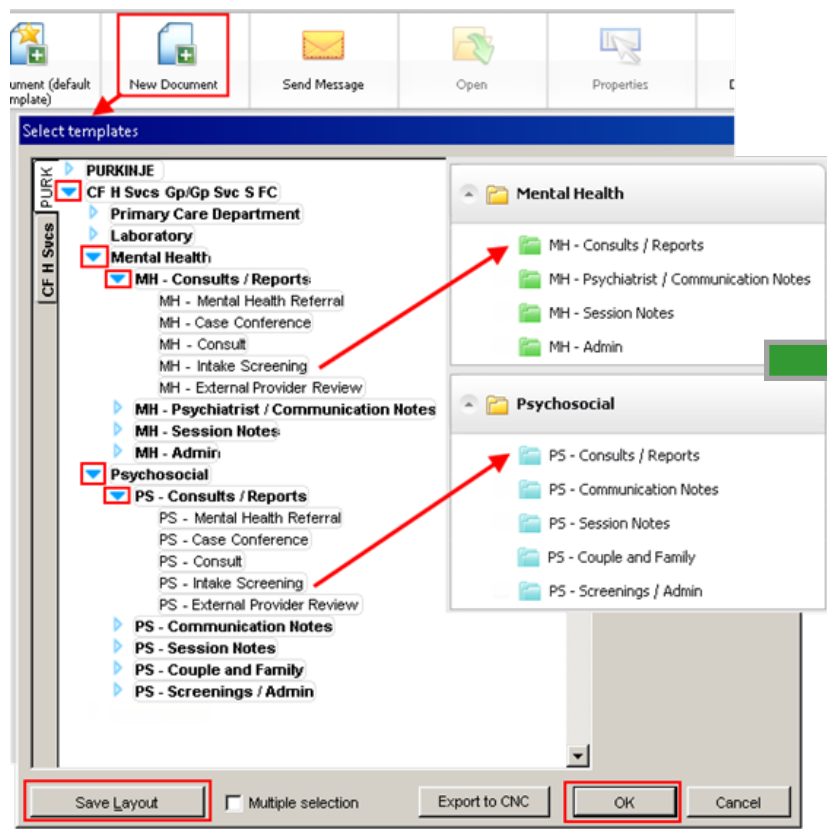
**Referral / Intake      Diagnostic / Treatment      Review of Care      Discharge**

<p> MH Referral</p> <p> <b><u>Intake Screening</u></b>*</p>	<p> Diagnostic Assessment</p> <p> Psychosocial Functioning</p> <p> <b><u>Session Note</u></b>*</p> <p> Psychiatrist Progress Note</p>	<p> <b><u>Periodic Case Review</u></b>*</p> <p> External Provider Review</p>	<p> <b><u>Discharge Summary</u></b>*</p>
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**Family Counselling      Communication**

<p> Couple and Family</p>	<p> Individual Session</p>	<p> Case Conference</p> <p> Communication Note</p>	<p> Consult Note</p>
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# CFHIS Mental Health Session Note



National Défense / Défense nationale		PROTECTED B (When completed) PROTÉGÉ B (Une fois rempli)		Program - Programme Select - Sélectionnez	
<b>Mental Health Session Note</b> <b>Note évolutive Santé mentale</b>					
SN - NM	Last name - Nom de famille		First name - Prénom		Rank - Grade
DOB - DDN	Telephone - Téléphone Work: <input type="text"/> Home: <input type="text"/>		Unit - Unité		
Date (yyaa-mm-dj)	Arrival status - Ponctualité Select - Sélectionnez		Session took place - Lieu de la session Select - Sélectionnez		
Service provided - Service offert Select - Sélectionnez		Number of sessions (if applicable) Nombre de sessions (si applicable)		Current status - Statut actuel Select - Sélectionnez	
Treatment modality - Modalité de l'intervention					
Narrative - Narratif					
Clinical Impression - impressions Clinique					
<b>Clinical Impression Classification (CIC)</b>					
Plan					
Date of next appointment - Date du prochain rendez-vous					
Name of clinician - Nom du clinicien		Occupation - Profession		Signature	
				Date (yyaa-mm-dj)	



# Clinical Impression Classifications (CIC)

- ▶ Addictions / Compulsive Behaviours
- ▶ Administrative
- ▶ Childhood / Upbringing
- ▶ Education
- ▶ Family Circumstance
- ▶ Housing / Economic
- ▶ Legal / Disciplinary
- ▶ Personal
- ▶ Occupational

- Classification system to categorize the MH assessment or narrative
- Terms based on ICD-10 health status (Z-codes)
- 9 groups, 90 CIC codes





# Clinical Impression Classifications (CIC)

## Addictions / Compulsive Behaviours

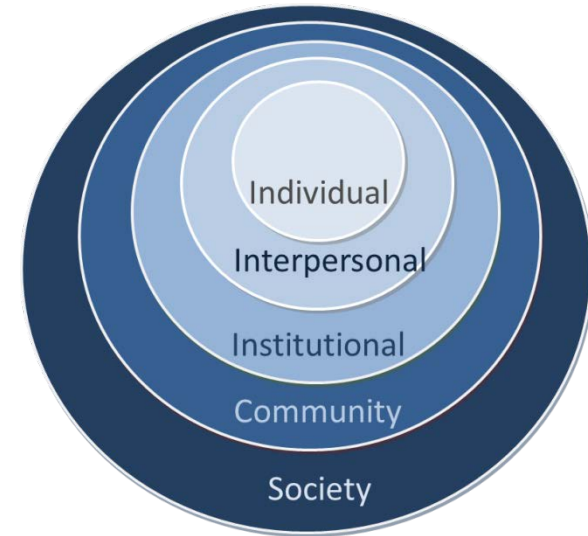
CIC Code	English	French
ADALCO	Alcohol	Alcool
ADDRGILC	Drugs illicit	Drogues illicites
ADDRGRX	Drugs prescribed	Médicaments
ADTOBAC	Tobacco	Tabac
ADEATDIS	Eating disorder	Désordre alimentaire
ADGAMBL	Gambling / betting/ VLT	Jeux de hasard / jeux de hasard en ligne
ADSEXMAL	Sexual	Comportements sexuels
ADVIDEO	Video games	Jeux vidéo
ADWWW	Internet / Social Media	Internet/médias sociaux
ADOTH	Other	Autre

- ▶ Administrative
- ▶ Childhood / Upbringing
- ▶ Education
- ▶ Family Circumstance
- ▶ Housing / Economic
- ▶ Legal / Disciplinary
- ▶ Personal
- ▶ Occupational



# CAF Population Health & Injury Surveillance

- EMRs are useful clinical repositories, but are not designed for population health research
- Pop health research is risk-oriented, integrative and evolving
- Requires time-series analysis, data cleaning & validation, warehousing



Adapted from McLeroy et al., 1988



# Canadian Armed Forces Health, Evaluation and Reporting Outcomes (HERO) System



*Targeting Health Information*

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Addictions

Depression

Diabetes

Hypertension

BMI (kg/m<sup>2</sup>)

