Appendix C: IHRA Pedestrian Accident Dataset
Index

Description	Figure
Comparison of Impact Velocity, Age, Injury Source/Location for Regions	1
AGE	
AIS Distribution for Different Age Groups	2
Accident Frequency for All Age Groups	3
Cumulative Frequencies of Age for AIS Levels 1-6	4
AIS Level Percentage of Injuries by Age Group	5
Japan Age Distribution for All Injuries	6
Europe Age Distribution for All Injuries	7
US Age Distribution for All Injuries	8
IHRA Age Distribution for All Injuries	9
AIS 1	10
AIS 2	11
AIS 3	12
AIS 4	13
AIS 5	14
AIS 6 and above	15
IMPACT VELOCITY	
Impact Velocity Distribution by Region	16
AIS Distribution for Different Impact Velocity Groups	17
Cumulative Frequencies of Impact Velocity for AIS Levels 1-6	18
Injury Distribution for Various Impact Velocities for All Regions	19
Japan Impact Velocity Distribution for All Injuries	20
Europe Impact Velocity Distribution for All Injuries	21
US Impact Velocity Distribution for All Injuries	22
IHRA Impact Velocity Distribution for All Injuries	23
AIS 1	24
AIS 2	25
AIS 3	26
AIS 4	27
AIS 5	28
AIS 6 and above	29
VEHICLE / PEDESTRIAN INTERACTION	
Number of Pedestrian Injuries Related to Contact Location and Body Region (By Region)	30
United States	30a
Europe	30b
Japan	30c
Number of Pedestrian Injuries Related to Contact Location and Body Region (IHRA, By Age)	31
All Ages	31a
Ages < 16	31b
Ages > 15	31c
AIS / IMPACT VELOCITY RELATIONSHIP FOR MAJOR INJURY LOCATIONS	
Impact Velocity Distribution for Different AIS Groups (All Body Regions, Children vs. Adult)	32
Impact Velocity Distribution for Different AIS Groups (Head Region, Children vs. Adult)	33

Appendix C: IHRA Pedestrian Accident Dataset
Index

Description	Figure
Impact Velocity Distribution for Different AIS Groups (Leg Region, Children vs. Adult)	34
Impact Velocity Distribution for Different AIS Groups (All Body Regions, All Ages)	35
Impact Velocity Distribution for Different AIS Groups (Head Region, All Ages)	36
Impact Velocity Distribution for Different AIS Groups (Leg Region, All Ages)	37
Impact Velocity Distribution for AIS 2-6 Injuries (All Body Regions)	38
Impact Velocity Distribution for AIS 3-6 Injuries (All Body Regions)	39
Impact Velocity Distribution for AIS 2-6 Injuries (Head Region)	40
Impact Velocity Distribution for AIS 3-6 Injuries (Head Region)	41
Impact Velocity Distribution for AIS 4-6 Injuries (Head Region)	42
Impact Velocity Distribution for AIS 2-6 Injuries (Leg Region)	43
Impact Velocity Distribution for AIS 3-6 Injuries (Leg Region)	44
Impact Velocity Distribution for Different AIS Groups (All Body Regions, Children < 16)	45
Impact Velocity Distribution for Different AIS Groups (Head Region, Children < 16)	46
Impact Velocity Distribution for Different AIS Groups (Leg Region, Children < 16)	47
Impact Velocity Distribution for AIS 2-6 Injuries (All Body Regions, Children < 16)	48
Impact Velocity Distribution for AIS 3-6 Injuries (All Body Regions, Children < 16)	49
Impact Velocity Distribution for AIS 2-6 Injuries (Head Region, Children < 16)	50
Impact Velocity Distribution for AIS 3-6 Injuries (Head Region, Children < 16)	51
Impact Velocity Distribution for AIS 4-6 Injuries (Head Region, Children < 16)	52
Impact Velocity Distribution for AIS 2-6 Injuries (Leg Region, Children < 16)	53
Impact Velocity Distribution for AIS 3-6 Injuries (Leg Region, Children < 16)	54
Impact Velocity Distribution for Different AIS Groups (All Body Regions, Adults > 15)	55
Impact Velocity Distribution for Different AIS Groups (Head Region, Adults > 15)	56
Impact Velocity Distribution for Different AIS Groups (Leg Region, Adults > 15)	57
Impact Velocity Distribution for AIS 2-6 Injuries (All Body Regions, Adults > 15)	58
Impact Velocity Distribution for AIS 3-6 Injuries (All Body Regions, Adults > 15)	59
Impact Velocity Distribution for AIS 2-6 Injuries (Head Region, Adults > 15)	60
Impact Velocity Distribution for AIS 3-6 Injuries (Head Region, Adults > 15)	61
Impact Velocity Distribution for AIS 4-6 Injuries (Head Region, Adults > 15)	62
Impact Velocity Distribution for AIS 2-6 Injuries (Leg Region, Adults > 15)	63
Impact Velocity Distribution for AIS 3-6 Injuries (Leg Region, Adults > 15)	64

Figure 1: Comparison of IHRA Accident Data

(All AIS)

Impact Velocity	US	Europe	Japan	Australia	IHRA
0-5	6.1%	4.4%	3.0%	0.0%	4.6%
6-10	12.8%	7.0%	5.2%	7.7%	8.5%
11-15	11.0%	8.4%	12.6%	5.8%	9.8%
16-20	14.9%	10.8%	13.9%	11.5%	12.6%
21-25	8.6%	8.2%	9.5%	15.4%	8.8%
26-30	10.4%	13.5%	11.7%	9.6%	12.2%
31-35	7.7%	8.7%	7.8%	9.6%	8.3%
36-40	7.2%	13.1%	10.0%	13.5%	10.9%
41-45	3.8%	6.6%	9.5%	7.7%	6.3%
46-50	3.8%	6.7%	6.5%	5.8%	5.8%
51-55	2.7%	4.4%	1.7%	3.8%	3.5%
56-60	3.8%	2.5%	3.0%	3.8%	3.0%
61-65	1.6%	1.6%	0.9%	0.0%	1.4%
66-70	1.4%	1.4%	2.6%	0.0%	1.5%
71-75	1.4%	0.4%	0.4%	0.0%	0.7%
76-80	1.1%	0.3%	0.4%	1.9%	0.6%
81-85	0.2%	0.0%	1.3%	0.0%	0.3%
86-90	0.5%	0.5%	0.0%	0.0%	0.4%
91-95	0.2%	0.1%	0.0%	0.0%	0.1%
96-100	0.9%	0.4%	0.0%	3.8%	0.6%

(All AIS)

Age	US	Europe	Japan	Australia	IHRA
0-5	4.4%	8.8%	9.2%	4.7%	7.4%
6-10	10.3%	14.5%	20.0%	10.9%	13.9%
11-15	10.6%	9.8%	5.0%	14.1%	9.4%
16-20	8.1%	7.4%	3.3%	7.8%	7.0%
21-25	8.5%	4.5%	1.7%	6.3%	5.4%
26-30	9.5%	4.7%	1.7%	6.3%	5.8%
31-35	6.4%	4.3%	5.4%	4.7%	5.2%
36-40	6.8%	4.4%	5.0%	3.1%	5.3%
41-45	7.0%	3.6%	3.8%	3.1%	4.8%
46-50	6.0%	4.5%	5.4%	3.1%	5.2%
51-55	3.5%	5.4%	6.7%	3.1%	5.0%
56-60	3.5%	4.5%	10.0%	1.6%	5.0%
61-65	3.5%	5.7%	6.7%	4.7%	5.1%
66-70	3.1%	3.6%	3.8%	7.8%	3.5%
71-75	3.3%	3.9%	4.2%	4.7%	3.7%
76-80	3.9%	5.1%	2.5%	3.1%	4.3%
> 80	1.7%	5.2%	5.8%	10.9%	4.1%

(For AIS 2-6)

Injury Source	US	Europe	Japan	Australia	IHRA
Front Bumper	20.9%	21.0%	23.0%	19.8%	21.3%
Top Surface of Bonnet/Wing	21.6%	15.1%	14.0%	13.2%	17.6%
Leading Edge of Bonnet/Wing	13.8%	9.7%	8.5%	17.6%	11.8%
Windscreen Glass	17.2%	16.0%	4.5%	5.5%	14.7%
Windscreen Frame/A-Pillars	8.7%	8.1%	7.7%	36.3%	9.0%
Front Panel	4.4%	2.5%	5.0%	0.0%	3.4%
Others	7.0%	4.3%	12.4%	1.6%	6.6%
Indirect Contact	0.6%	1.0%	6.9%	0.0%	1.4%
Road Surface Contact	5.9%	13.0%	9.8%	4.9%	9.2%
Unknown	0.0%	9.4%	8.2%	1.1%	5.0%

(For AIS 2-6)

Injury Location	US	Europe	Japan	Australia	IHRA
Head	32.7%	29.8%	28.6%	39.0%	31.3%
Face	3.7%	5.3%	2.4%	4.4%	4.2%
Neck	0.0%	1.8%	4.5%	0.5%	1.4%
Chest	9.5%	11.6%	8.5%	9.3%	10.3%
Abdomen	7.7%	3.8%	4.8%	6.0%	5.4%
Pelvis	5.3%	7.9%	4.5%	4.4%	6.3%
Arms	7.9%	8.1%	9.0%	8.8%	8.2%
Legs	33.3%	31.3%	35.7%	27.5%	32.4%
Unknown	0.0%	0.5%	2.1%	0.0%	0.4%

Figure 2: AIS vs. Age (Combined Australia, Europe, Japan, US)

Age	AIS =1		AIS=2		AIS=3		AIS=4		AIS=5		AIS=6	
5	369	6.04%	47	2.70%	15	1.48%	1	.36%	5	2.31%	3	5.88%
10	774	18.69%	119	9.53%	64	7.79%	11	4.35%	17	10.19%	0	5.88%
15	561	27.87%	115	16.14%	53	13.02%	14	9.42%	8	13.89%	3	11.76%
20	490	35.88%	83	20.91%	47	17.65%	13	14.13%	12	19.44%	3	17.65%
25	386	42.20%	95	26.36%	57	23.27%	15	19.57%	15	26.39%	3	23.53%
30	397	48.69%	73	30.56%	50	28.21%	7	22.10%	2	27.31%	2	27.45%
35	395	55.15%	115	37.16%	61	34.22%	21	29.71%	17	35.19%	10	47.06%
40	331	60.57%	110	43.48%	87	42.80%	19	36.59%	7	38.43%	4	54.90%
45	352	66.32%	95	48.94%	73	50.00%	25	45.65%	17	46.30%	2	58.82%
50	291	71.08%	149	57.50%	89	58.78%	29	56.16%	19	55.09%	2	62.75%
55	289	75.81%	79	62.03%	40	62.72%	14	61.23%	17	62.96%	1	64.71%
60	293	80.60%	93	67.38%	64	69.03%	24	69.93%	20	72.22%	3	70.59%
65	288	85.31%	127	74.67%	81	77.02%	20	77.17%	10	76.85%	4	78.43%
70	197	88.53%	89	79.78%	45	81.46%	18	83.70%	9	81.02%	1	80.39%
75	219	92.12%	111	86.16%	63	87.67%	9	86.96%	8	84.72%	3	86.27%
80	259	96.35%	124	93.28%	51	92.70%	13	91.67%	15	91.67%	3	92.16%
85	148	98.77%	86	98.22%	54	98.03%	17	97.83%	12	97.22%	4	100.00%
90	60	99.75%	27	99.77%	16	99.61%	6	100.00%	6	100.00%	0	100.00%
95	14	99.98%	2	99.89%	3	99.90%	0	100.00%	0	100.00%	0	100.00%
100	1	100.00%	2	100.00%	1	100.00%	0	100.00%	0	100.00%	0	100.00%
Unknown	0	100.00%	0	100.00%	0	100.00%	0	100.00%	0	100.00%	0	100.00%
	6114		1741		1014		276		216		51	

