

FNED2 Triage Manuscript - Appendices

Appendix 1a: Conditions for Analysis

EDC Group	EDC within Group	Condition within EDC Group	Reason This Condition was Selected for Analysis
Trauma and Injury	Abdominal Trauma; Amputation; Burns; Cardiothoracic Trauma; Frostbite; Head and Neck Injuries; Head and Neck Trauma; Kidney or Ureter Trauma; Lower Limb Injuries; Nerve Root and Spinal Plexus Injury; Other Fracture; Other Injuries; Spinal Cord Injury; Spinal Fractures without Spinal Cord Injury	Long bone fractures (multiple diagnoses codes, see Appendices)	No specific code stands out for the Injury and Trauma group. Long bone fractures have been previously examined in American research on first peoples.
Infection	Cellulitis, Gangrene, Infections, Kidney Infections, Otitis Media, Pneumonia, Septicemia, Tuberculosis, Upper Respiratory Infections, Urinary Tract Infections, Venereal Disease.	Acute Upper Respiratory Infections, unspecified (ICD-10 J069)	J069 represents 325,853 First Nations ED visits (20.3% of all First Nations infection visits based on first diagnosis code, the highest proportion of any infection code).
Mental Health	Acute Mental Health; Diagnoses; Acute Stress and Anxiety Diagnoses; Bi-Polar Disorder; Chronic Mental Health Diagnoses; Chronic Stress and Anxiety Diagnoses; Depressive and/or Other Psychoses; Eating Disorder; Schizophrenia; Suicide Attempt	Anxiety Disorder, unspecified (ICD-10 F419)	F419 represents 66,102 First Nations ED visits (31.7% of all First Nations Mental Health visits based on 1st diagnosis code, the highest proportion of any mental health code).
Obstetrics and Gynecology	Abortion; Acute Gynecological Diagnoses; Breast Diagnoses; Cesarean Section; Chronic Gynecological Diagnoses; Infertility - Female; Obstetrical Diagnosis; Tubal/Ovarian/Ectopic Pregnancy	Spontaneous Abortion (multiple ICD-10 codes selected by clinician team members)	Recommended by AFNIGC co-lead given First Nations communities' interest in women's health.
Substance Use	Acute Alcohol Abuse; Chronic Alcohol Abuse; Cocaine Abuse; Opioid Abuse; Other Significant; Drug Abuse; Tobacco Use Disorder	Opioid Related Visits (multiple T40 and F11 codes selected by clinician team members)	Recommended by AFNIGC co-lead given First Nations communities' interest in opioid related issues.

Legend: EDC – Episode Disease Category

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Appendix 1b: Dataset as Analyzed, comparing First Nations and Non-First Nations by CTAS Score

	First Nations				Non-First Nations			
	Higher Acuity (CTAS 1-2)		Lower Acuity (CTAS 3-5 or Missing)		Higher Acuity (CTAS 1-2)		Lower Acuity (CTAS 3-5 or Missing)	
Age Mean, SD	33.72	19.9	31	20.4	43.5	24.96	37.8	24.4
Sex, n %								
Female or other	42625	7.4%	533548	92.6%	587315	11.3%	4630946	88.7%
Male	40871	8.5%	437999	91.5%	610844	12.4%	4332090	87.6%
Comorbidities, n %								
None	32875	9.7%	306949	90.3%	714223	9.9%	6521517	90.1%
1 or more	50621	7.1%	664598	92.9%	483936	16.5%	2441519	83.5%
Area Income, n %								
<\$42,000	37558	8.4%	408271	91.6%	254549	13.1%	1693526	86.9%
≥\$42,000	45938	7.5%	563276	92.5%	943610	11.5%	7269510	88.5%
AHS Zone of Patient Residence, n %								
South Zone	4374	4.0%	103823	96.0%	45877	5.3%	815422	94.7%
Calgary Zone	25592	19.7%	104399	80.3%	601384	19.7%	2455570	80.3%
Central Zone	9235	5.9%	147158	94.1%	95052	5.8%	1536609	94.2%
Edmonton Zone	23389	14.7%	135739	85.3%	342848	14.2%	2076190	85.8%
North Zone	20906	4.2%	480428	95.8%	112998	5.2%	2079245	94.8%
Travel Distance, n %								
≤5k	35010	7.6%	427451	92.4%	547731	9.9%	4961706	90.1%
>5k	48486	8.2%	544096	91.8%	650428	14.0%	4001330	86.0%