Blisters

Cervical Cancer

Fracture

Lyme Disease

Gonorrhea

Suicide

Berylliosis

Hearing Loss

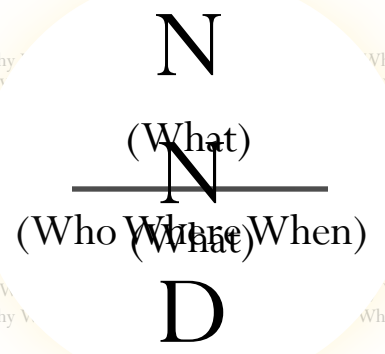
Rhabdomyolysis

Smoking

PTSD

Low Back Pain

3b Release



Postings

Combat

Element

Noise Exposure

Enrollment

Recruit

Dive Hours

Unit

Recall System

Deployment

Base

Operations

CDU

Workplace Hazards

Release

Reserve Class

Force Strength

At Sea

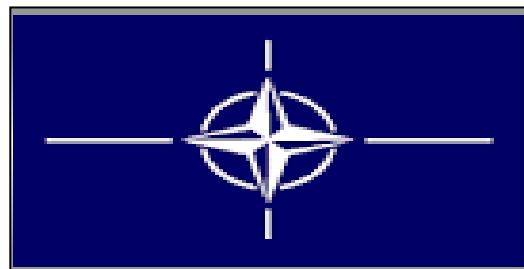
Seasonal Variation

Training Exercises

MOSID

Flight Hours





# Methods

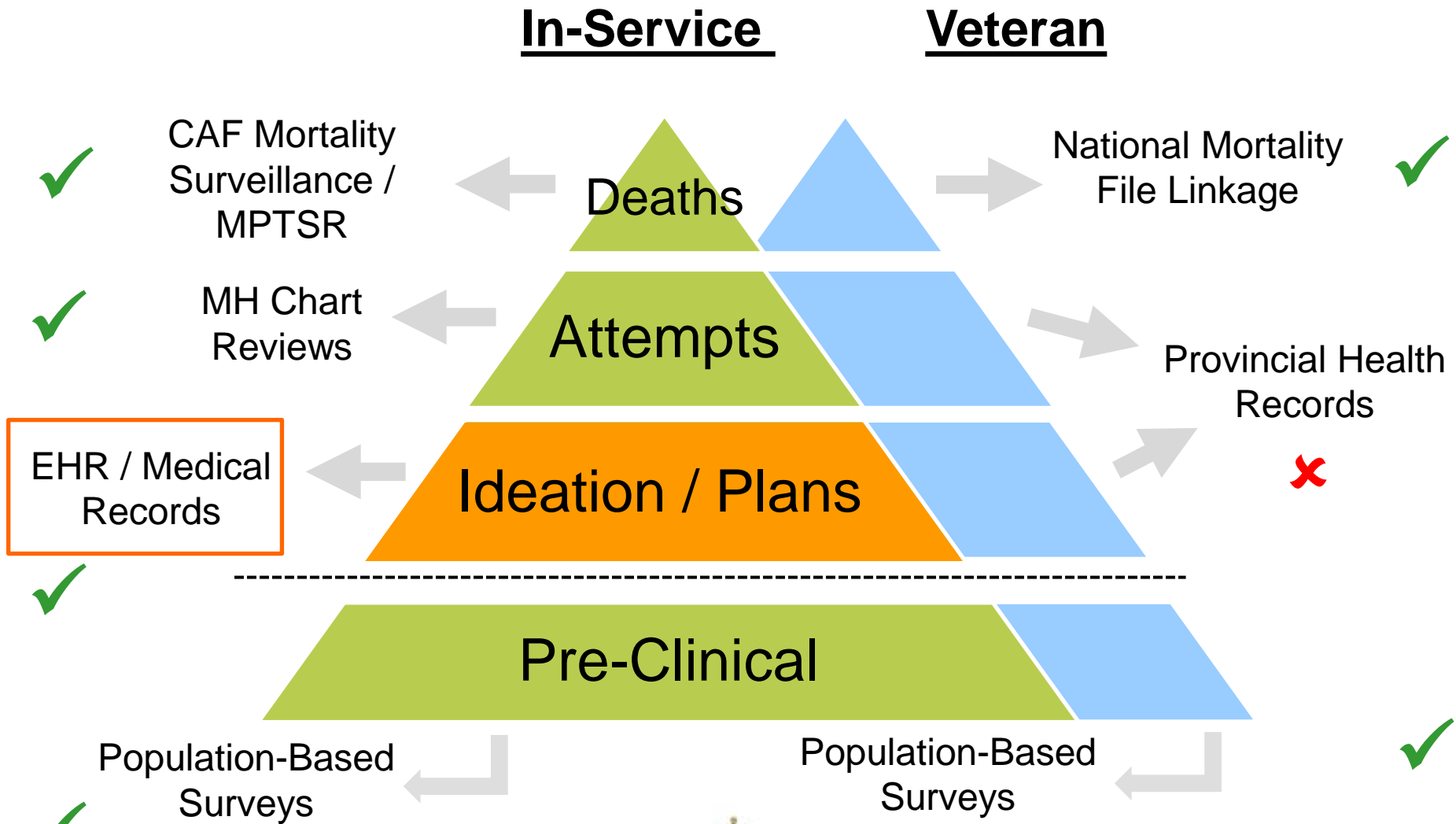


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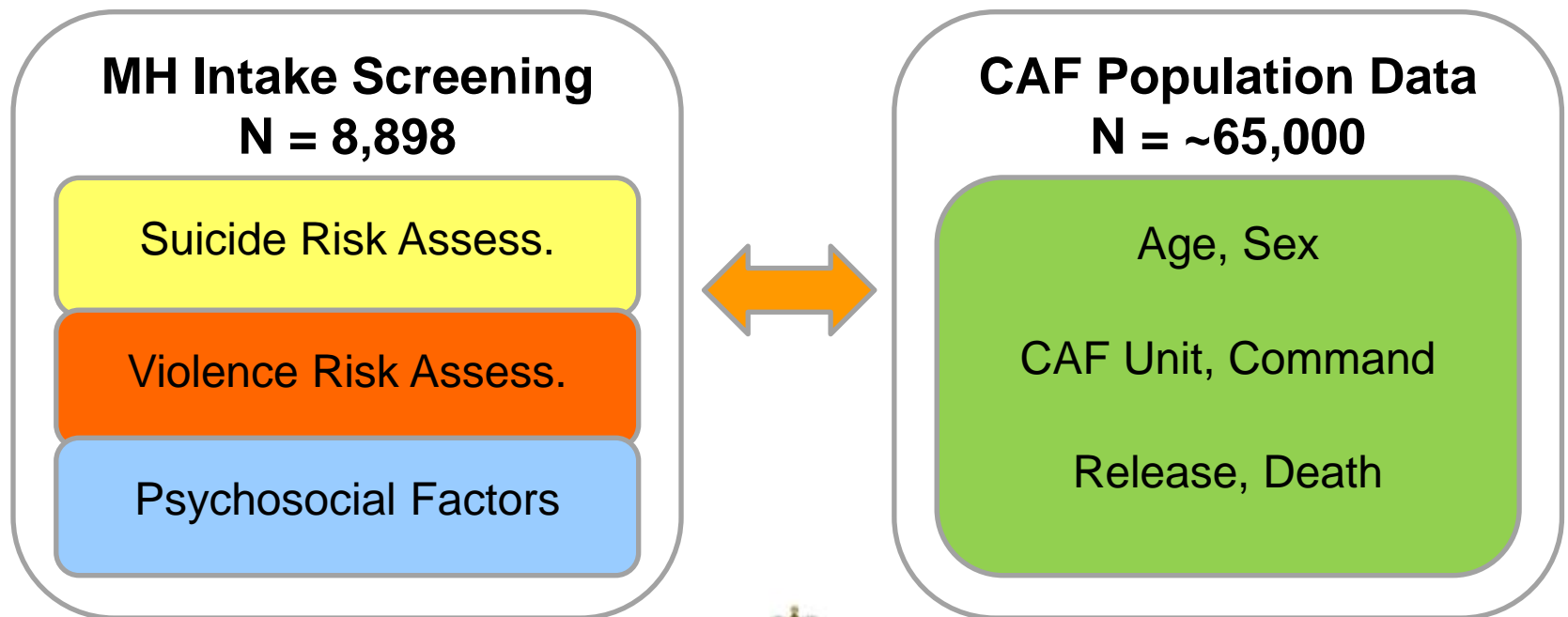
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# CAF In-service and Veteran Suicide Surveillance



# Methods

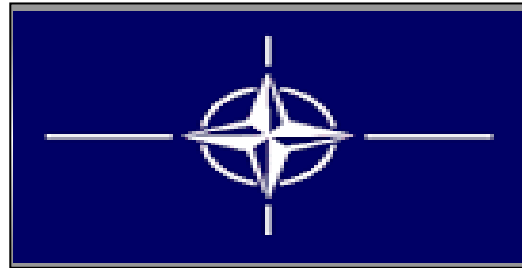
- Data Linkage: MH Intake → Population Database
- January 2016 - December 2016
- CAF Regular Force, 18 - 60 years of age