Figure 3: Accident Frequency for All Age Groups

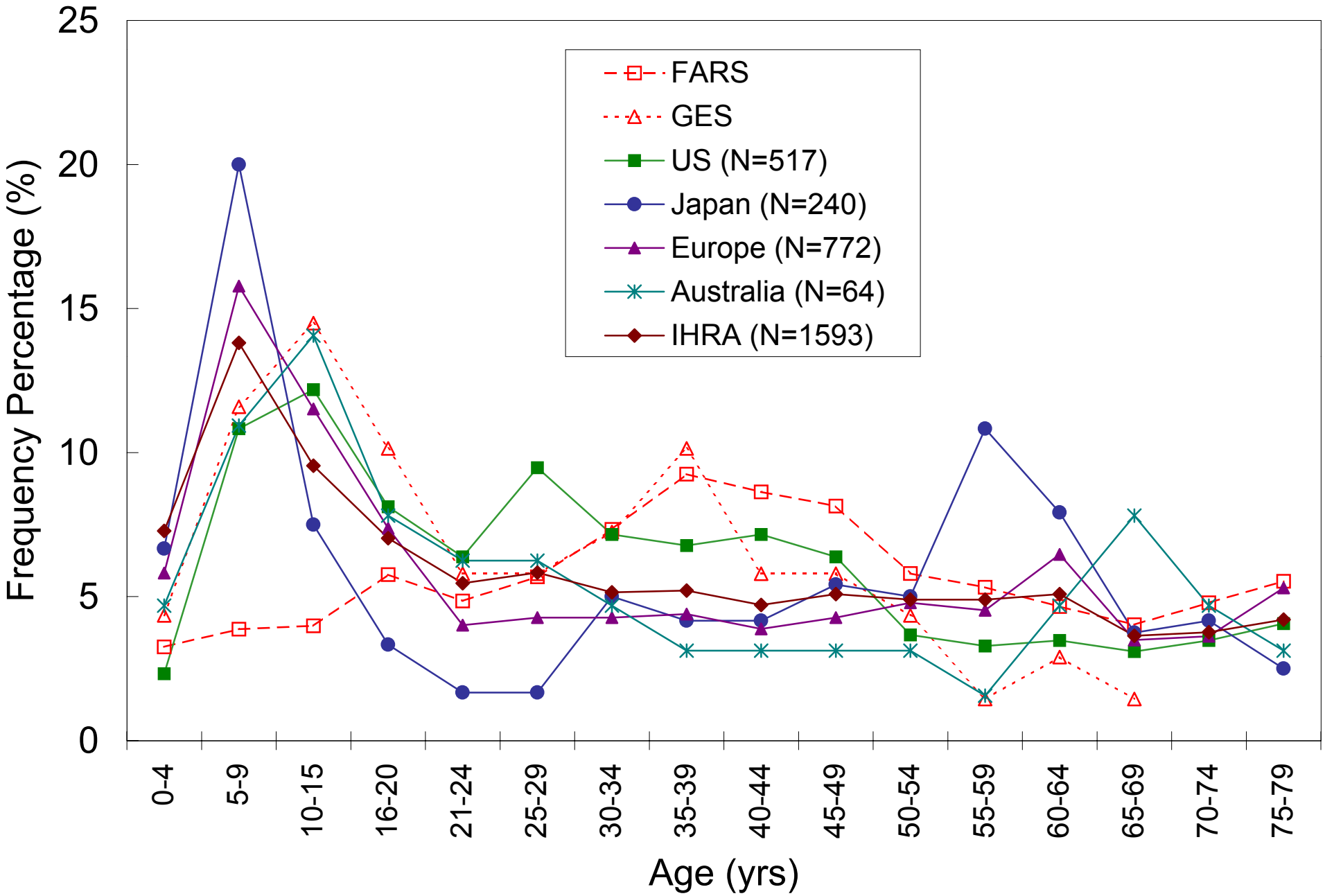


Figure 4: Cumulative Frequencies of Age for AIS Levels 1-6

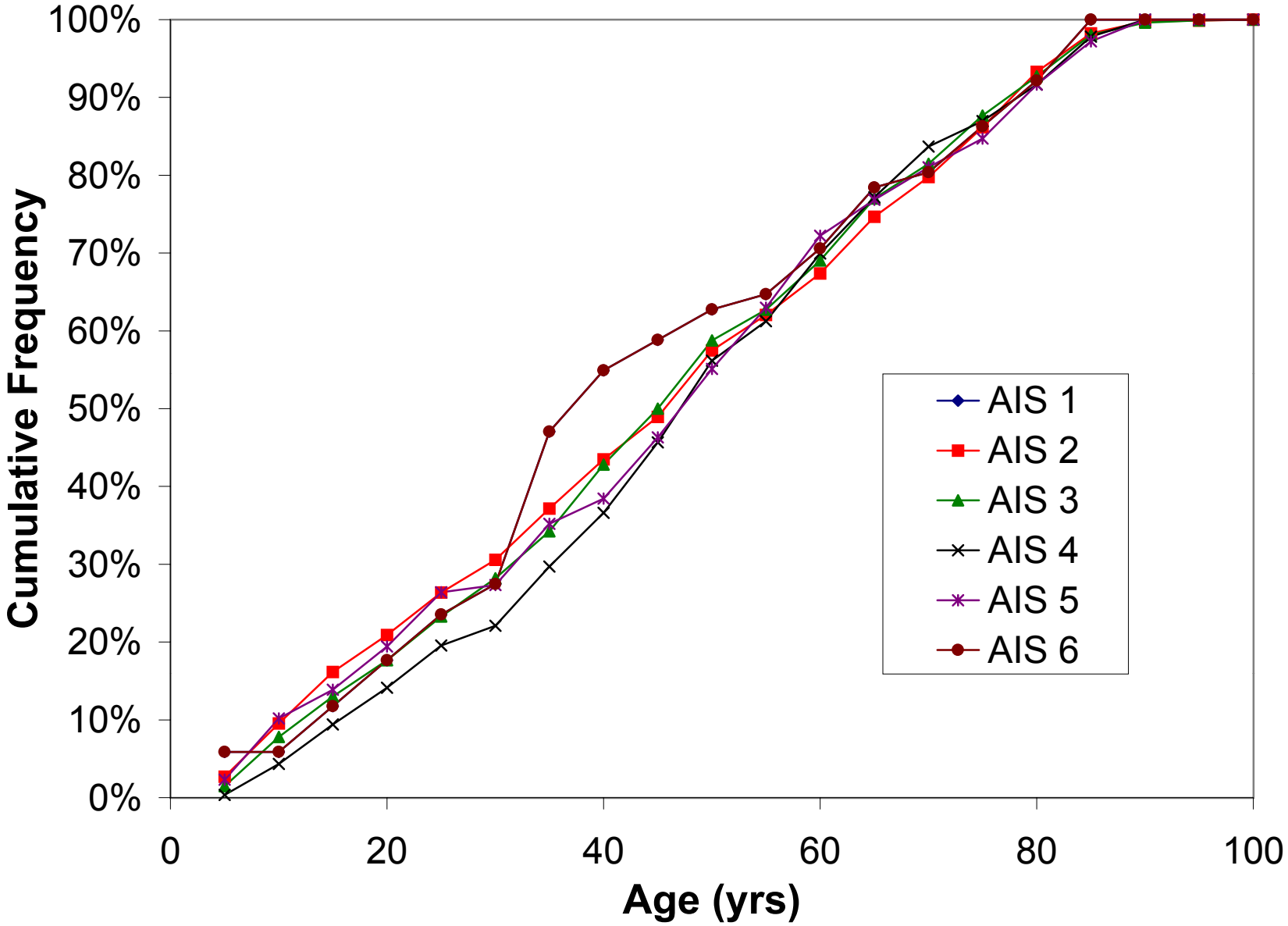
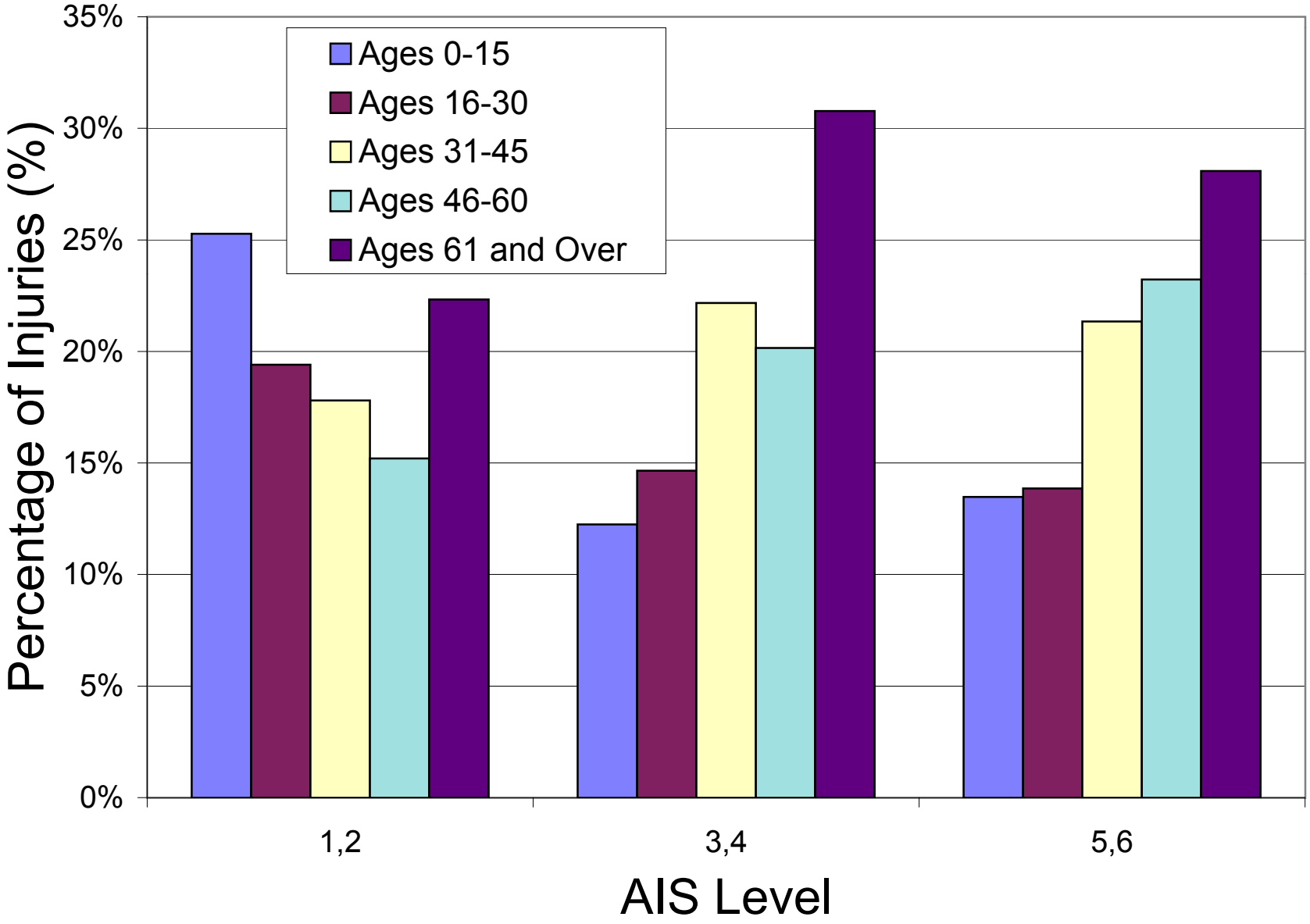


Figure 5: AIS Level Percentage of Injuries by Age Group



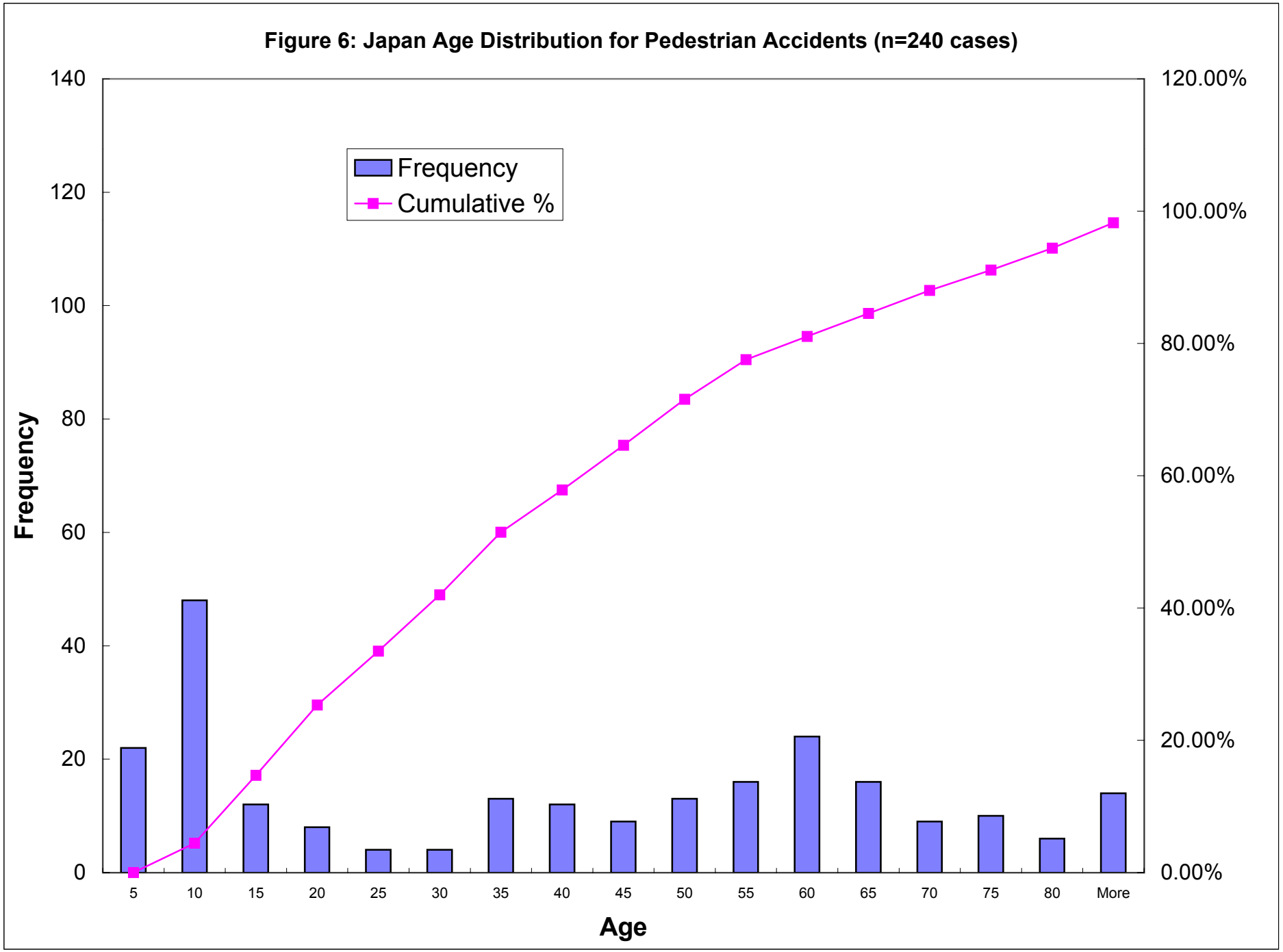


Figure 6: Japan Age Distribution for Pedestrian Accidents (n=240 cases)
Frequency
Cumulative %
Frequency
Age
140
120
100
80
60
40
20
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
0.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
More

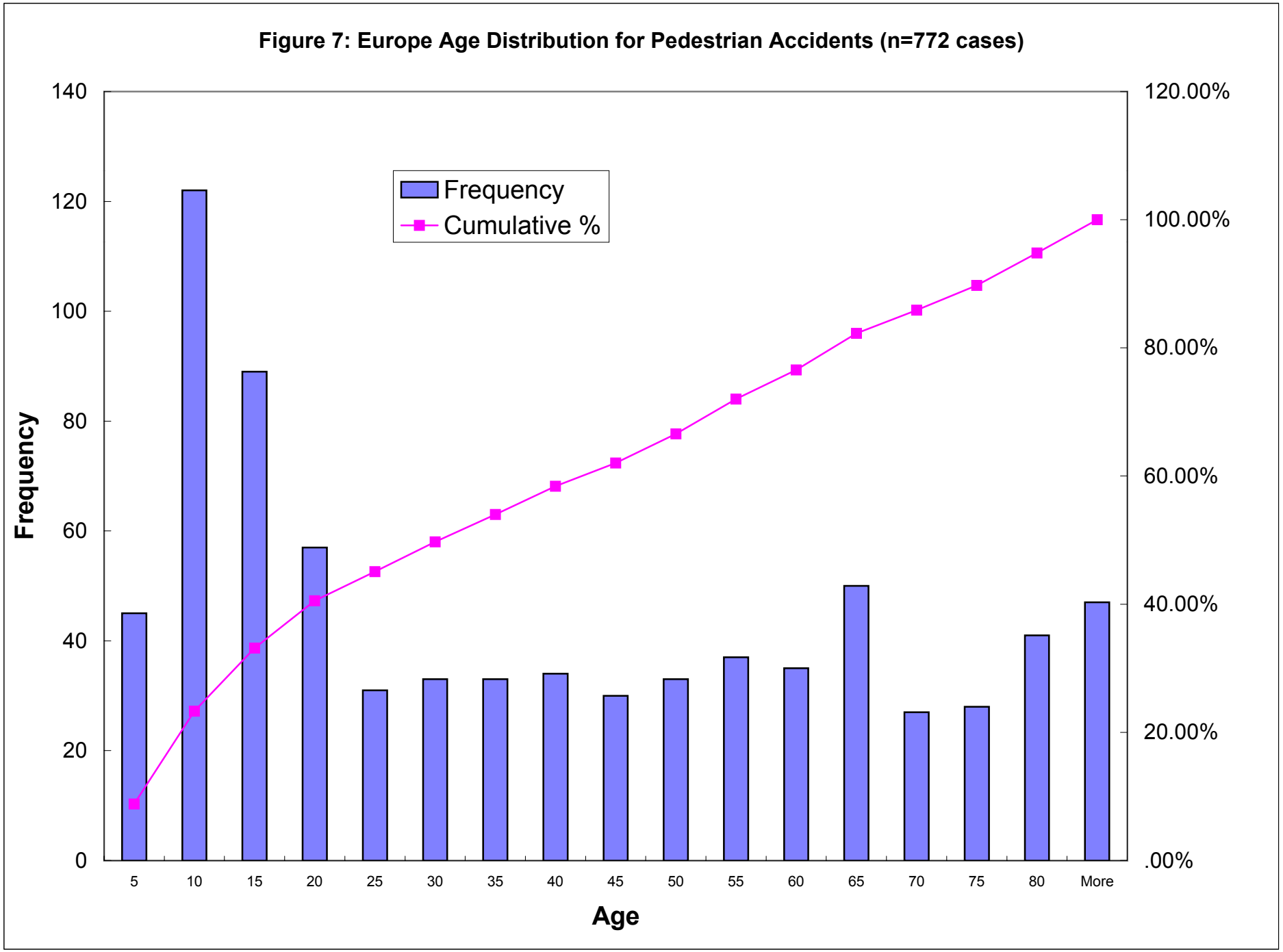


Figure 7: Europe Age Distribution for Pedestrian Accidents (n=772 cases)
Frequency
Cumulative %
Frequency
Age
140
120
100
80
60
40
20
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
More