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Appendix 1b: Dataset as Analyzed, comparing First Nations and Non-First Nations by CTAS Score (Continued)

	First Nations				Non-First Nations			
	Higher Acuity (CTAS 1-2)	Lower Acuity (CTAS 3-5 or Missing)	Higher Acuity (CTAS 1-2)	Lower Acuity (CTAS 3-5 or Missing)	Higher Acuity (CTAS 1-2)	Lower Acuity (CTAS 3-5 or Missing)	Higher Acuity (CTAS 1-2)	Lower Acuity (CTAS 3-5 or Missing)
Ambulance Arrival, n %								
Yes (air, ground or combination)	37100	23.4%	121144	76.6%	337484	33.3%	675232	66.7%
No	46396	5.2%	850403	94.8%	860675	9.4%	8287804	90.6%
Shift, n %								
00:01-08:00	18083	14.9%	103029	85.1%	196049	16.6%	981588	83.4%
8:01-16:00	28784	6.1%	443789	93.9%	507879	9.9%	4607498	90.1%
16:01-00:00	36629	7.9%	424729	92.1%	494231	12.8%	3373950	87.2%
Facility type, n %								
Community Ambulatory or Urgent Care Centre	4756	6.9%	64472	93.1%	111525	7.9%	1299412	92.1%
Tertiary Pediatric	6446	22.4%	22391	77.6%	92512	16.2%	477331	83.8%
Tertiary Mixed	20941	26.6%	57809	73.4%	283593	29.6%	674154	70.4%
Regional Hospital	27777	15.9%	146940	84.1%	546761	18.2%	2463880	81.8%
Large Community Hospital	7984	3.6%	213431	96.4%	63261	4.6%	1321662	95.4%
Medium Community Hospital	13392	3.8%	338331	96.2%	63261	3.1%	1972939	96.9%
Small Community Hospital	2200	1.7%	128173	98.3%	21980	2.8%	753658	97.2%
Disposition, n %								
Admitted	19939	30.9%	44567	69.1%	293648	36.6%	508625	63.4%
Deceased in ED	365	84.9%	65	15.1%	5458	86.5%	853	13.5%
Discharged	53985	6.0%	848152	94.0%	808278	9.2%	7995988	90.8%
Left against medical advice	1642	6.7%	22815	93.3%	9251	10.1%	82737	89.9%
Left without being seen	1600	3.6%	42559	96.4%	14652	5.4%	259155	94.6%
Transferred	5965	30.8%	13389	69.2%	66872	36.6%	115678	63.4%
Totals	83496	7.9%	971547	92.1%	1198159	11.8%	8963036	88.2%

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Legend: CTAS – Canadian Triage Acuity Score

Appendix 1c: Complete Data Set (prior to listwise deletion) Showing Missing Data

	First Nations						Non-First Nations					
	Higher Acuity (CTAS 1-2)		Lower Acuity (CTAS 3-5)		Missing Triage		Higher Acuity (CTAS 1-2)		Lower Acuity (CTAS 3-5)		Missing Triage	
Age Mean, SD	33.9	19.4	31.1	20.2	32.7	21.3	43.5	24.8	37.6	24.2	42	24.8
Missing n, %	3		3		0		15		19		1	
Age Group												
Age <18	17742	6.1%	258923	89.1%	13822	4.8%	207104	8.9%	2054703	88.3%	65866	2.8%
Age 18-54	59899	9.1%	565413	86.3%	30195	4.6%	600174	11.2%	4571850	85.7%	163287	3.1%
Age 55+	13795	9.0%	130486	85.0%	9143	6.0%	446665	15.3%	2358941	80.7%	118238	4.0%
missing	3		3		0		15		19		1	
Sex, n %												
Female	45893	7.7%	520923	87.4%	29432	4.9%	607406	11.3%	4597684	85.4%	179143	3.3%
Male	45546	9.1%	433899	86.2%	23728	4.7%	646547	12.4%	4387810	84.3%	168249	3.2%
Missing	0	0.0%	3	100.0%	0	0.0%	5	20.8%	19	79.2%	0	0.0%
Comorbidities, Mean SD	0.9	1.8	0.6	1.4	0.7	1.50	0.9	1.8	0.5	1.3	0.7	1.6
Area Income, Mean SD	36708	18509	35597	17442	33739	15365	49678	23583	47830	20361	42992	13724
missing	7475	20.7%	28402	78%	306	1%	54258	13%	348973	84%	9959	2%