# US VA/DoD Clinical Practice Guideline Suicide Risk Assessment (2013)

Risk of Suicide Attempt	Indicators of Suicide Risk	Contributing Factors	Initial Action Based on Level of Risk
<p><b>High Acute Risk</b></p>	<ul style="list-style-type: none"> <li>• Persistent <b>suicidal ideation</b> or thoughts</li> <li>• Strong <b>intention</b> to act or plan</li> <li>• Not able to control <b>impulse</b> OR <b>recent suicide attempt</b> or preparatory behaviour</li> </ul>	<ul style="list-style-type: none"> <li>• Acute state of mental disorder / psychiatric symptoms</li> <li>• Acute <b>precipitating</b> event</li> <li>• Inadequate <b>protective factors</b></li> </ul>	<ul style="list-style-type: none"> <li>• Maintain direct observational control of the patient</li> <li>• Limit access to lethal means</li> <li>• Immediate transfer with escort to Urgent / Emergency Care setting for hospitalization</li> </ul>
<p><b>Intermediate Acute Risk</b></p>	<ul style="list-style-type: none"> <li>• Current suicidal <b>ideation</b> or thoughts</li> <li>• <b>No intention</b> to act</li> <li>• Able to control <b>impulse</b></li> <li>• <b>No recent attempt</b> or preparatory behaviour</li> </ul>	<ul style="list-style-type: none"> <li>• Existence of <b>warning signs</b> or <b>risk factors</b> AND</li> <li>• Limited <b>protective factors</b></li> </ul>	<ul style="list-style-type: none"> <li>• Refer to Behavioural Health provider for complete evaluation and interventions</li> <li>• Contact Behavioural Health provider to determine acuity of referral</li> <li>• Limit access to lethal means</li> </ul>
<p><b>Low Acute Risk</b></p>	<ul style="list-style-type: none"> <li>• Recent suicidal <b>ideation</b> or thoughts</li> <li>• <b>No intention</b> to act or plan</li> <li>• Able to control the <b>impulse</b></li> <li>• No planning or rehearsing a suicide act</li> <li>• No previous attempt</li> </ul>	<ul style="list-style-type: none"> <li>• Existence of <b>protective factors</b> AND</li> <li>• Limited <b>risk factors</b></li> </ul>	<ul style="list-style-type: none"> <li>• Consider consultation with Behavioural Health to determine need for referral and treatment</li> <li>• Treat presenting problems</li> <li>• Address safety issues</li> <li>• Document care and rationale for action</li> </ul>





# Results

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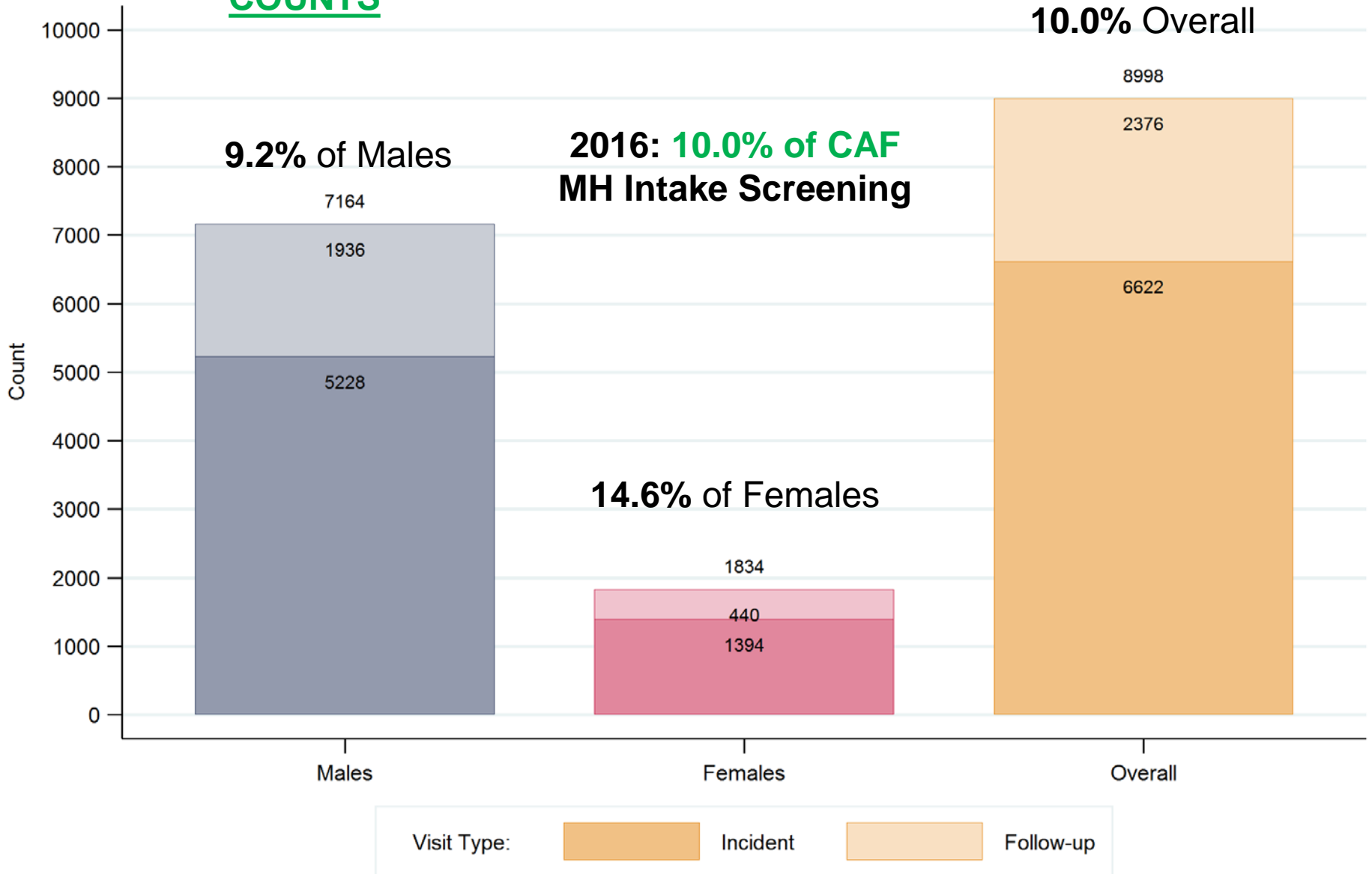


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# Count of Incident and Subsequent Intake Screening