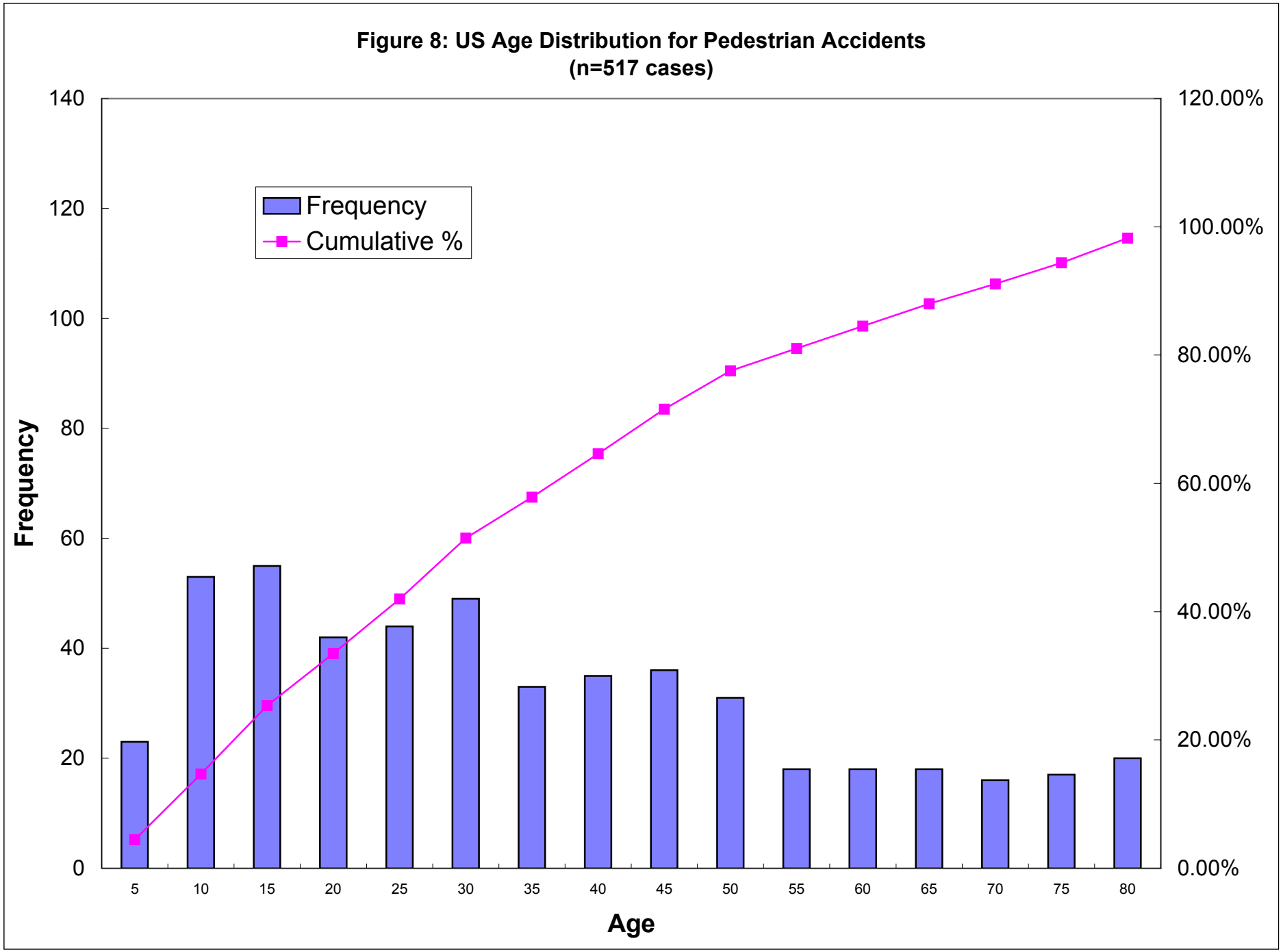
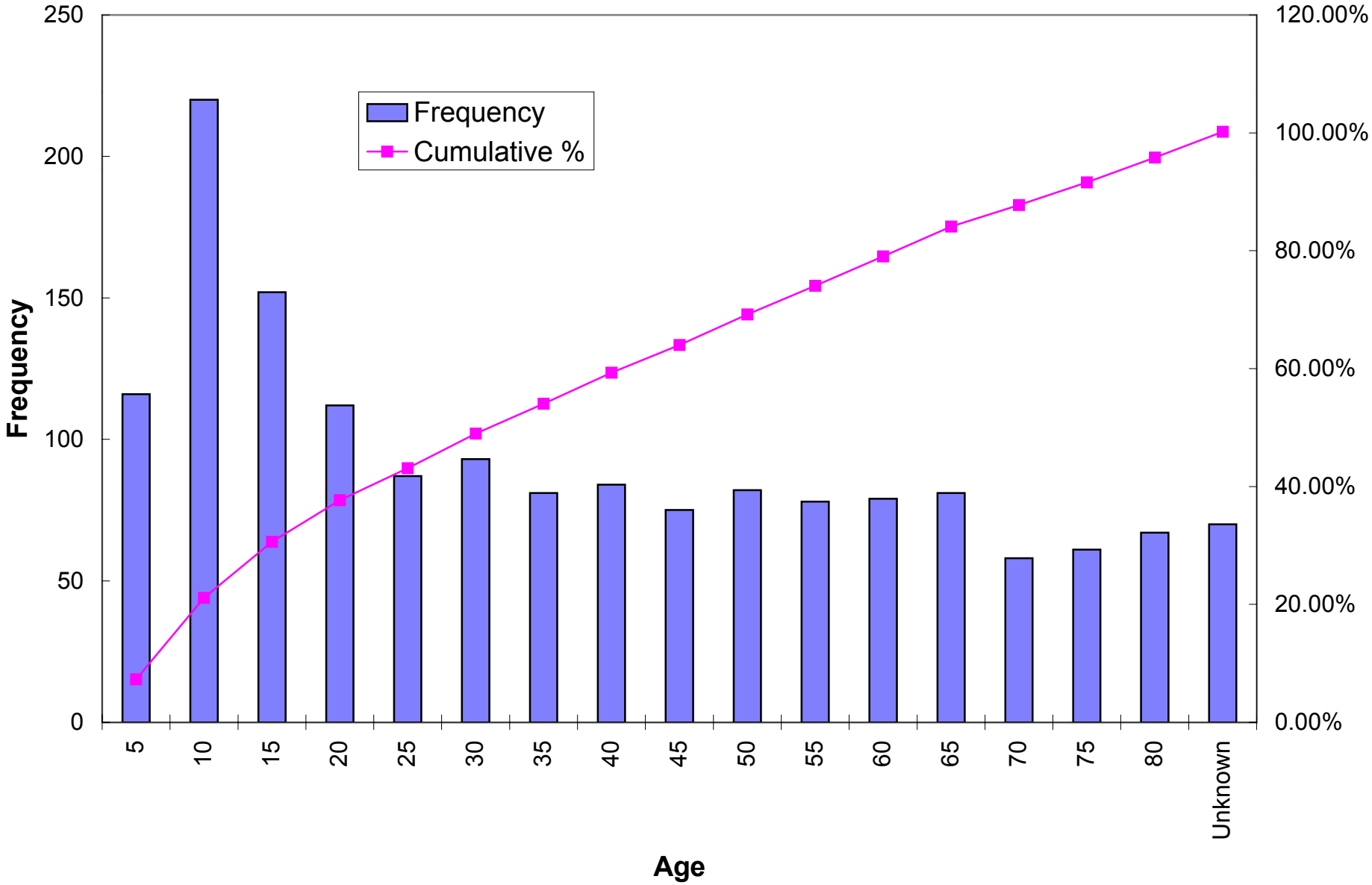


Figure 8: US Age Distribution for Pedestrian Accidents
(n=517 cases)
Frequency
Cumulative %
Frequency
Age
0
20
40
60
80
100
120
140
0.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80

Figure 9: IHRA (Combined Australia, Europe, Japan, US) Age Distribution for Pedestrian Accidents (n=1593 cases)



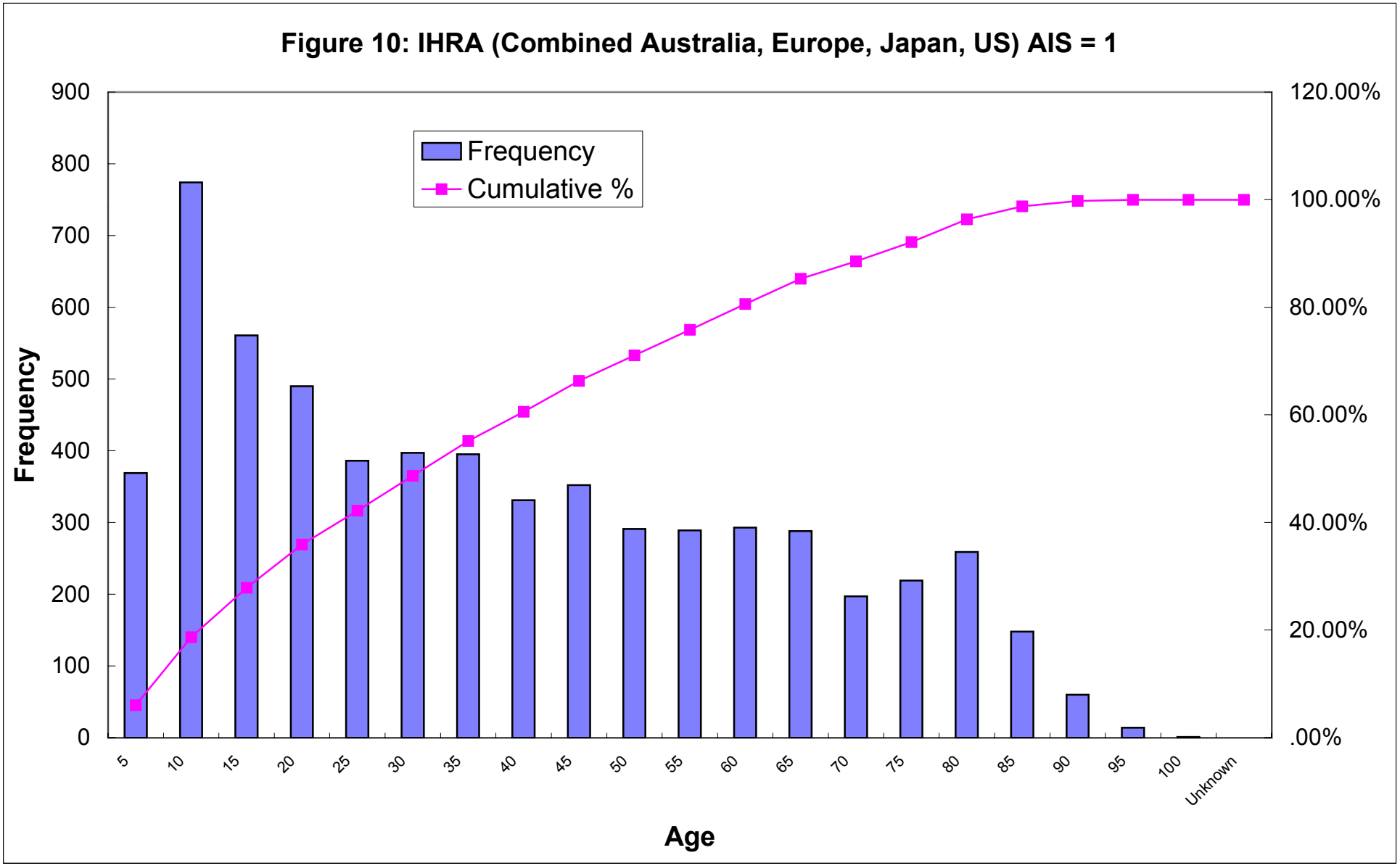


Figure 10: IHRA (Combined Australia, Europe, Japan, US) AIS = 1
Frequency
Cumulative %
900
800
700
600
500
400
300
200
100
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Unknown
Age