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Appendix 1c: Complete Data Set (prior to listwise deletion) Showing Missing Data (Continued)

	First Nations						Non-First Nations					
	Higher Acuity (CTAS 1-2)		Lower Acuity (CTAS 3-5)		Missing Triage		Higher Acuity (CTAS 1-2)		Lower Acuity (CTAS 3-5)		Missing Triage	
AHS Zone of Patient Residence												
South Zone	4378	4.0%	92183	85.1%	11716	10.8%	45989	5.3%	744077	86.3%	72349	8.4%
Calgary Zone	29657	20.7%	111962	78.1%	1758	1.2%	614485	19.8%	2462453	79.3%	29652	1.0%
Central Zone	9308	5.9%	140977	89.8%	6639	4.2%	95916	5.9%	1461799	89.2%	81424	5.0%
Edmonton Zone	26153	15.0%	147266	84.4%	1096	0.6%	349983	14.3%	2088529	85.0%	17300	0.7%
North Zone	21444	4.2%	456842	89.6%	31704	6.2%	113392	5.2%	1945289	88.6%	137073	6.2%
missing	499		5595		247		34193		283366		9594	
Travel Distance, Mean SD	16.7	29.8	19.2	32.3	20.9	32.6	7.1	8.7	7.6	11.2	8.3	14.6
missing	7943	17.9%	35760	80.6%	675	1.5%	55791	13.1%	359650	84.5%	10187	2.4%
Ambulance Arrival, n %												
Any	41876	24.1%	126460	72.9%	5128	3.0%	358257	33.6%	694604	65.1%	13423	1.3%
No	49563	5.4%	828365	89.5%	48032	5.2%	895701	9.4%	8290909	87.1%	333969	3.5%
Shift, n %												
00:01-08:00	20140	15.4%	106822	81.4%	4195	3.2%	207183	16.7%	1001327	80.9%	28462	2.3%
8:01-16:00	31197	6.4%	431304	88.2%	26235	5.4%	529362	9.9%	4597015	86.4%	194439	3.7%
16:01-00:00	40102	8.4%	416699	86.9%	22730	4.7%	517413	12.8%	3387171	84.1%	124491	3.1%

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Appendix 1c: Complete Data Set (prior to listwise deletion) Showing Missing Data (Continued)

	First Nations						Non-First Nations					
	Higher Acuity (CTAS 1-2)		Lower Acuity (CTAS 3-5)		Missing Triage		Higher Acuity (CTAS 1-2)		Lower Acuity (CTAS 3-5)		Missing Triage	
Facility type, n %												
Community Ambulatory or Urgent Care Centre	5533	7.2%	68024	89.0%	2844	3.7%	116501	8.0%	1312528	89.8%	32522	2.2%
Tertiary Pediatric	6615	22.5%	22762	77.5%	2	0.0%	94360	16.3%	484577	83.7%	44	0.0%
Tertiary Mixed	24666	26.0%	70156	74.0%	20	0.0%	300988	29.5%	717853	70.4%	372	0.0%
Regional Hospital	30550	16.7%	152256	83.2%	249	0.1%	570992	18.1%	2578994	81.8%	2491	0.1%
Large Community Hospital	13590	3.8%	317725	89.0%	25832	7.2%	82106	3.9%	1894877	88.9%	155618	7.3%
Medium Community Hospital	8263	3.6%	202479	89.2%	16155	7.1%	66120	4.6%	1264569	88.0%	106760	7.4%
Small Community Hospital	2222	1.7%	121423	92.2%	8058	6.1%	22891	2.8%	732115	91.0%	49585	6.2%
Disposition												
Admitted	21701	30.9%	45758	65.1%	2836	4.0%	307374	36.9%	508494	61.0%	17741	2.1%
Deceased in ED	389	85.3%	27	5.9%	40	8.8%	5729	86.7%	556	8.4%	324	4.9%
Discharged	59270	6.3%	834012	89.3%	40912	4.4%	844608	9.2%	8021048	87.5%	301464	3.3%
Left against medical advice	1843	7.2%	22297	87.3%	1400	5.5%	10130	10.3%	82917	84.7%	4830	4.9%
Left without being seen	1931	4.0%	39849	81.8%	6910	14.2%	15637	5.4%	257427	88.6%	17404	6.0%
Transferred	6305	31.1%	12882	63.6%	1062	5.2%	70480	36.9%	115071	60.2%	5629	2.9%
Sample Total	91439	8.3%	954825	86.8%	53160	4.8%	1253958	11.8%	8985513	84.9%	347392	3.3%