January 2016 to December 2016

## COUNTS

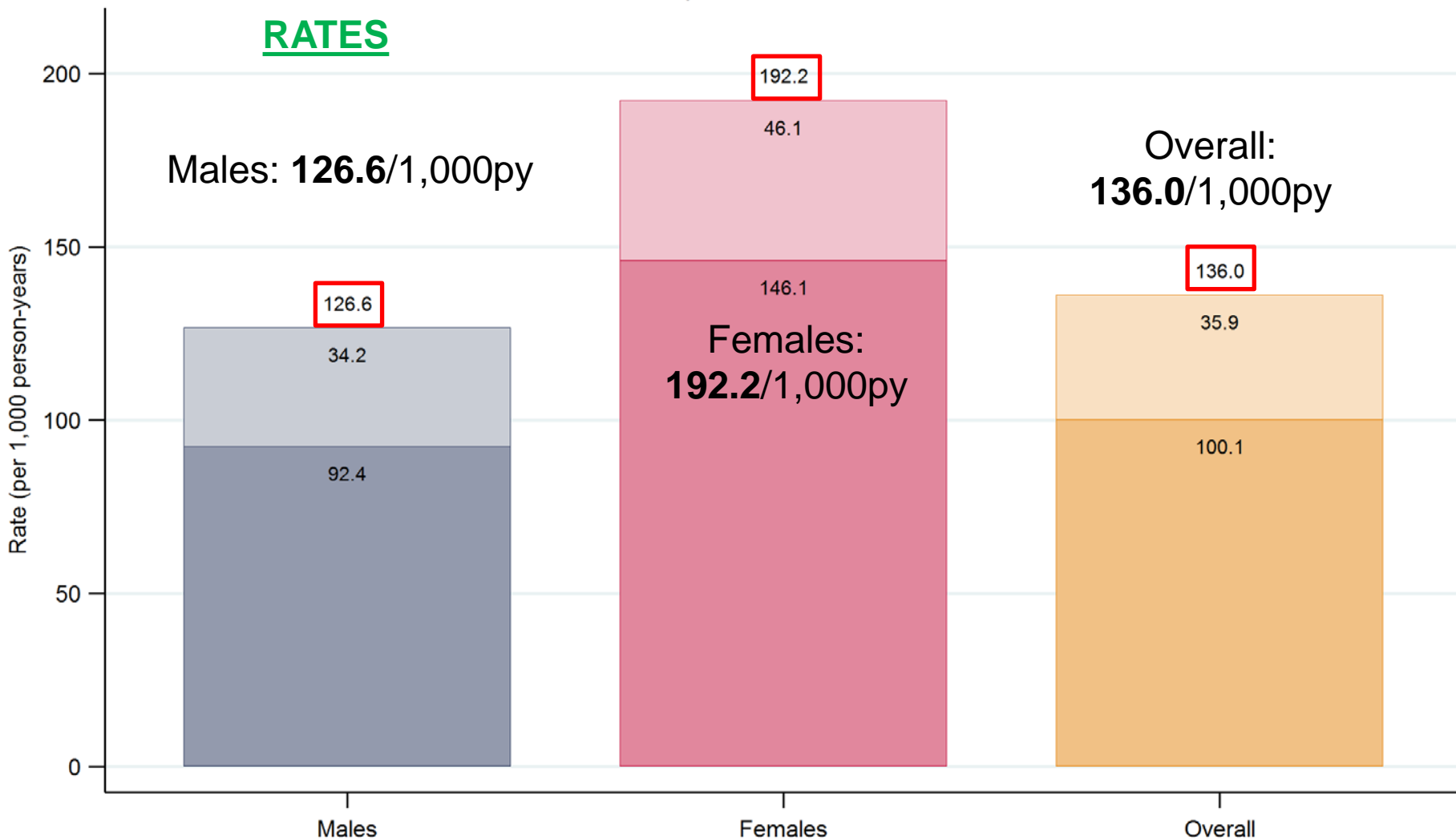


Source: Hawes R & Theriault F (2017) Directorate Force Health Protection, CF Health Services Group  
Canadian Forces Health, Evaluations and Reporting Outcomes (CF-HERO) Database, January 2016 to December 2016

# Rate of Incident and Subsequent Intake Screening

January 2016 to December 2016

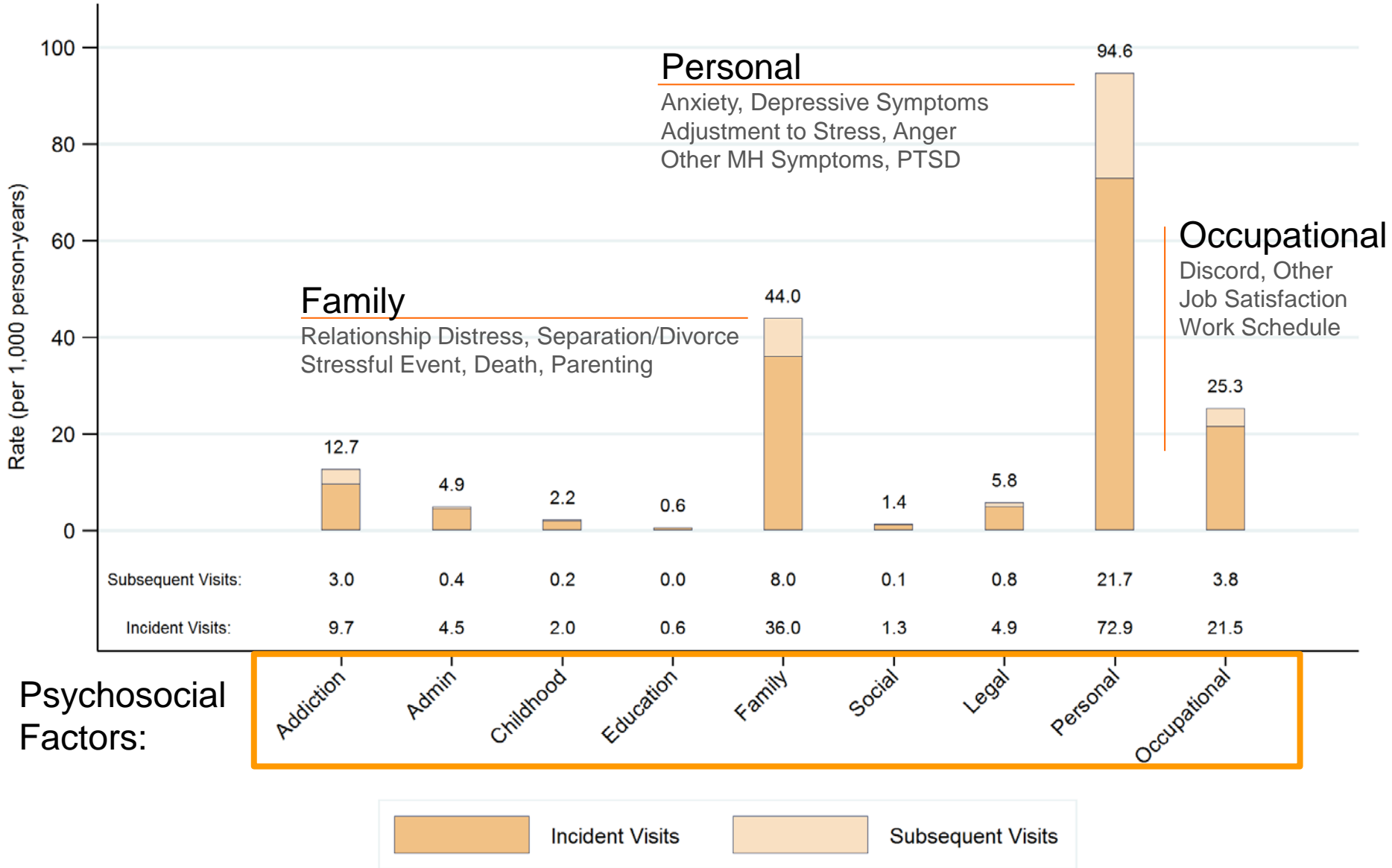
## RATES



Source: Hawes R & Theriault F (2017) Directorate Force Health Protection, CF Health Services Group  
Canadian Forces Health, Evaluations and Reporting Outcomes (CF-HERO) Database, January 2016 to December 2016