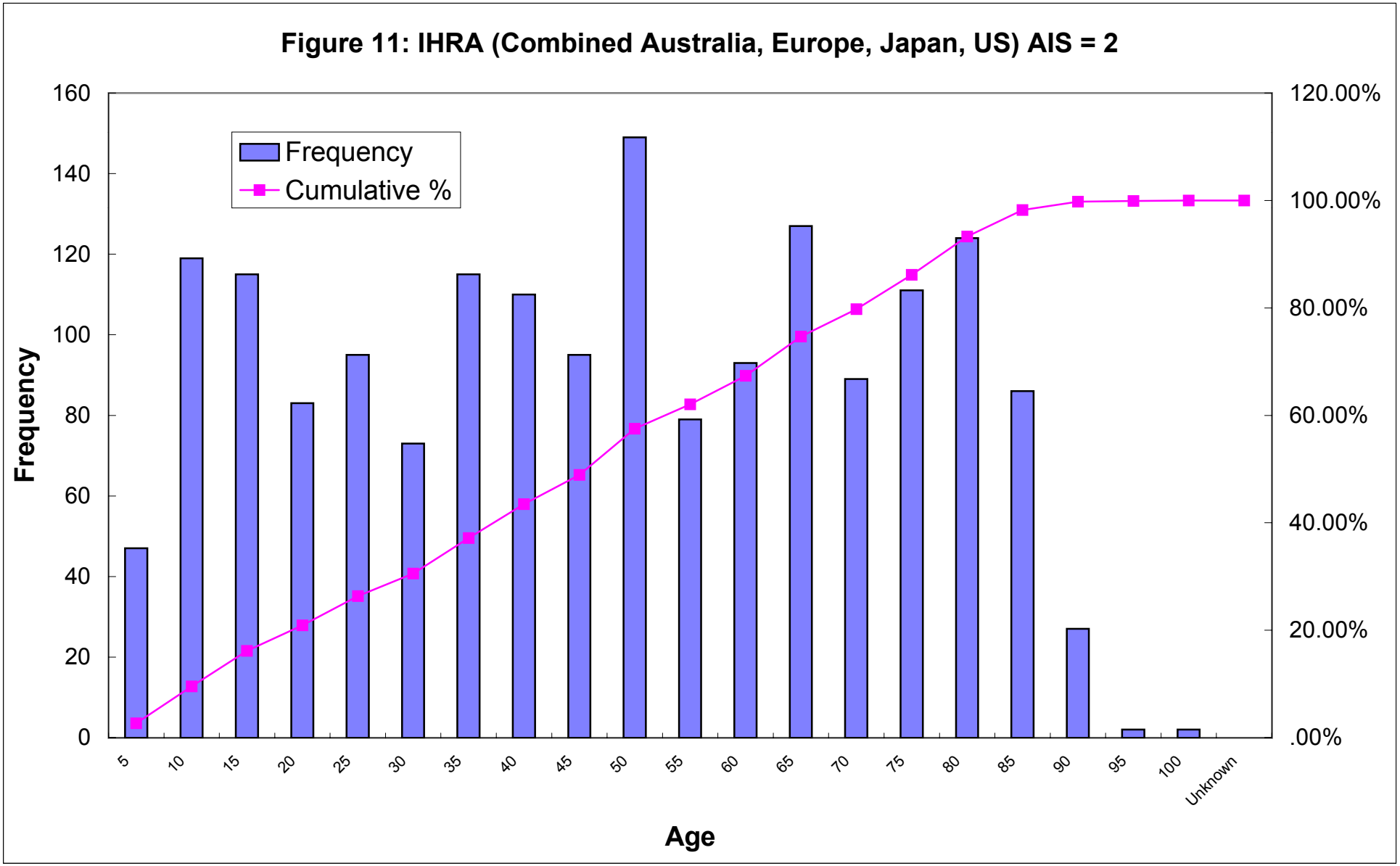


Figure 11: IHRA (Combined Australia, Europe, Japan, US) AIS = 2
Frequency
Cumulative %
Frequency
Age
0
20
40
60
80
100
120
140
160
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Unknown

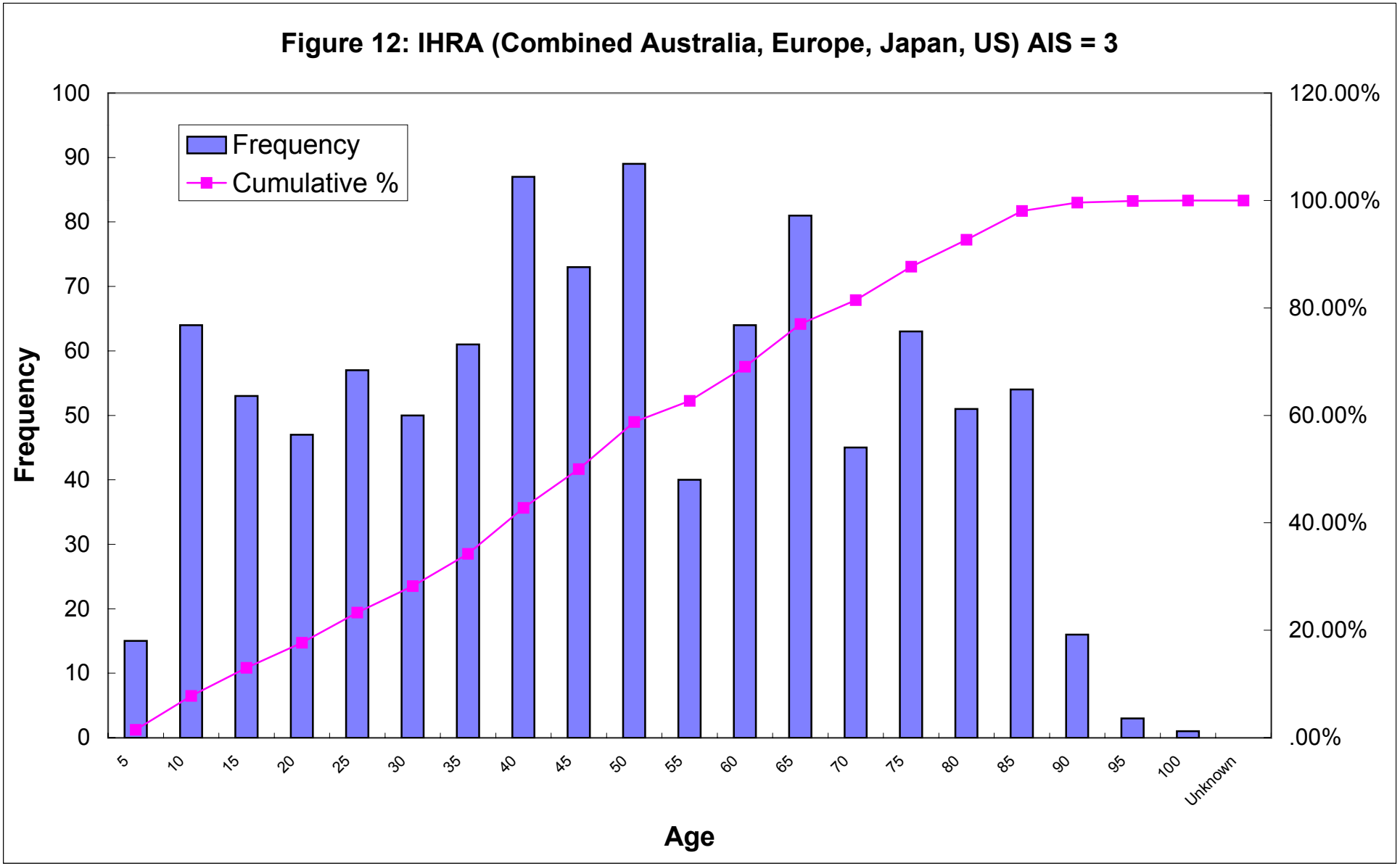


Figure 12: IHRA (Combined Australia, Europe, Japan, US) AIS = 3
Frequency
Cumulative %
Frequency
Age
100
90
80
70
60
50
40
30
20
10
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Unknown

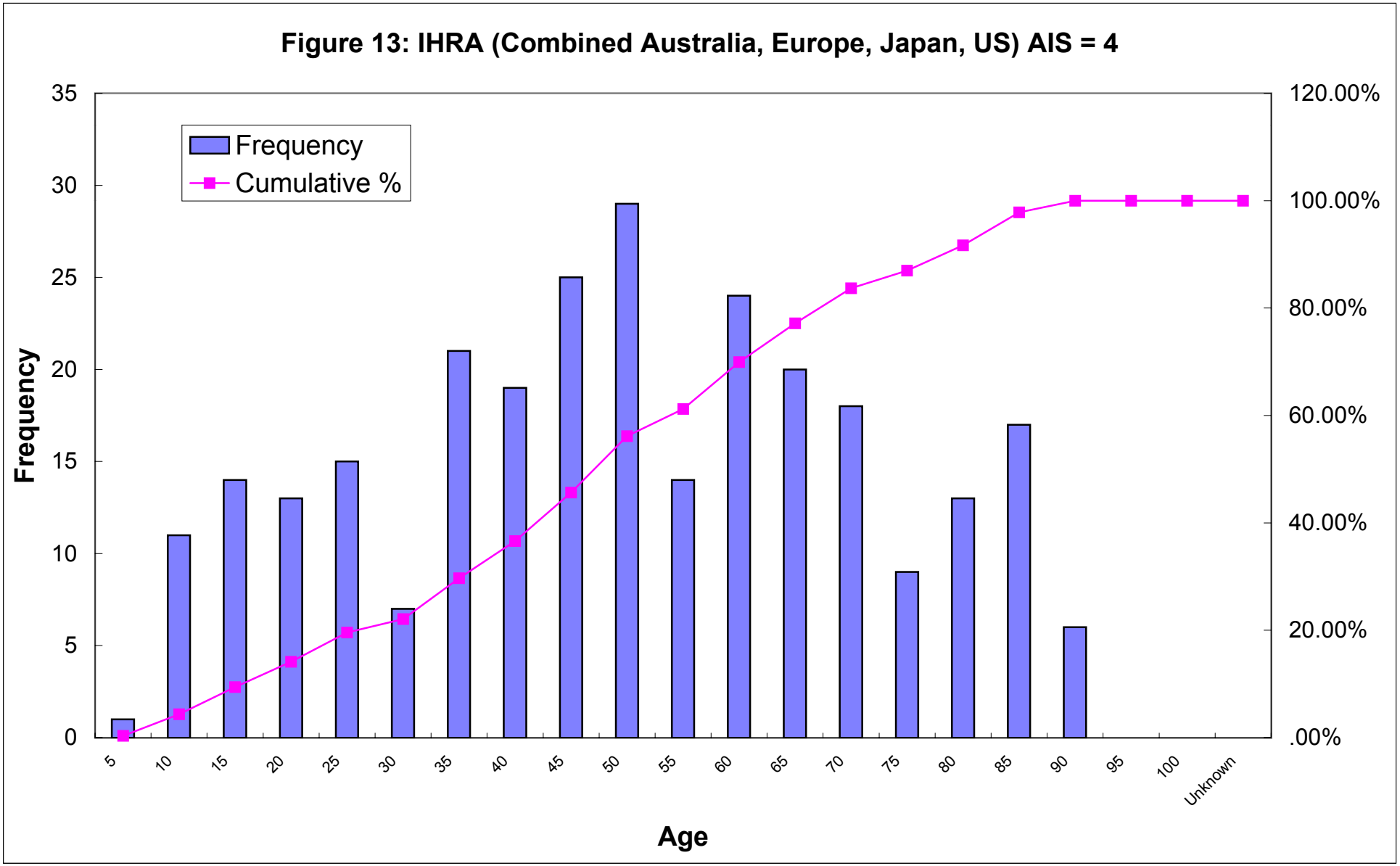


Figure 13: IHRA (Combined Australia, Europe, Japan, US) AIS = 4
Frequency
Cumulative %
Frequency
Age
35
30
25
20
15
10
5
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Unknown

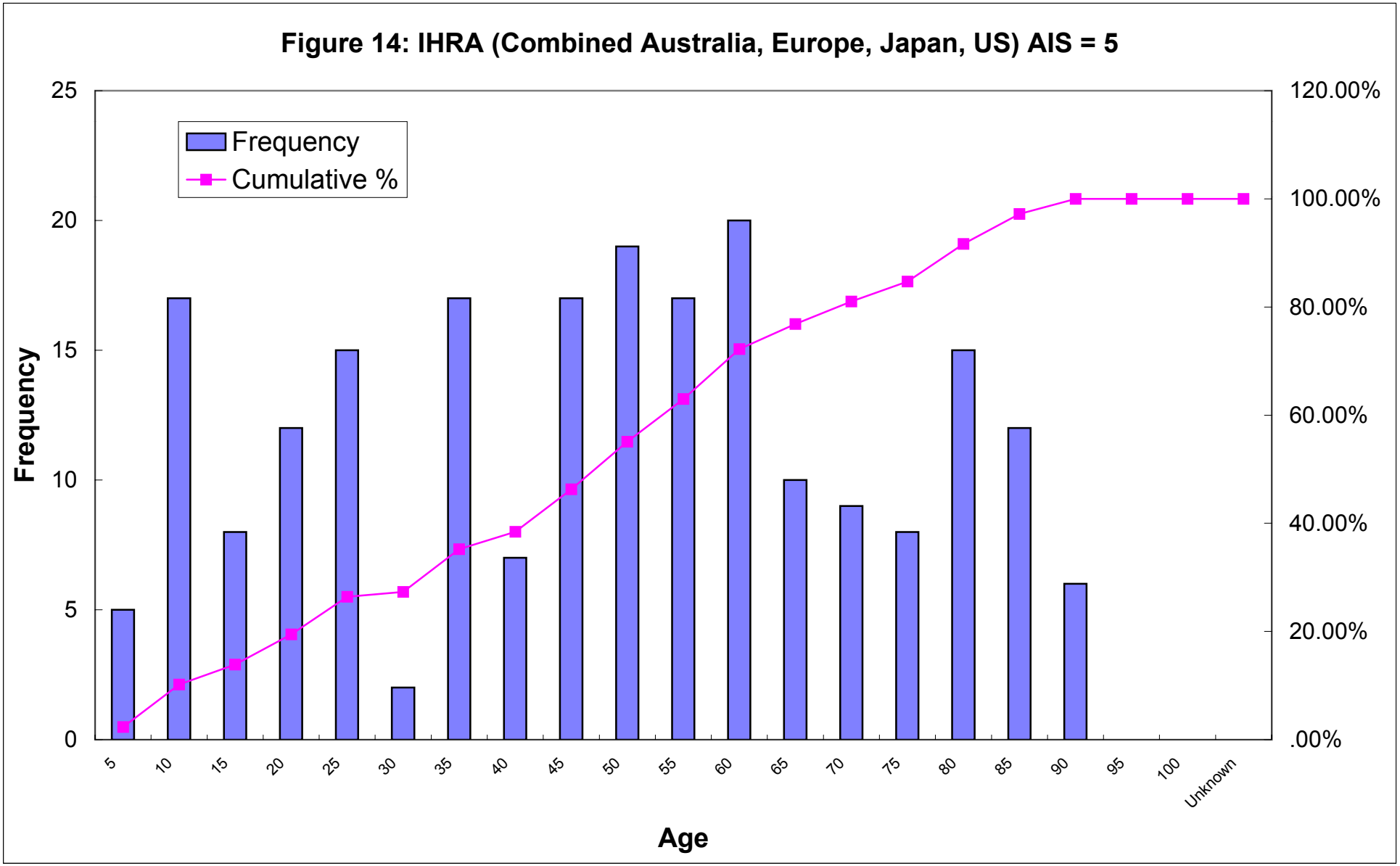


Figure 14: IHRA (Combined Australia, Europe, Japan, US) AIS = 5
Frequency
Cumulative %
Frequency
Age
25
20
15
10
5
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Unknown