Legend: CTAS – Canadian Triage Acuity Score

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Appendix 1d: EDC Groups & Conditions of Interest by CTAS

	First Nations				Non-First Nations			
	Higher acuity (CTAS 1-2)		Other CTAS		Higher acuity (CTAS 1-2)		Other CTAS	
	n	%	n	%	n	%	n	%
EDC Group								
Trauma and Injury	12675	7.4%	159682	92.6%	133945	7.0%	1784434	93.0%
Infection	8155	4.3%	181037	95.7%	115495	7.5%	1428463	92.5%
Breast, Obstetrics & Gynecology	1956	5.7%	32112	94.3%	25151	9.0%	254007	91.0%
Mental Health	5195	17.9%	23795	82.1%	55587	24.6%	170685	75.4
Substance Use	7763	21.6%	28114	78.4%	25936	31.2%	57130	68.8%
Conditions								
Long Bone Fracture, unspecified	1030	8.5%	11099	91.5%	13446	8.8%	139598	91.2%
Acute Respiratory Infection, Unspecified	828	2.1%	37943	97.9%	10525	3.9%	257608	96.1%
Spontaneous Abortion	594	9.4%	5723	90.6%	7431	11.3%	58198	88.7%
Anxiety Disorder, Unspecified	458	4.9%	8852	95.1%	5590	10.8%	46192	89.2%
Opioid Related Visit	1043	42.9%	1386	57.1%	5196	43.6%	6734	56.4%

Legend: EDC – Episode Disease Category. CTAS – Canadian Triage Acuity Score.

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Appendix 1e: Model Effects of Variables on Triage Acuity Scores for all Emergency Care Visits for Trauma and Injury

	OR	95%LCL	95%UCL
First Nations status v. Non-First Nations	0.91	0.89	0.93
Male sex v. female or other sex	1.36	1.34	1.38
Age per 10 year increment	0.96	0.95	0.96
Comorbidities (1 or more vs. 0)	0.97	0.95	0.99
Area Income (<42,000 v. other)	1.04	1.02	1.06
Trip Distance >5km v. ≤5km	1.05	1.04	1.06
Arrival by ambulance (air or ground vs. not arriving by ambulance)	6.14	6.05	6.22
Evening Presentation (16:01-00:00) v. Day	1.19	1.17	1.20
Night Presentation (00:01-8:00) v. Day	1.26	1.24	1.28
Facility Type (compared to Large Community Hospital)			
Urgent Care Centre or Ambulatory Care Centre vs. Large	1.08	1.05	1.11
Pediatric Tertiary Hospital	1.67	1.62	1.72
Mixed Tertiary Hospital	4.08	3.98	4.18
Regional Hospital	2.20	2.15	2.24
Medium Community Hospital	1.04	1.01	1.07
Small Community Hospital	0.71	0.68	0.74
Zone of Patient Residence (Compared to Calgary)			
North	0.57	0.56	0.59
Edmonton	0.44	0.43	0.44
Central	0.58	0.57	0.59
South	0.32	0.31	0.32

Legend: OR – Odds Ratio. LCL – Lower Confidence Interval. UCL – Upper Confidence Interval.