# Rate of Incident and Subsequent Intake Screening, Overall

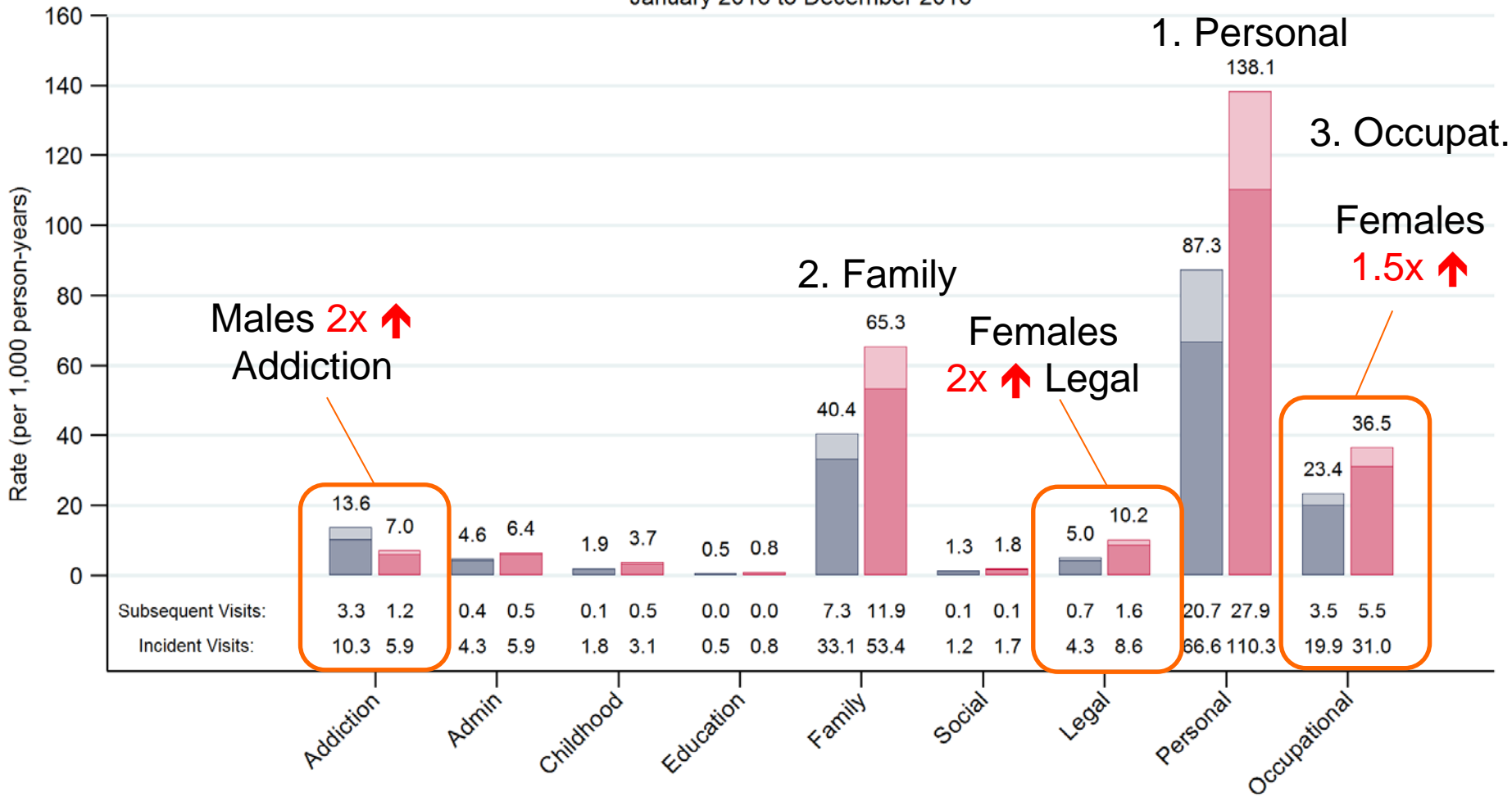
January 2016 to December 2016





# Rate of Incident and Subsequent Intake Screening, Males & Females

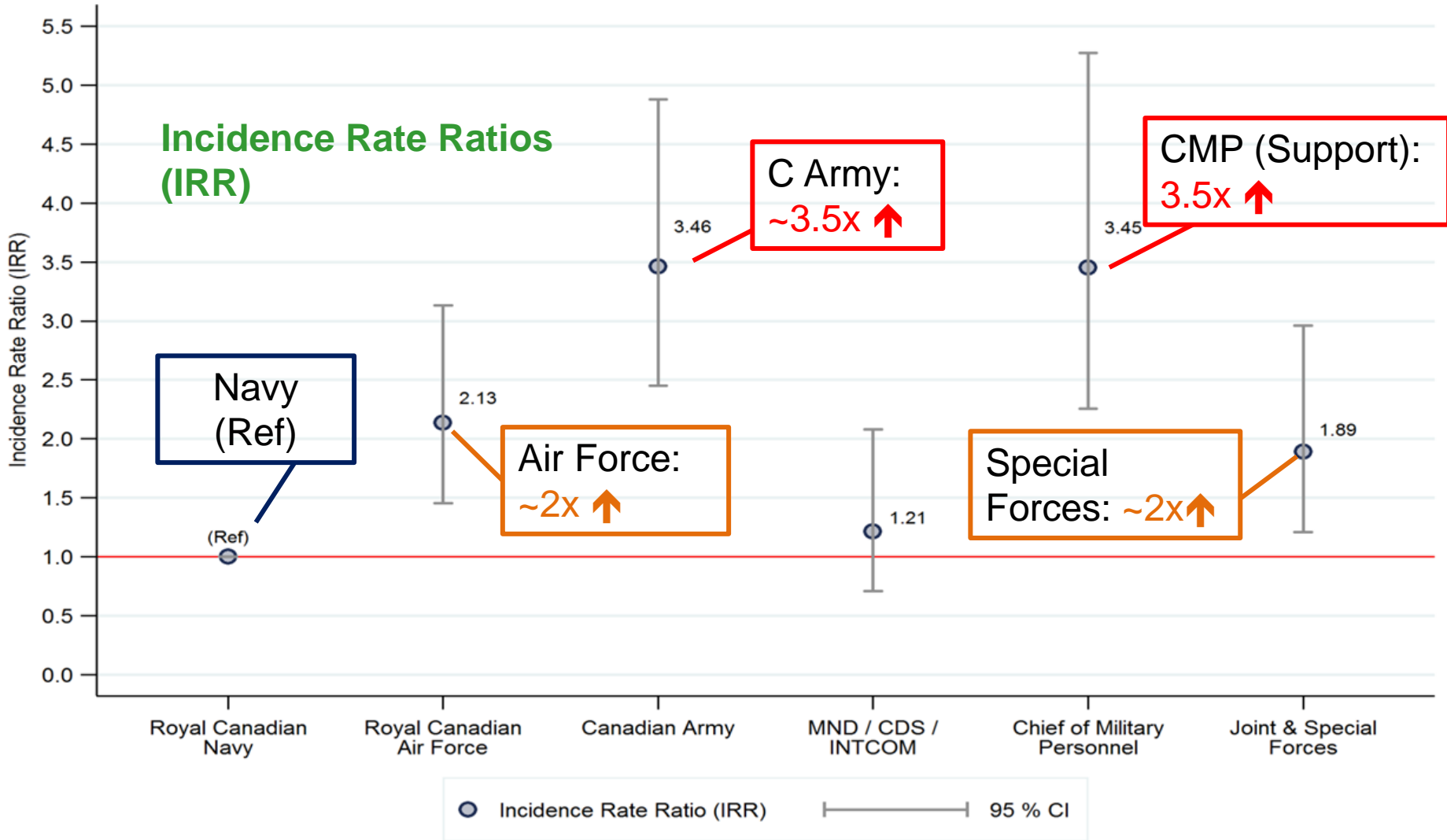
January 2016 to December 2016



Source: Hawes R & Theriault F (2017) Directorate Force Health Protection, CF Health Services Group  
 Canadian Forces Health, Evaluations and Reporting Outcomes (CF-HERO) Database, January 2016 to December 2016

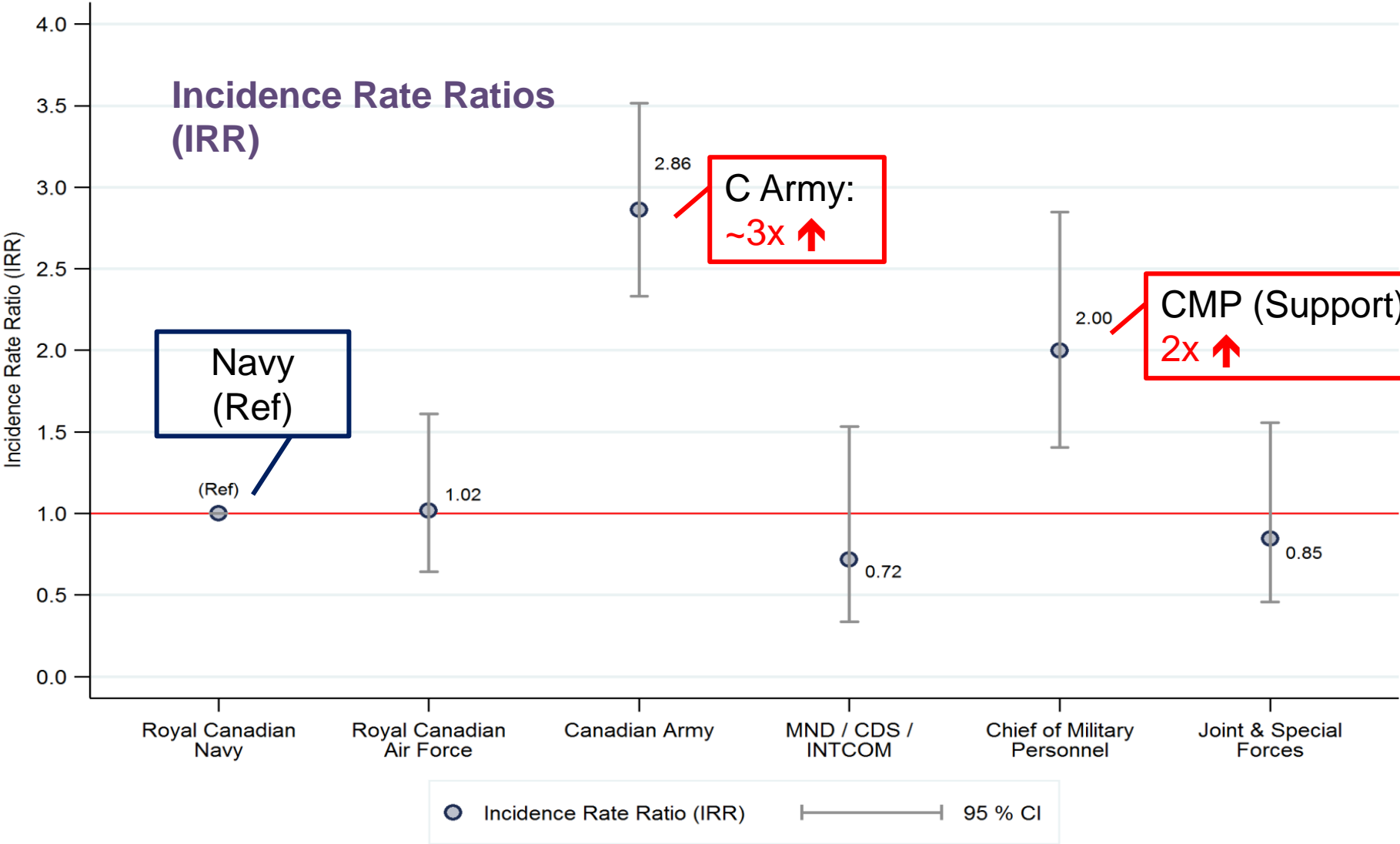
# Suicide Risk Assessment = Moderate / High