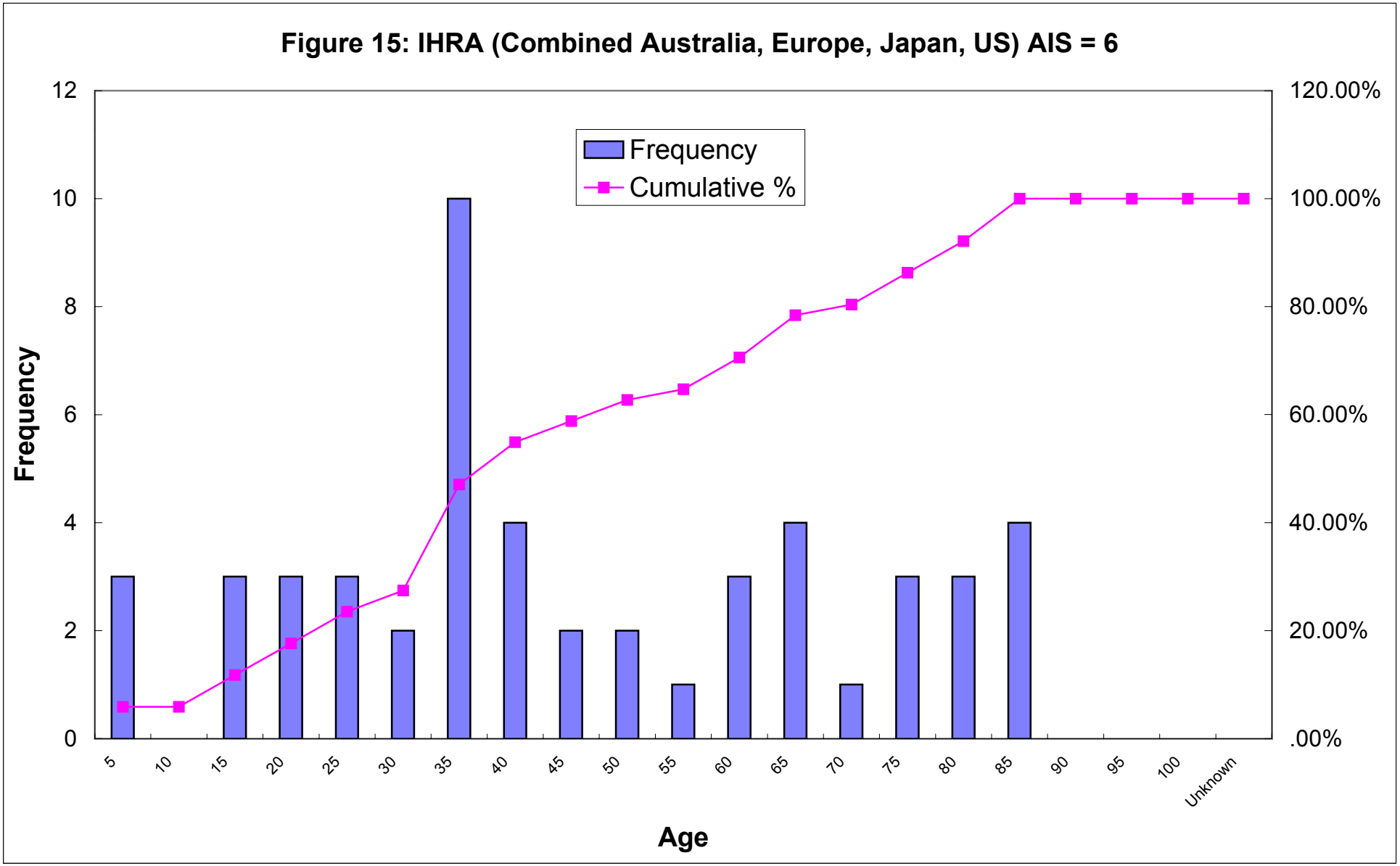


Figure 15: IHRA (Combined Australia, Europe, Japan, US) AIS = 6
Frequency
Cumulative %
Frequency
Age
0
2
4
6
8
10
12
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Unknown

Figure 16: Imapct Velocity Distribution by Region

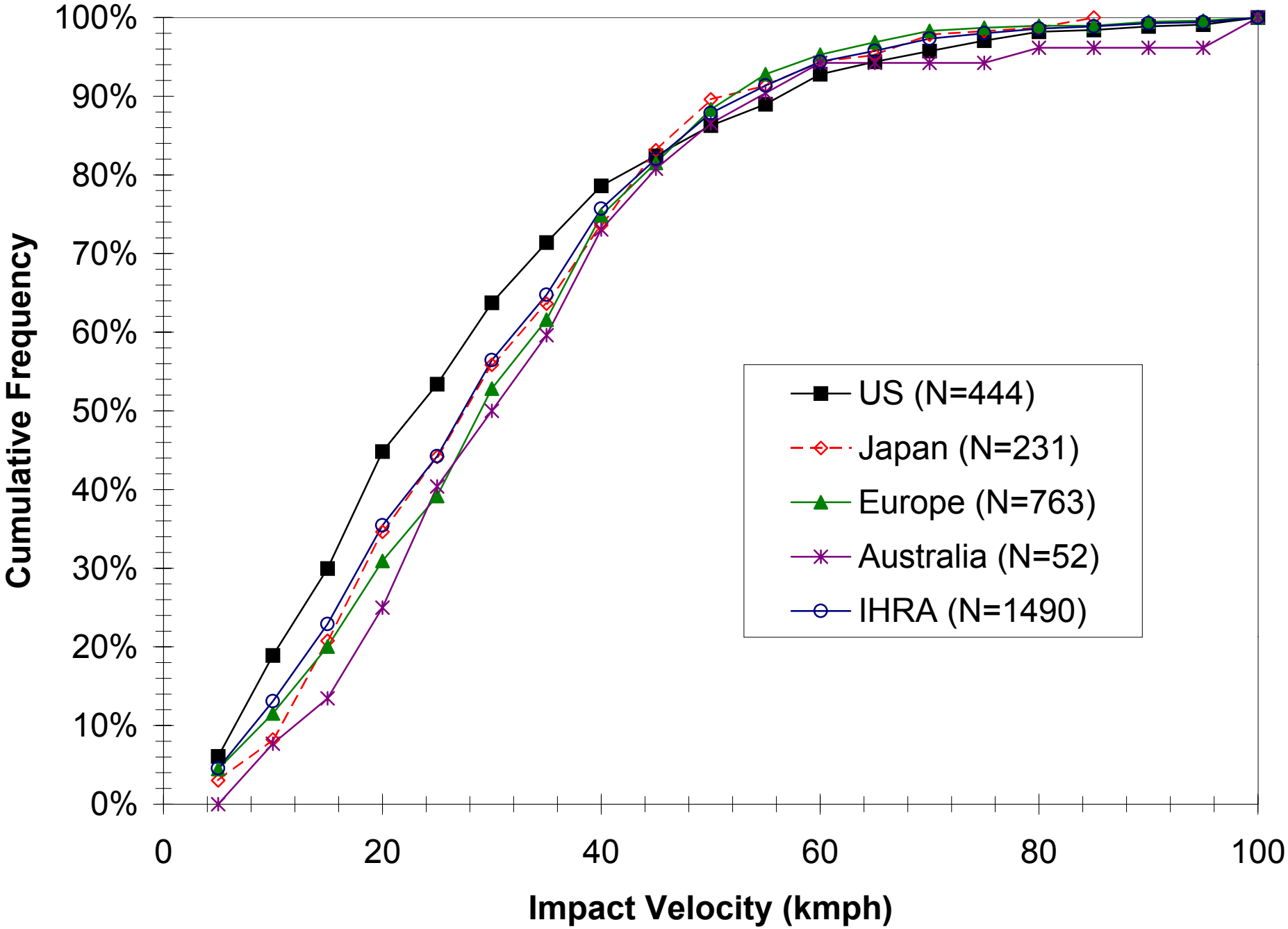


Figure 17: AIS Distribution for Different Impact Velocity Groups

Impact Velocity	AIS =1		AIS=2		AIS=3		AIS=4		AIS=5		AIS=6	
5	164	2.68%	12	.69%	4	.39%	0	.00%	0	.00%	0	.00%
10	356	8.50%	47	3.39%	11	1.48%	1	.36%	0	.00%	0	.00%
15	416	15.30%	74	7.64%	9	2.37%	1	.72%	2	.93%	0	.00%
20	610	25.28%	97	13.21%	41	6.41%	12	5.07%	3	2.31%	1	1.96%
25	446	32.57%	86	18.15%	31	9.47%	4	6.52%	4	4.17%	1	3.92%
30	707	44.13%	135	25.90%	43	13.71%	10	10.14%	5	6.48%	0	3.92%
35	490	52.14%	170	35.67%	72	20.81%	19	17.03%	15	13.43%	0	3.92%
40	651	62.79%	196	46.93%	107	31.36%	18	23.55%	19	22.22%	2	7.84%
45	353	68.56%	128	54.28%	83	39.55%	17	29.71%	13	28.24%	0	7.84%
50	403	75.15%	147	62.72%	80	47.44%	17	35.87%	27	40.74%	3	13.73%
55	298	80.02%	101	68.52%	89	56.21%	15	41.30%	11	45.83%	1	15.69%
60	293	84.81%	101	74.33%	88	64.89%	34	53.62%	17	53.70%	3	21.57%
65	142	87.13%	67	78.17%	48	69.63%	14	58.70%	8	57.41%	9	39.22%
70	111	88.95%	91	83.40%	41	73.67%	9	61.96%	15	64.35%	4	47.06%
75	85	90.34%	29	85.07%	28	76.43%	8	64.86%	9	68.52%	1	49.02%
80	70	91.48%	44	87.59%	31	79.49%	12	69.20%	9	72.69%	5	58.82%
85	22	91.84%	12	88.28%	5	79.98%	9	72.46%	6	75.46%	1	60.78%
90	24	92.23%	25	89.72%	25	82.45%	19	79.35%	11	80.56%	3	66.67%
95	24	92.63%	5	90.01%	9	83.33%	4	80.80%	1	81.02%	0	66.67%
100	99	94.24%	41	92.36%	47	87.97%	13	85.51%	10	85.65%	5	76.47%
105	0	94.24%	3	92.53%	2	88.17%	1	85.87%	0	85.65%	1	78.43%
110	7	94.36%	7	92.94%	2	88.36%	0	85.87%	0	85.65%	0	78.43%
115	5	94.44%	0	92.94%	2	88.56%	1	86.23%	0	85.65%	1	80.39%
120	27	94.88%	10	93.51%	5	89.05%	3	87.32%	2	86.57%	0	80.39%
125	6	94.98%	9	94.03%	17	90.73%	5	89.13%	4	88.43%	2	84.31%
130	11	95.16%	1	94.08%	2	90.93%	0	89.13%	0	88.43%	1	86.27%
135	0	95.16%	0	94.08%	0	90.93%	0	89.13%	0	88.43%	0	86.27%
140	3	95.21%	14	94.89%	16	92.50%	9	92.39%	8	92.13%	2	90.20%
145	0	95.21%	0	94.89%	0	92.50%	0	92.39%	0	92.13%	0	90.20%
150	4	95.27%	1	94.95%	0	92.50%	0	92.39%	2	93.06%	1	92.16%
Unknown	289	100.00%	88	100.00%	76	100.00%	21	100.00%	15	100.00%	4	100.00%
	6116		1741		1014		276		216		51	

Figure 18: Cumulative Frequencies of Impact Velocity for AIS Levels 1-6

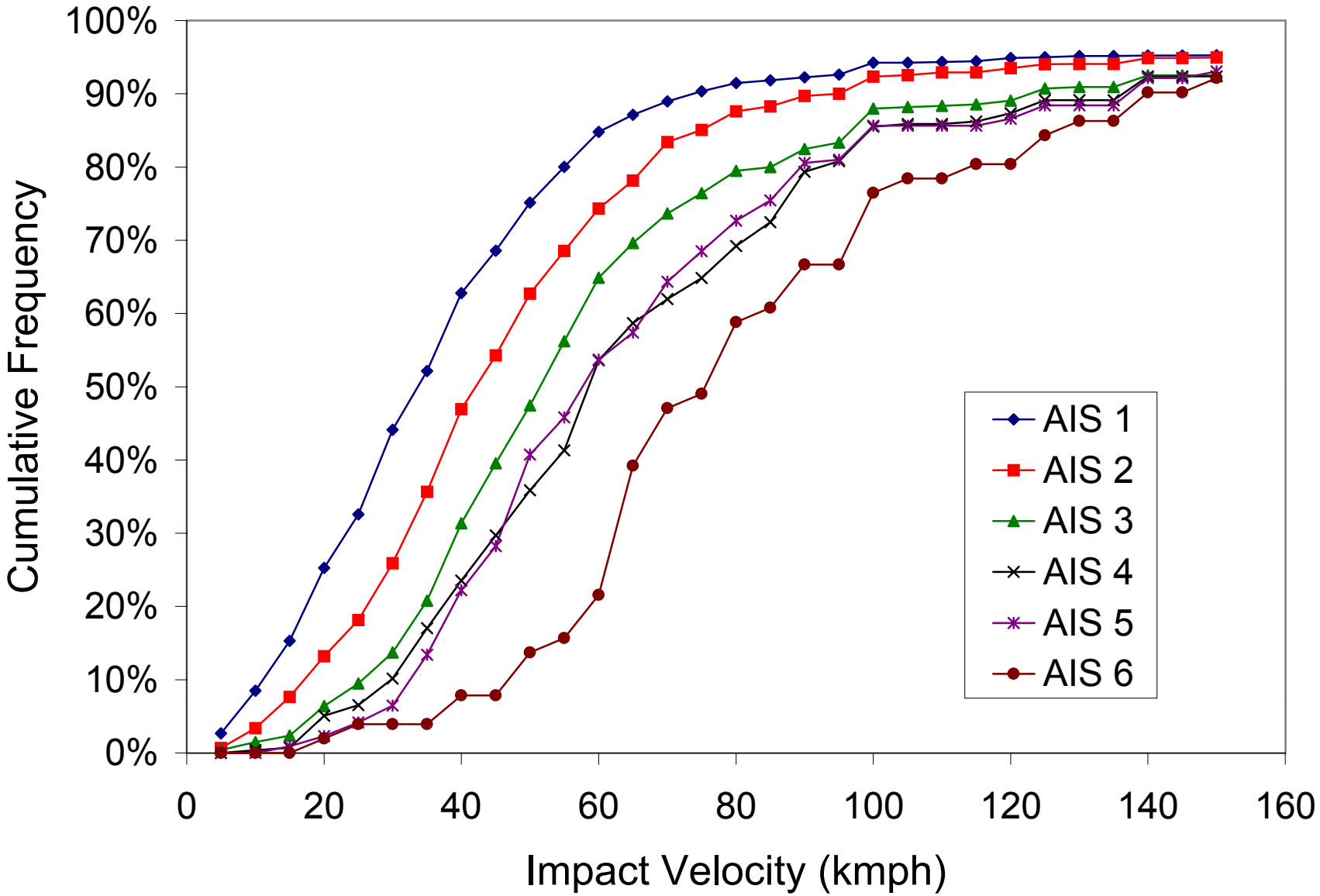
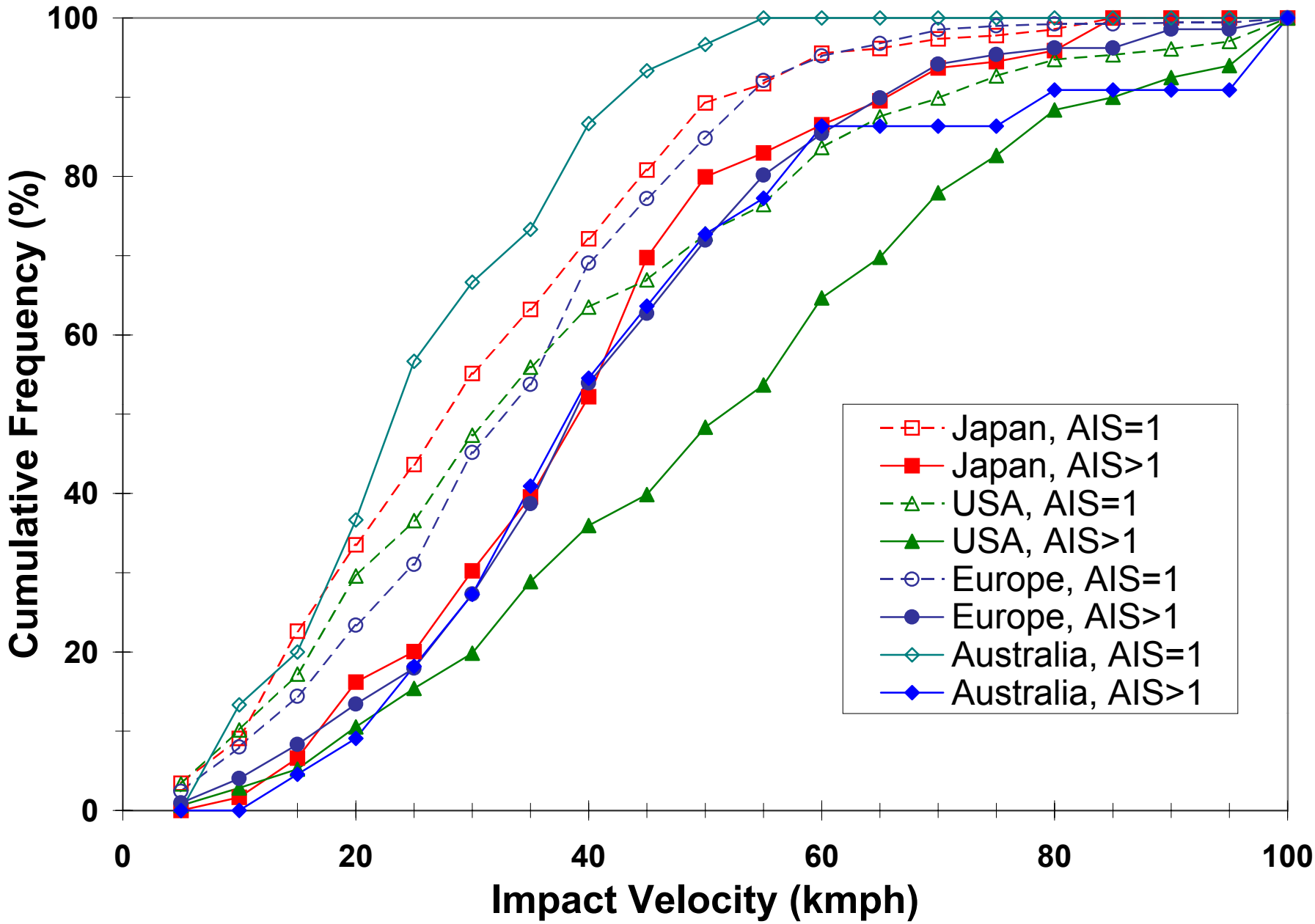


Figure 19: Injury Distribution for Various Impact Velocities for All Regions



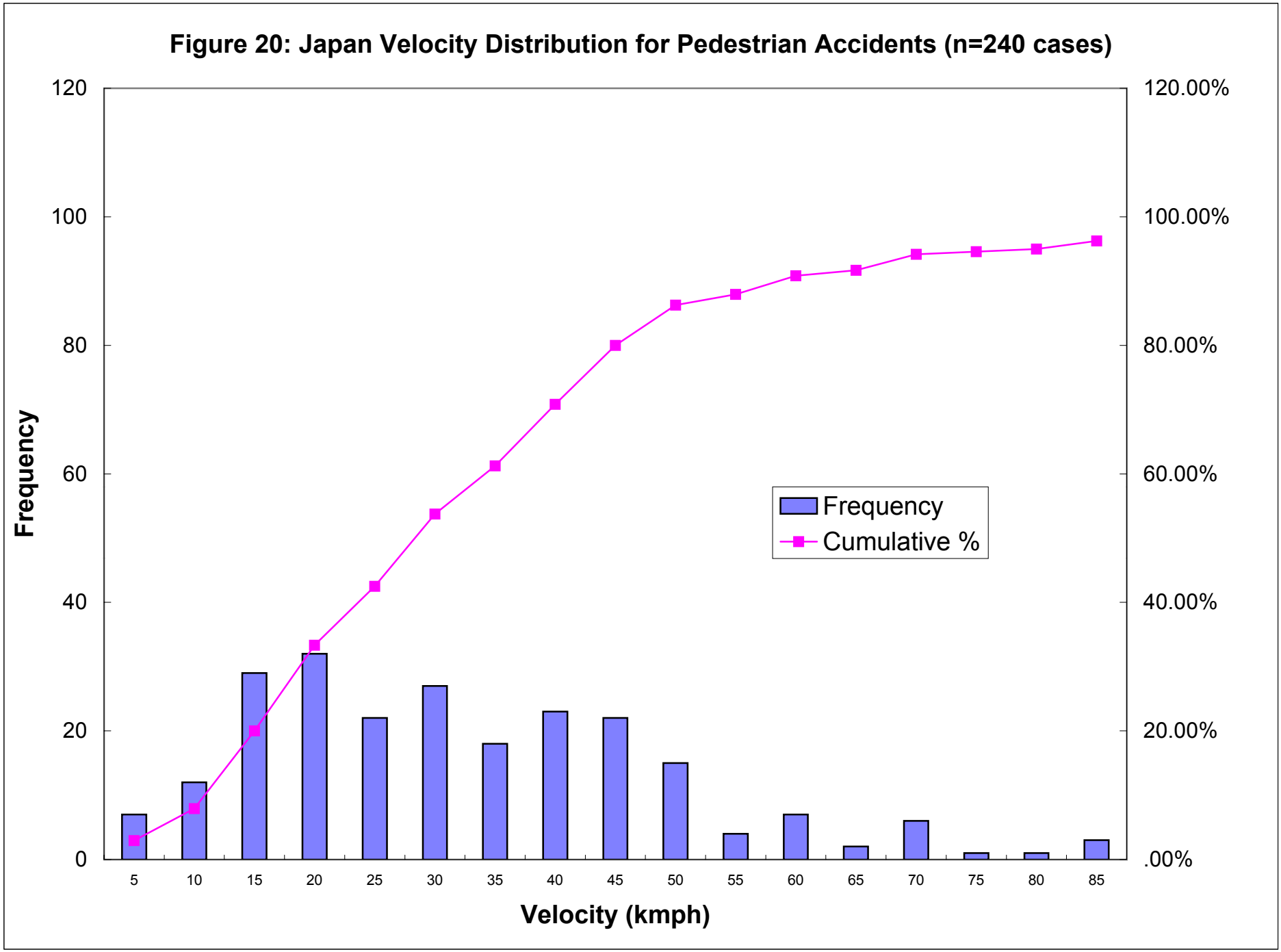


Figure 20: Japan Velocity Distribution for Pedestrian Accidents (n=240 cases)
Frequency
120
100
80
60
40
20
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
Velocity (kmph)
Frequency
Cumulative %

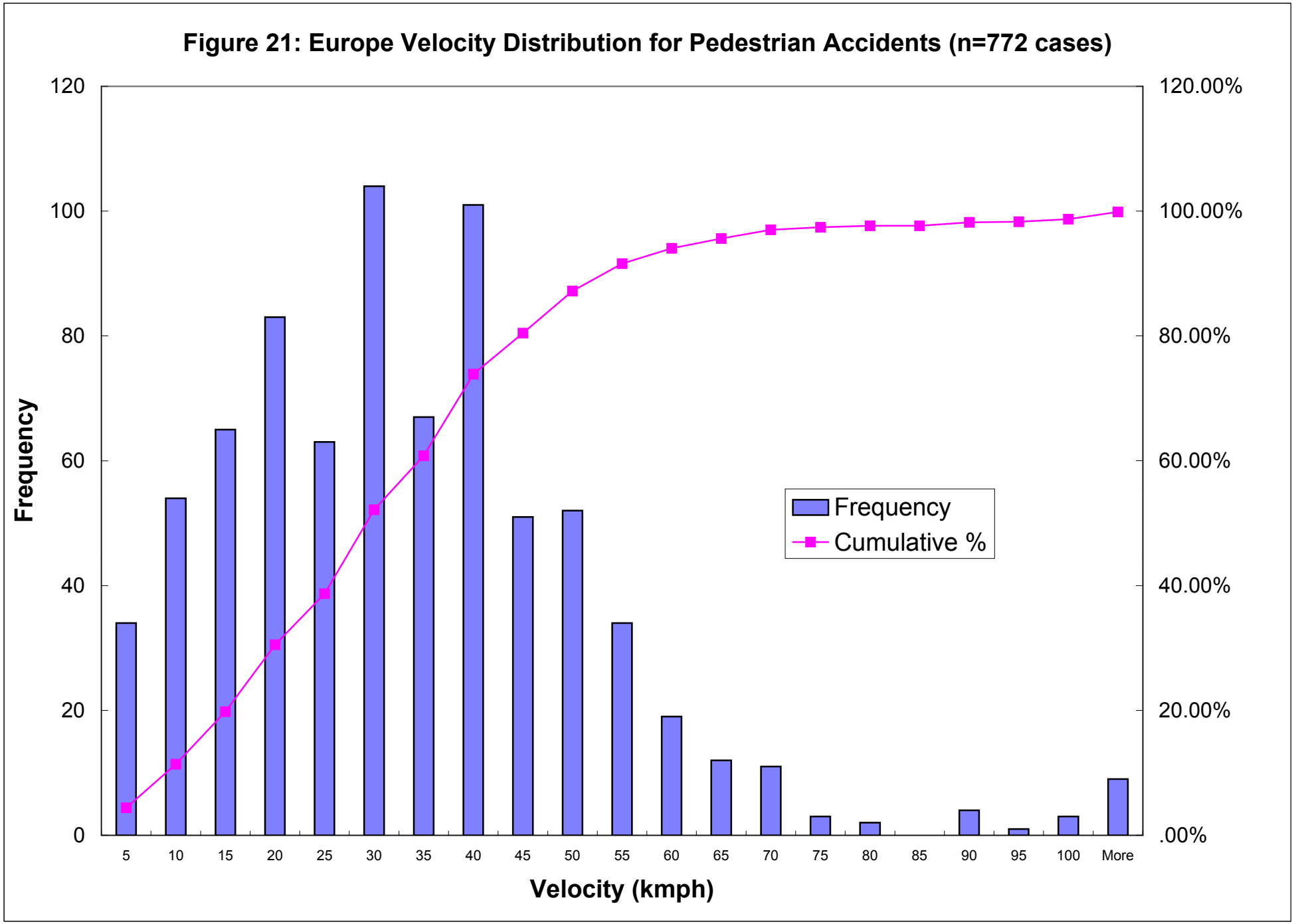


Figure 21: Europe Velocity Distribution for Pedestrian Accidents (n=772 cases)
Frequency
120
100
80
60
40
20
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
Frequency
Cumulative %
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More
Velocity (kmph)