Adjusting for Age, Sex, CAF Command



# Violence Risk Assessment = Moderate / High

Adjusting for Age, Sex, CAF Command





# Conclusions

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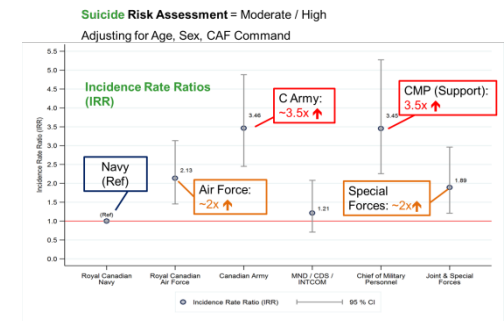
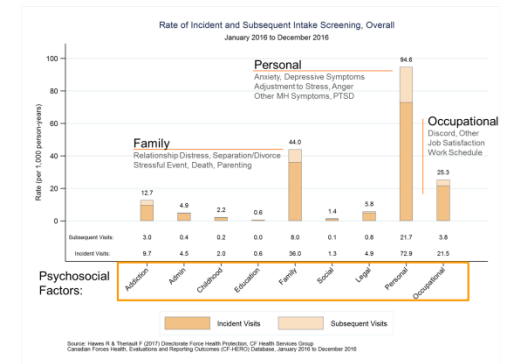
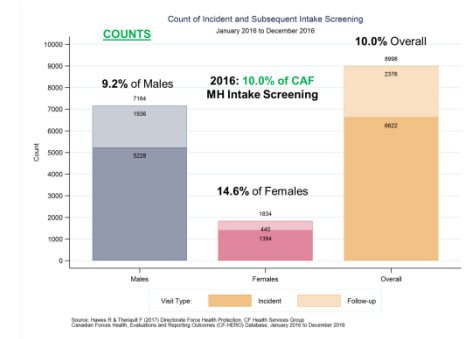
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# Conclusions

- 9.2% of males; 14.6% females  
→ MH Intake (2016)

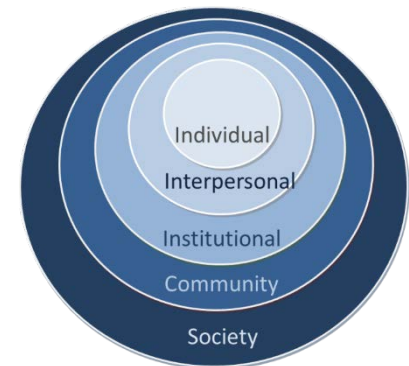
1. Personal (Depression, Anxiety, PTSD)
2. Family (Sep/Divorce, Parenting)
3. Occupational (Discord, Satisfaction)

- Canadian Army, CMP ↑ rate of Mod/Hi Suicide & Violence Risk Assessments



# Conclusions

- Electronic Health Record (EHRs) improve coverage of mental health surveillance
- Data collection tools should capture contextual information to inform clinical care and prevention efforts
- Population health databases can provide novel insights and support longitudinal (prospective) analyses





# Collaborations

**Epidemiology**

**Mental Health**

**Primary Care**

**Medical Policy**



# Thank You ~ Merci

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Canadian Forces Health Services Group  
Directorate Force Health Protection