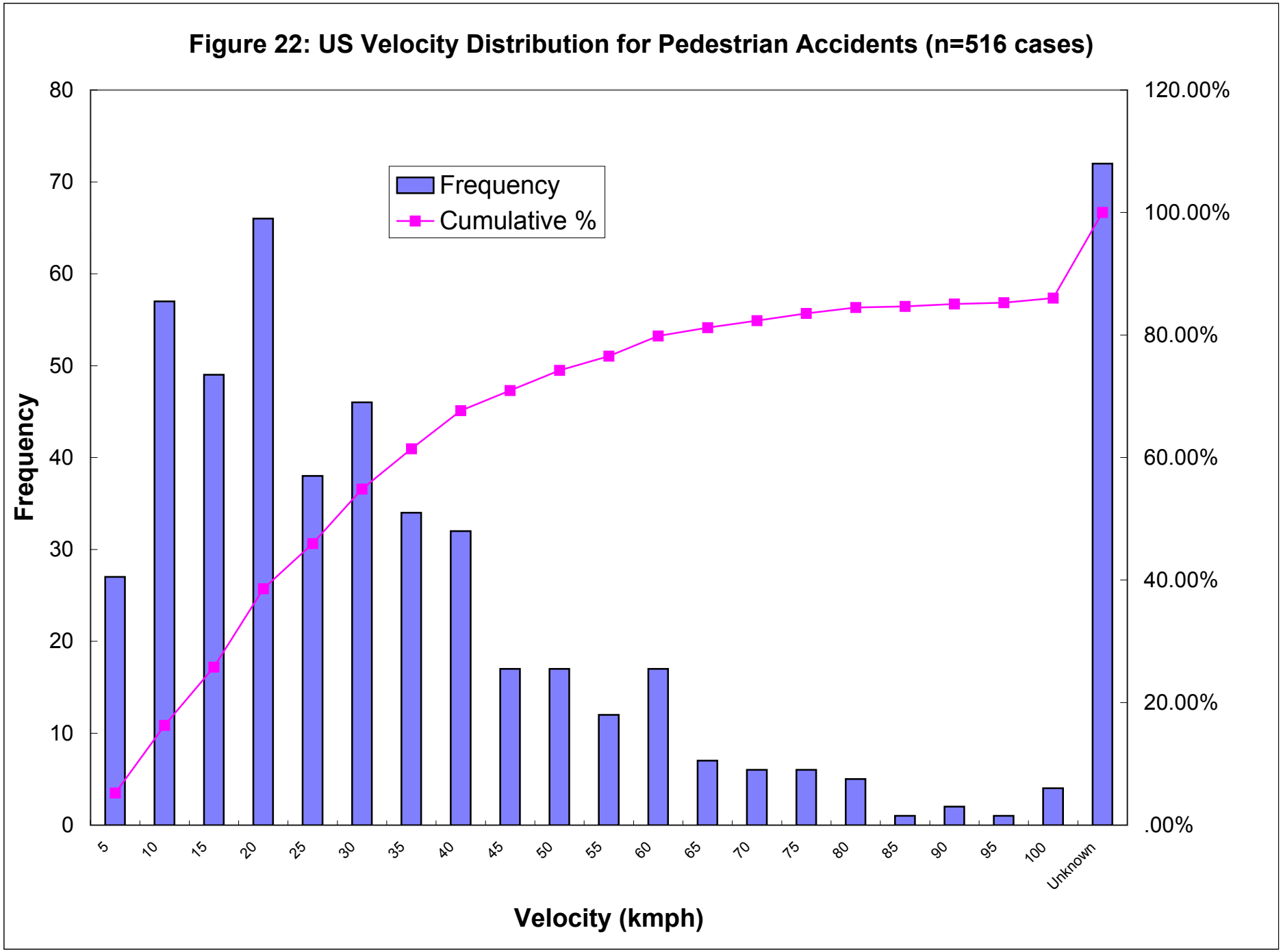
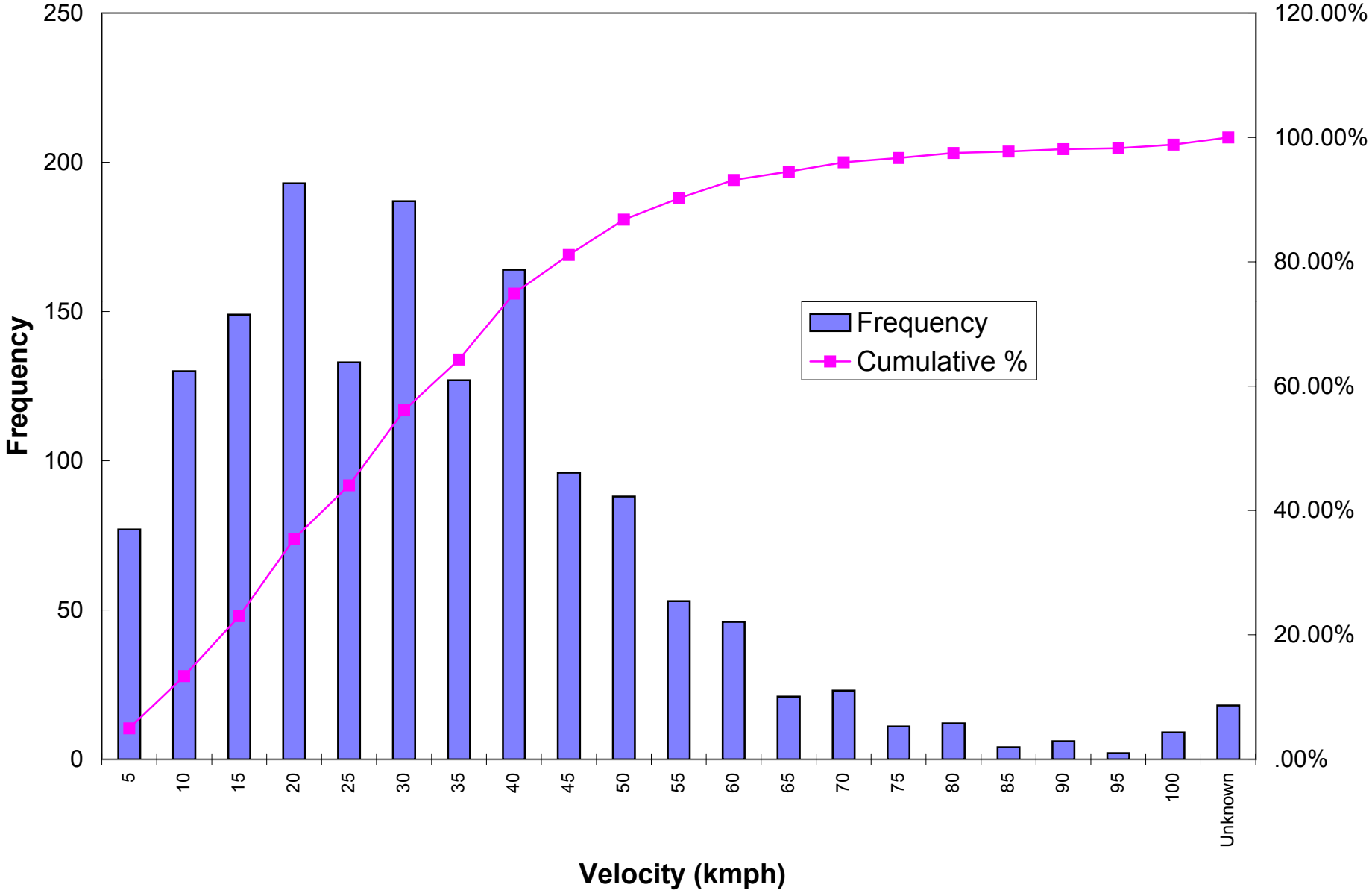


Figure 22: US Velocity Distribution for Pedestrian Accidents (n=516 cases)
Frequency
Cumulative %
Frequency
Velocity (kmph)
0
10
20
30
40
50
60
70
80
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Unknown

Figure 23: IHRA (Combined Australia, Europe, Japan, US) Velocity Distribution for Pedestrian Accidents (n=1549)



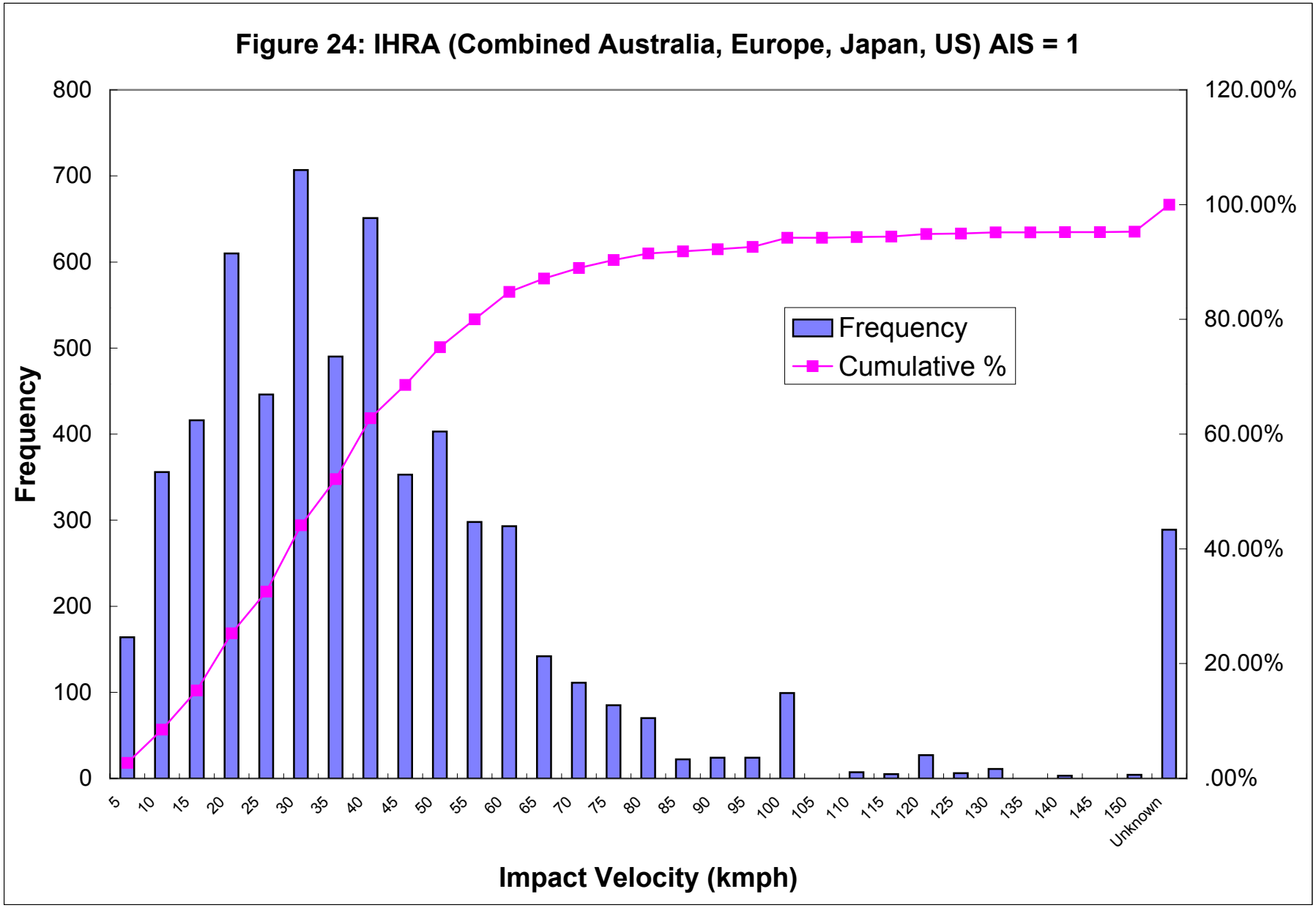


Figure 24: IHRA (Combined Australia, Europe, Japan, US) AIS = 1
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
800
700
600
500
400
300
200
100
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
115
120
125
130
135
140
145
150
Unknown

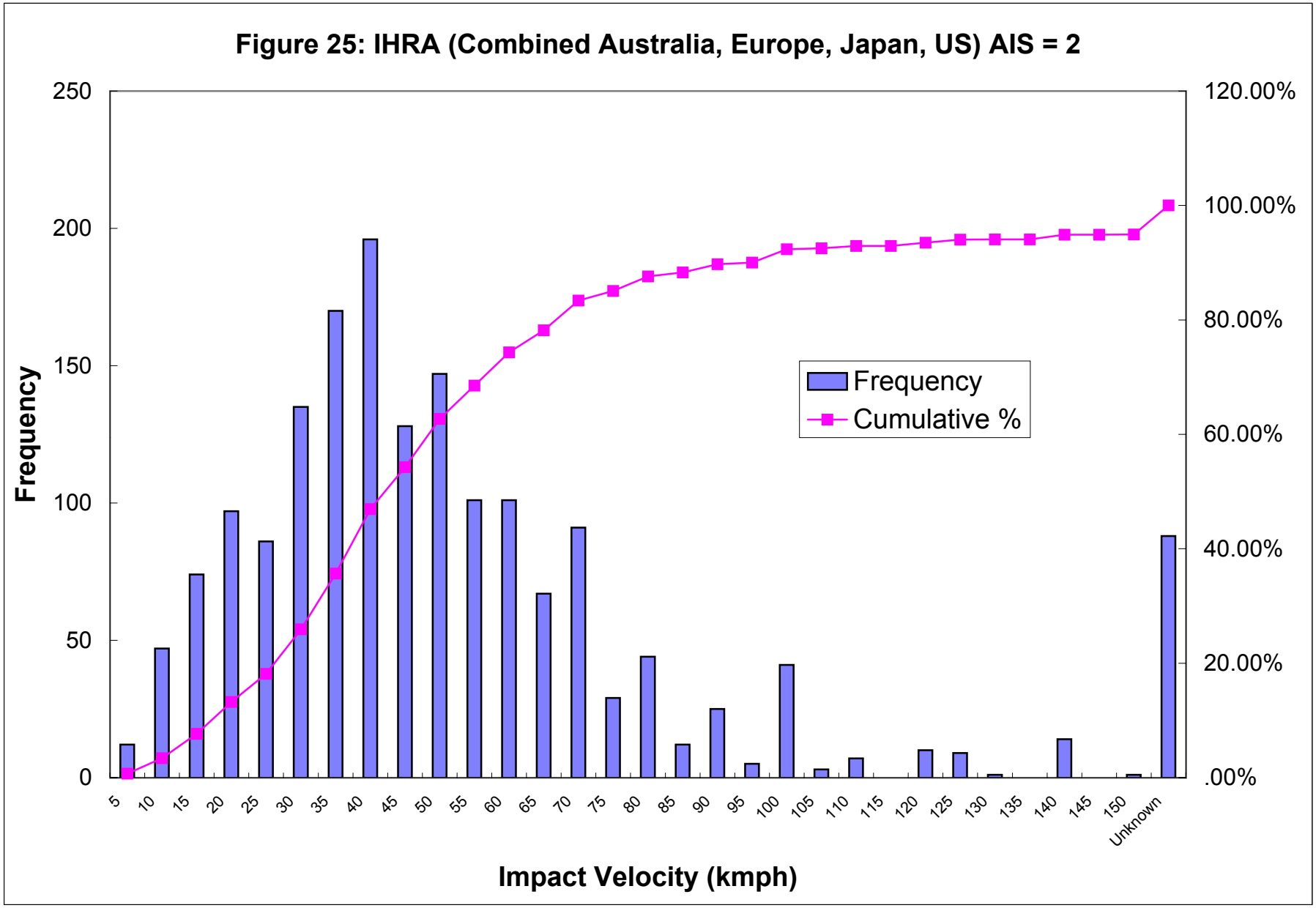


Figure 25: IHRA (Combined Australia, Europe, Japan, US) AIS = 2
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
250
200
150
100
50
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
115
120
125
130
135
140
145
150
Unknown

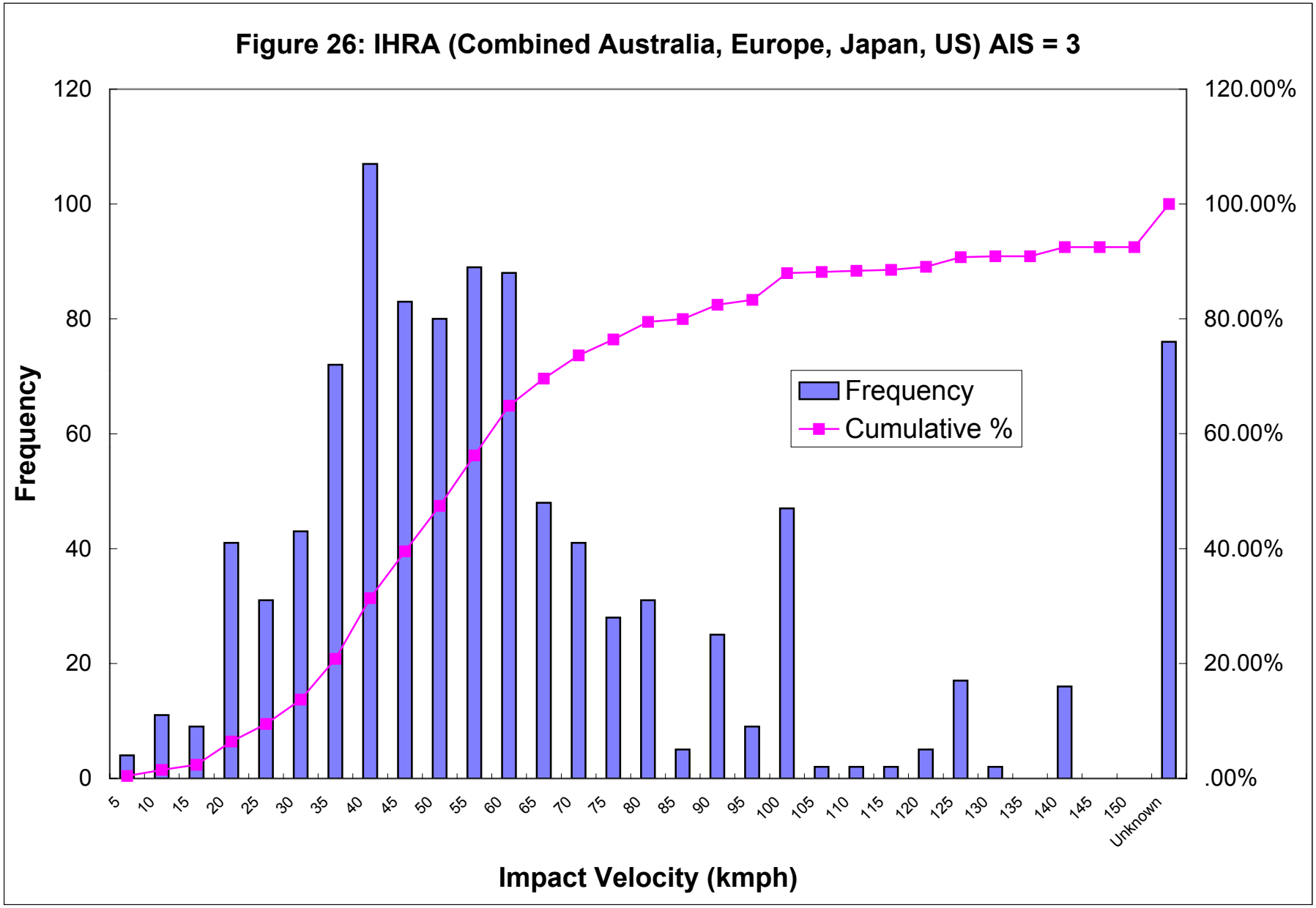


Figure 26: IHRA (Combined Australia, Europe, Japan, US) AIS = 3
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
20
40
60
80
100
120
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
115
120
125
130
135
140
145
150
Unknown