## Acknowledgements

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Daniel Cousineau-Short

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LCol Steve Cooper

Mr Brock Heilman



**EXTRA SLIDES**

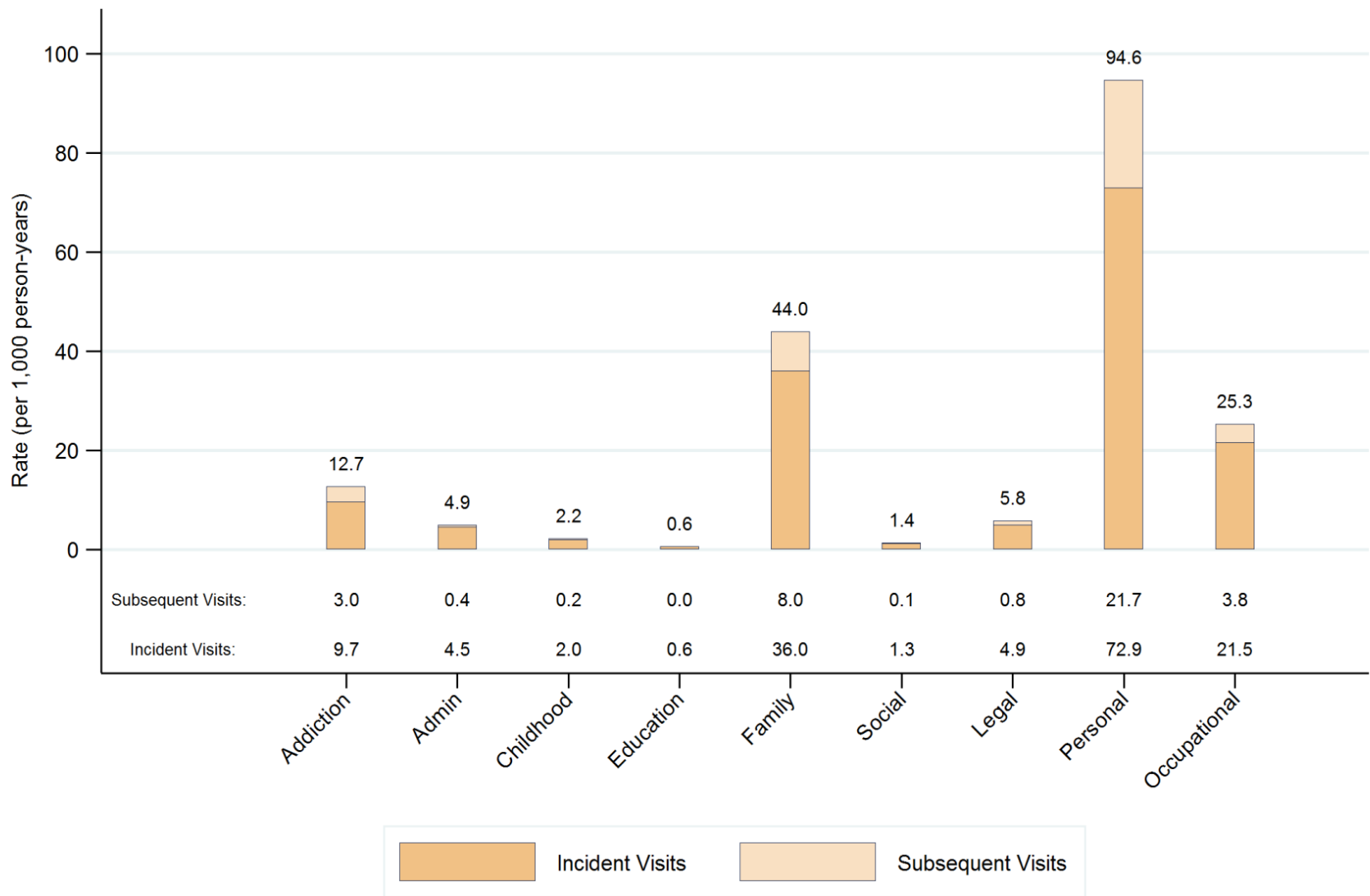




## Limitations

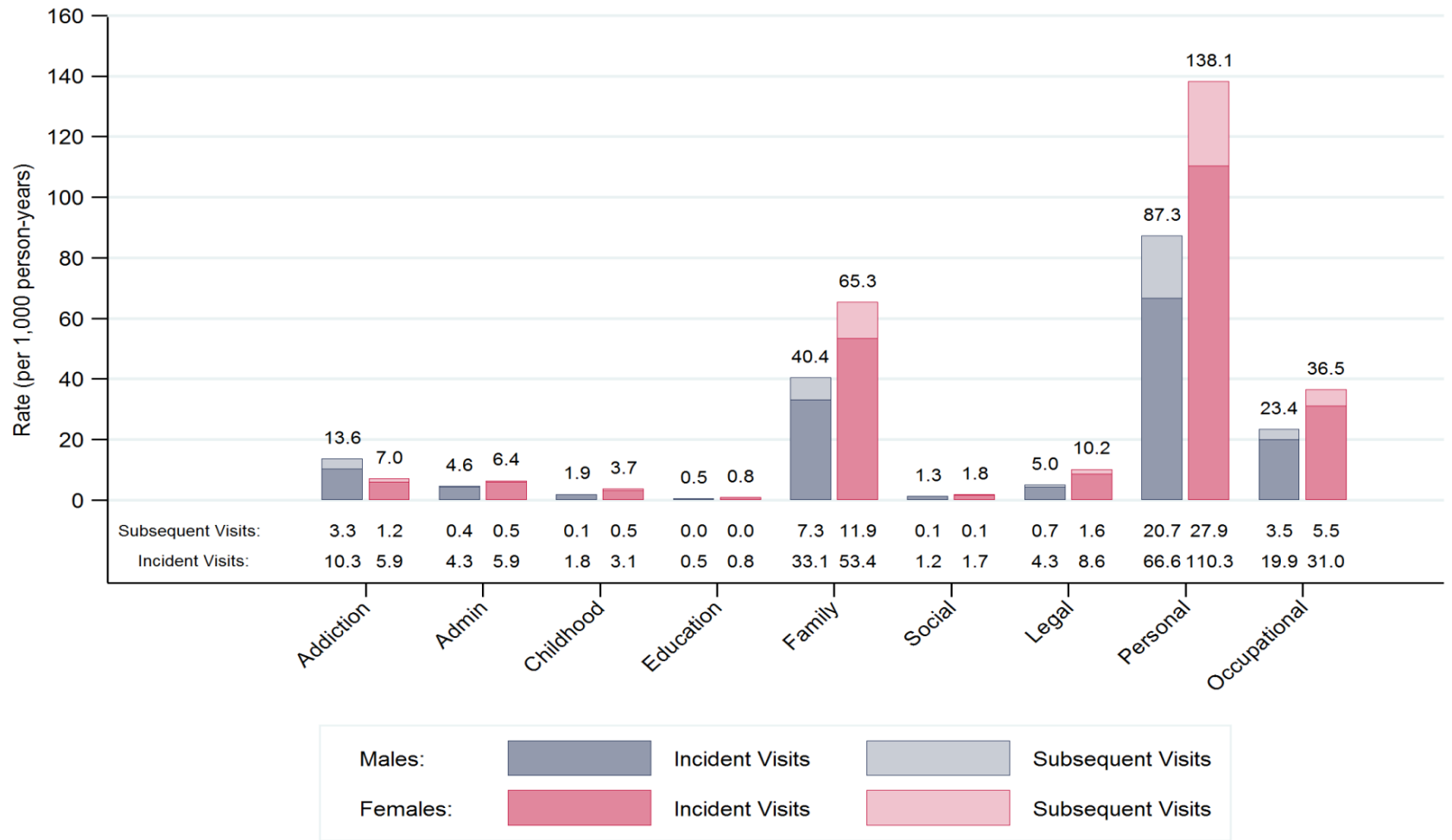
- Consistent with previously published reports (McKibben et al., 2013; Thériault et al., 2016) we observed significantly higher rates of mental health service use among CAF Regular Force females at every age group than their male counterparts.





Graph 1. Clinical classifications of mental health intake screening among Canadian Armed Forces Regular Force personnel, 2016.





Graph 2. Gender-specific clinical classifications of mental health intake screening among Canadian Armed Forces Regular Force personnel, 2016.



# Tables

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Table 1. Demographic profile of Canadian Armed Forces Regular Force personnel, 2016.

Gender	Age Group	Person-years	% of CAF Gender	% of CAF Total	Intake Screening Events (Total)
<b>Females</b>	18-29	2,640	27.7	4.0	631
	30-39	3,573	37.5	5.4	683
	40-49	2,402	25.2	3.6	406
	50-59	910	9.5	1.4	114
	Total	9,525	100	14.4	1,834
<b>Males</b>	18-29	19,439	34.4	29.4	2,582
	30-39	19,218	34.0	29.1	2,907
	40-49	12,101	21.4	18.3	1,314
	50-59	5,777	10.2	8.7	361
	Total	56,534	100	85.6	7,164
<b>Overall</b>	18-29	22,080	-	33.4	3,213
	30-39	22,791	-	34.5	3,590
	40-49	14,503	-	22.0	1,720
	50-59	6,686	-	10.1	475
	Total	66,059	-	100	8,998
<b>CAF Command</b>		<b>Person-years</b>		<b>% of CAF Total</b>	<b>Intake Screening Events (Total)</b>
<b>Royal Canadian Navy</b>		8,741		13.2	821
<b>Royal Canadian Air Force</b>		13,493		20.4	1718
<b>Canadian Army</b>		23,147		35.0	3966
<b>MND/CDS/INTCOM</b>		7,051		10.7	666
<b>Chief of Military Personnel</b>		10,223		15.5	1548
<b>Joint and Special Forces</b>		3,404		5.2	279
<b>Total</b>		66,059		100	8,998



Table 2 (revised). Mental health intake screening among Canadian Armed Forces Regular Force personnel, 2016.

Age Group	Screening	Overall	Male	Female	Sig
		Rate	Rate	Rate	
<b>18-29</b>	Incident	102.3	92.3	175.7	p≤0.0001
	Subsequent	43.3	40.5	63.2	p≤0.0001
	Total	145.5	132.8	239.0	p≤0.0001
<b>30-39</b>	Incident	114.7	108.5	148.1	p≤0.0001
	Subsequent	42.8	42.8	43.1	ns
	Total	157.5	151.3	191.2	p≤0.0001
<b>40-49</b>	Incident	92.8	86.0	127.0	p≤0.0001
	Subsequent	25.8	22.6	42.0	p≤0.0001
	Total	118.6	108.6	169.0	p≤0.0001
<b>50-59</b>	Incident	60.4	53.3	105.6	p≤0.0001
	Subsequent	10.6	9.2	19.8	p≤0.01
	Total	71.0	62.5	125.3	p≤0.0001
<b>All Ages</b>	Incident	100.1	92.4	146.1	p≤0.0001
	Subsequent	35.9	34.2	46.1	p≤0.0001
	Total	136.0	126.6	192.2	p≤0.0001

Rates expressed per 1,000 person-years; *ns*: not statistically significant at p≤0.05



Table 4 (revised). Suicide risk assessment at mental health intake screening among Canadian Armed Forces Regular Force personnel, 2016.

Gender	Suicide Risk Assessment	Ages 18-29	Ages 30-39	Ages 40-49	Ages 50-59	All Ages
		Rate	Rate	Rate	Rate	Rate
<b>Overall</b>	Moderate	6.5	4.5	3.1	2.7	4.7
	High	1.8	0.7	0.5	0.4	1.0
	Elevated (Moderate & High)	8.3	5.2	3.6	3.1	5.7
	Test: Elevated by Age Group	(Ref)	p≤0.0001	p≤0.0001	p≤0.0001	-
<b>Males</b>	Moderate	6.4	4.8	3.2	2.1	4.7
	High	1.9	0.8	0.4	0.5	1.1
	Elevated (Moderate & High)	8.3	5.6	3.6	2.6	5.8
	Test: Elevated by Age Group	(Ref)	p≤0.001	p≤0.0001	p≤0.0001	-
<b>Females</b>	Moderate	7.2	3.1	2.5	6.6	4.4
	High	1.1	0.3	0.8	0.0	0.6
	Elevated (Moderate & High)	8.3	3.4	3.3	6.6	5.0
	Test: Elevated by Age Group	(Ref)	p≤0.005	p≤0.01	ns	-
	Test: Elevated by Gender	ns	p≤0.05	ns	p≤0.05	ns

Rates expressed per 1,000 person-years; *ns*: not statistically significant at  $p \leq 0.05$



Table 5. Violence risk assessment at mental health intake screening among Canadian Armed Forces Regular Force personnel, 2016.

Gender	Violence Perpetration Risk Assessment	Ages 18-29	Ages 30-39	Ages 40-49	Ages 50-59	All Ages
		Rate	Rate	Rate	Rate	Rate
<b>Overall</b>	Moderate	4.3	5	2.9	1.3	3.9
	High	0.4	0.6	0	0.1	0.3
	Elevated (Moderate & High)	4.7	5.6	2.9	1.4	4.2
	Test: Elevated by Age Group	(Ref)	ns	p≤0.001	p≤0.0001	-
<b>Males</b>	Moderate	4.6	5.3	3.1	1.4	4.2
	High	0.3	0.5	0	0	0.3
	Elevated (Moderate & High)	4.9	5.8	3.1	1.4	4.5
	Test: Elevated by Age Group	(Ref)	ns	p≤0.01	p≤0.0001	-
<b>Females</b>	Moderate	2.7	3.1	1.7	1.1	2.4
	High	0.8	1.1	0	1.1	0.7
	Elevated (Moderate & High)	3.5	4.2	1.7	2.2	3.1
	Test: Elevated by Age Group	(Ref)	ns	ns	ns	-
	Test: Elevated by Gender	ns	ns	ns	ns	p≤0.05

Rates expressed per 1,000 person-years; *ns*: not statistically significant at p≤0.05





Table 6. Suicide and violence perpetration risk assessments at mental health intake screening by Canadian Armed Forces Command, 2016.

Risk Assessment	Risk Level	Royal Canadian Navy	Royal Canadian Air Force	Canadian Army	MND / CDS / INTCOM	Chief of Military Personnel	Joint & Special Forces
		Rate	Rate	Rate	Rate	Rate	Rate
<b>Suicide</b>	Moderate	1.72	4.08	6.44	1.99	6.55	2.94
	High	0.46	0.52	1.73	0.28	0.98	0.88
	Elevated (Moderate & High)	2.17	4.60	8.16	2.27	7.53	3.82
	Test: Elevated by CAF Command	Ref	p≤0.001	p≤0.001	ns	p≤0.001	ns

<b>Violence Perpetration</b>	<b>Moderate</b>	<b>1.94</b>	<b>2.37</b>	<b>6.61</b>	<b>1.28</b>	<b>4.21</b>	<b>1.76</b>
	High	0.46	0.07	0.52	0.28	0.29	0.29
	Elevated (Moderate & High)	2.40	2.45	7.13	1.56	4.50	2.06
	Test: Elevated by CAF Command	Ref	ns	p≤0.001	ns	p≤0.01	ns

Rates expressed per 1,000 person-years

MND / CDS / INTCOM: Minister and Associate Minister of Defence, Chief and Vice-Chief of Defence Staff, and Intelligence Command

Canadian Forces  
Health Services Group



Groupe des Services de  
santé des Forces Canadiennes

Table 7. Results of Poisson regression of moderate/high suicide risk assessment at mental health intake screening by Canadian Armed Forces Command, 2016.

Variable	Level	Model 1			Model 2			Model 3		
		IRR	95% CI	z-score	IRR	95% CI	z-score	IRR	95% CI	z-score
Gender	Female (Ref)	-	-	-				-	-	-
	Male	1.10	0.79-1.52	0.57				1.11	0.88-1.43	0.91
Age Group	18-29 (Ref)	-	-	-				-	-	-
	30-39	0.63	0.38-1.03	-1.83				0.70	0.58-0.84	-3.83***
	40-49	0.43	0.28-0.67	-3.72***				0.50	0.43-0.59	-8.79***
	50-59	0.38	0.22-0.65	-3.48***				0.47	0.27-0.81	-2.71**
CAF Command	Royal Canadian Navy (Ref)				-	-	-	-	-	-
	Royal Canadian Air Force				2.11	1.56-2.87	4.81***	2.13	1.45-3.14	3.86***
	Canadian Army				3.75	2.48-5.68	6.26***	3.46	2.45-4.88	7.07***
	MND / CDS / INTCOM				1.04	0.62-1.76	0.16	1.21	0.71-2.08	0.70
	Chief of Military Personnel				3.47	2.40-5.00	6.65***	3.45	2.26-5.27	5.72***
	Joint & Special Forces				1.76	1.22-2.54	3.01**	1.89	1.21-2.96	2.78**

IRR: Incidence Rate Ratio obtained from Robust Poisson regression; CI: Confidence intervals; \* p≤0.05; \*\* p≤0.01; \*\*\* p≤0.001  
MND / CDS / INTCOM: Minister and Associate Minister of Defence, Chief and Vice-Chief of Defence Staff, and Intelligence Command



Table 8. Results of Poisson regression of moderate/high violence perpetration risk assessment at mental health intake screening by Canadian Armed Forces Command, 2016.

Variable	Level	Model 1			Model 2			Model 3		
		IRR <sup>α</sup>	95% CI	z-score	IRR <sup>α</sup>	95% CI	z-score	IRR <sup>α</sup>	95% CI	z-score
<b>Gender</b>	Female (Ref)	-	-	-				-	-	-
	Male	1.42	0.72-2.79	1.00				1.35	0.82-2.22	1.18
<b>Age Group</b>	18-29 (Ref)	-	-	-				-	-	-
	30-39	1.20	0.68-2.10	0.62				1.39	1.13-1.72	3.07**
	40-49	0.62	0.31-1.25	-1.33				0.78	0.57-1.06	-1.59
	50-59	0.32	0.16-0.66	-3.11**				0.44	0.24-0.80	-2.70**
<b>CAF Command</b>	Royal Canadian Navy (Ref)				-	-	-	-	-	-
	Royal Canadian Air Force				1.01	0.54-1.91	0.06	1.02	0.64-1.61	0.08
	Canadian Army				2.97	2.04-4.31	5.72***	2.86	2.33-3.51	10.05***
	MND / CDS / INTCOM				0.65	0.30-1.41	-1.10	0.72	0.33-1.53	-0.86
	Chief of Military Personnel				1.87	1.10-3.20	2.29*	2.00	1.40-2.85	3.84***
	Joint & Special Forces				0.86	0.34-2.18	-0.33	0.85	0.46-1.56	-0.54

IRR: Incidence Rate Ratio obtained from Robust Poisson regression; CI: Confidence intervals; \* p≤0.05; \*\* p≤0.01; \*\*\* p≤0.001  
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Canadian Armed Forces

68K Regular Force

27K Reserve Force



National  
Defence

Défense  
nationale

21,000 Civilians



Chief Military  
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Canadian Forces Health Services Group

Directorate of Force Health Protection

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Environmental Health



Royal  
Canadian Navy

11K  
(17%)



CANSOFCOM



Royal Canadian  
Air Force

20K  
(30%)



CJOC



Canadian  
Army

35K  
(53%)



CF INTCOM