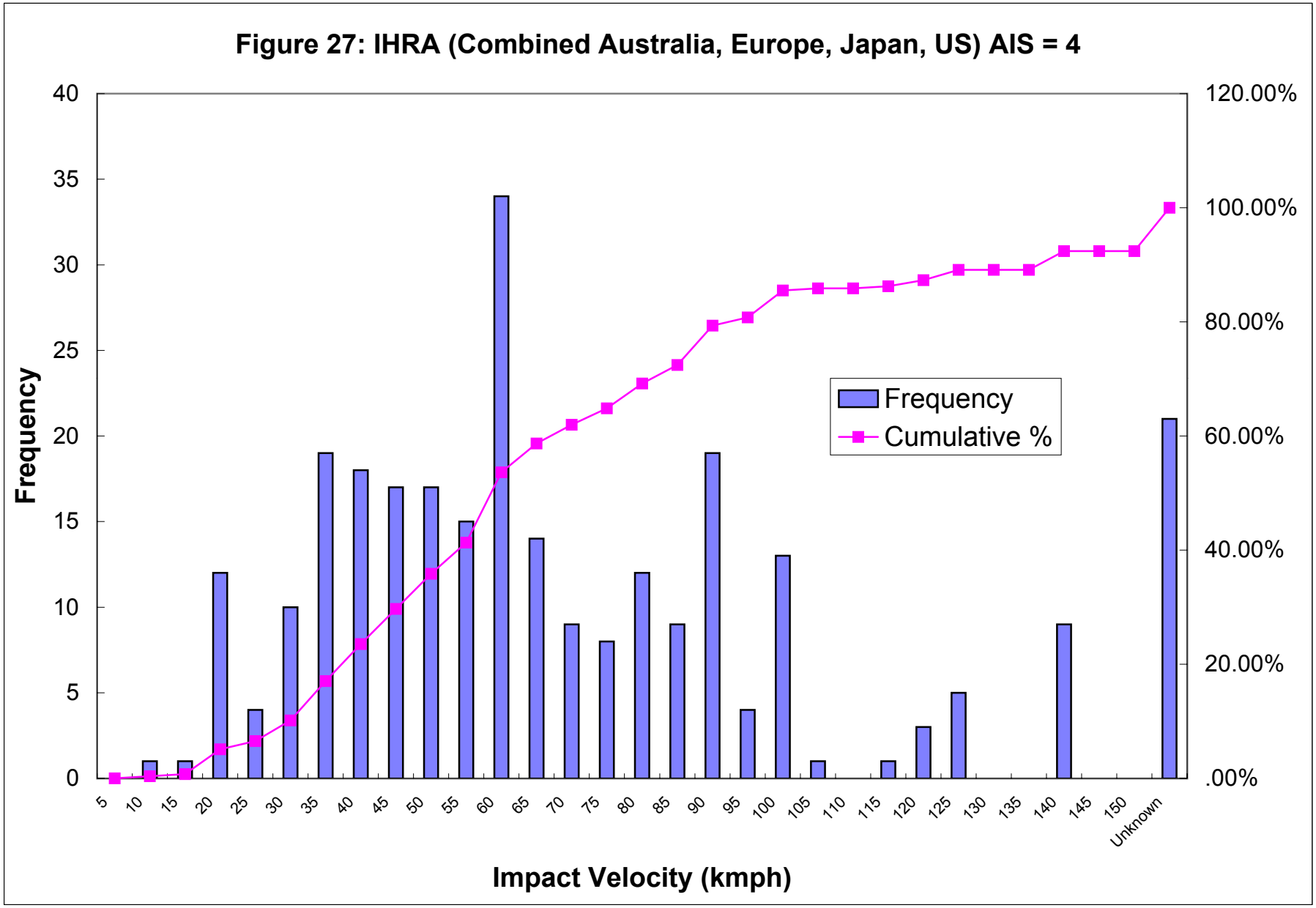


Figure 27: IHRA (Combined Australia, Europe, Japan, US) AIS = 4
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
5
10
15
20
25
30
35
40
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 Unknown

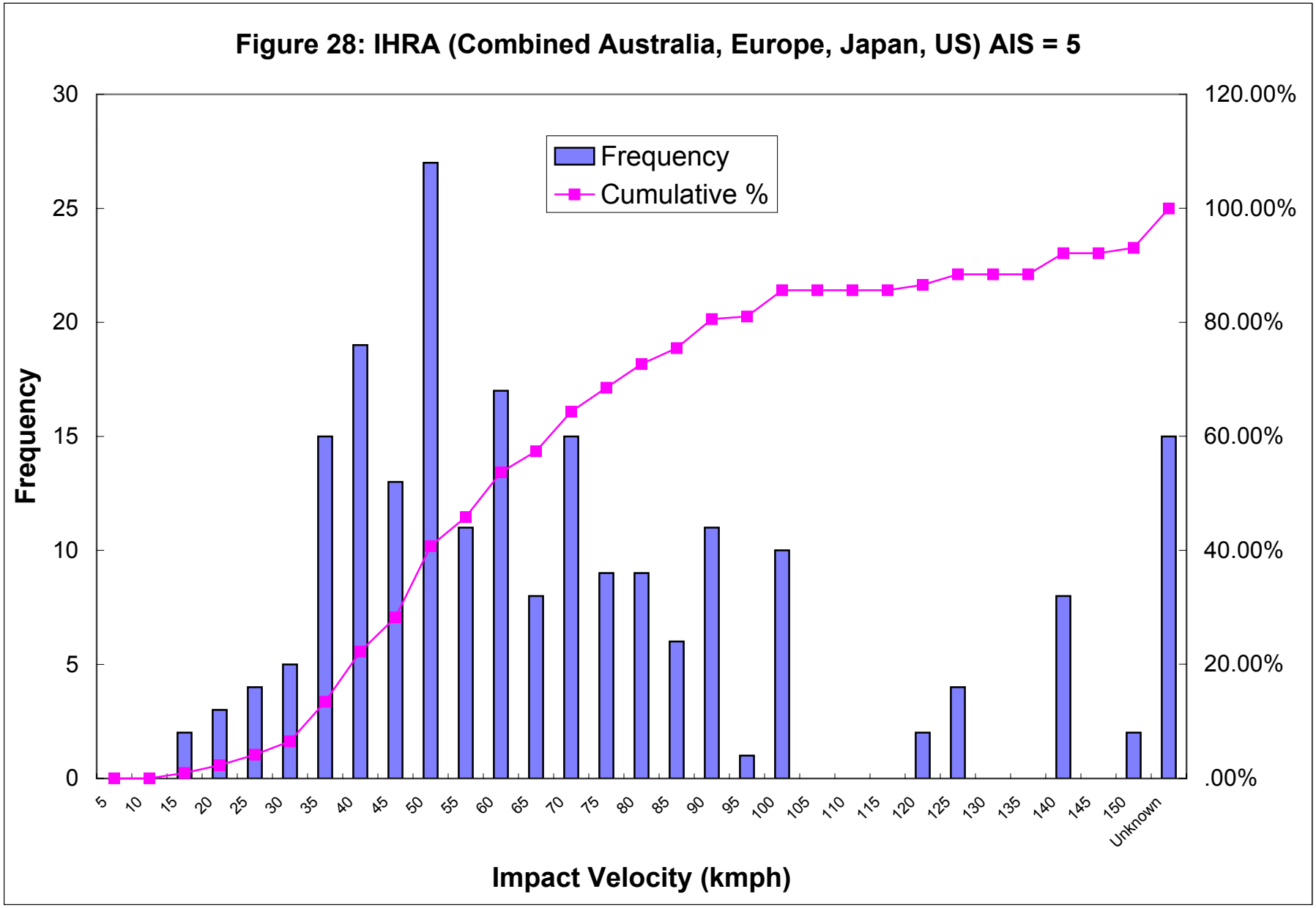


Figure 28: IHRA (Combined Australia, Europe, Japan, US) AIS = 5
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
30
25
20
15
10
5
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
115
120
125
130
135
140
145
150
Unknown

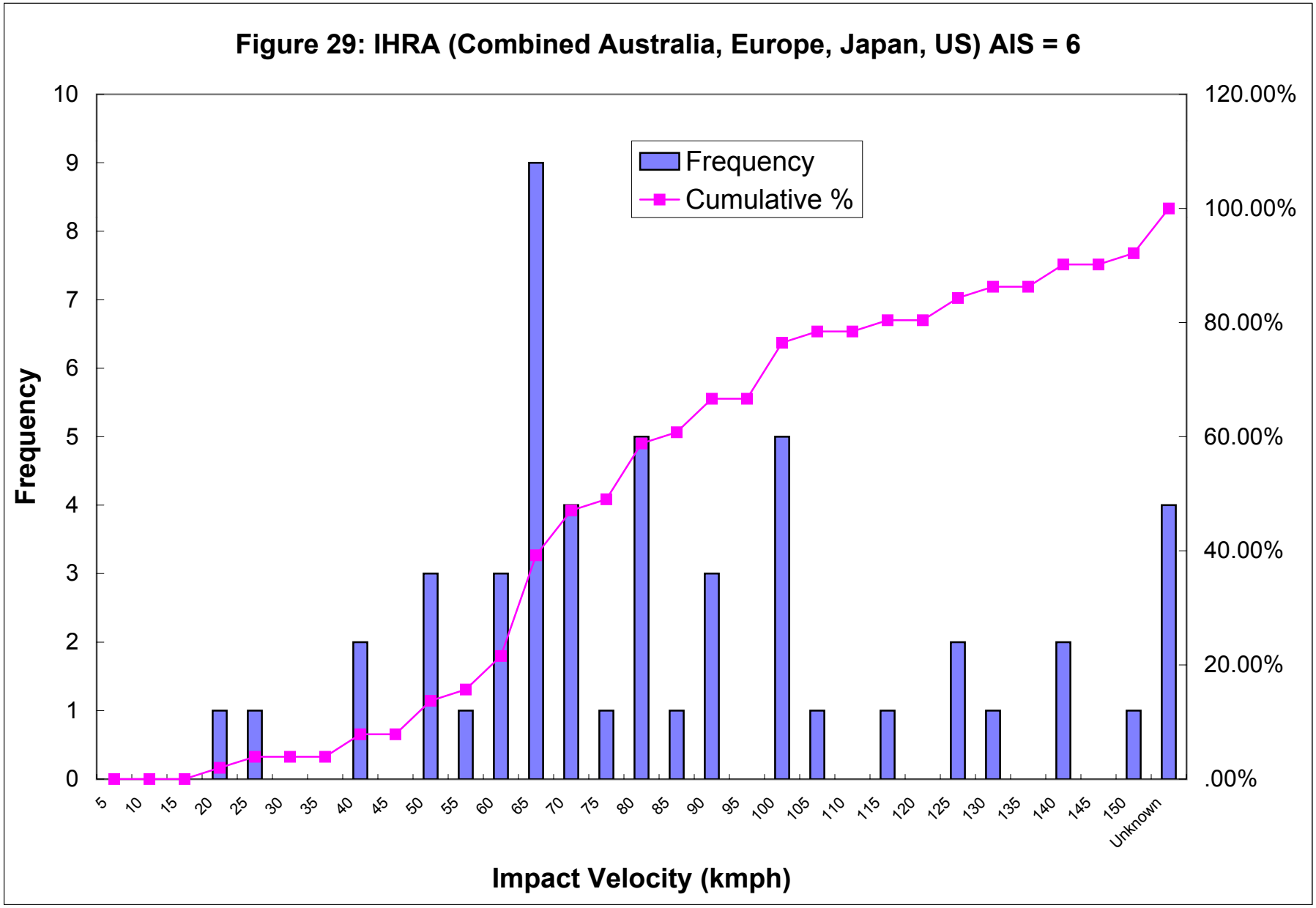


Figure 29: IHRA (Combined Australia, Europe, Japan, US) AIS = 6
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
1
2
3
4
5
6
7
8
9
10
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
115
120
125
130
135
140
145
150
Unknown

Figure 30a. Number of pedestrian injuries related to contact location and body region for the USA (All Age Groups, AIS 2-6)

Contact Location	Body Region	Head	Face	Neck	Chest	Abdomen	Pelvis	Arms	Legs					Unknown	Others	Total
									Overall	Femur	Knee	Lower Leg	Foot			
Part of the Vehicle	Front Bumper	12	2		2	3		2	12	26	33	187	2			281
	Top surface of bonnet/wing	111	8		56	33	26	35	21	1						291
	Leading edge of bonnet/wing	8	2		34	45	7	23	44	8	1	14				186
	Windscreen glass	170	18		9	4	11	17	2							231
	Windscreen frame/A pillars	67	10		7		14	13	5	1						117
	Front Panel				1	12	1	3	9	4	3	24	2			59
	Others	15	3		17	7	5	6	9	3	1	19	9			94
	Sub-Total	383	43		126	104	64	99	102	43	38	244	13			1259
Indirect Contact Injury		4					4									8
Road Surface Contact		53	7				3	7	5		2		2			79
Unknown																
Total		440	50		126	104	71	106	107	43	40	244	15			1346

Figure 30b. Number of pedestrian injuries related to contact location and body region for Europe (All Age Groups, AIS 2-6)

Contact Location	Body Region	Head	Face	Neck	Chest	Abdomen	Pelvis	Arms	Legs					Unknown	Others	Total
									Overall	Femur	Knee	Lower Leg	Foot			
Part of the Vehicle	Front Bumper	2			1		2	4	7	15	22	225	27	1		306
	Top surface of bonnet/wing	77	7	2	63	11	16	37		2	1	1	2	1		220
	Leading edge of bonnet/wing	1		1	7	18	66	8		21	4	14	1	1		142
	Windscreen glass	156	36	12	21	1		5				1		1		233
	Windscreen frame/A pillars	51	16	3	26	7		13						2		118
	Front Panel		1		1	1	5			9	8	11	1			37
	Others	22	3		11	2	4	6	1	3	4	4	3			63
	Sub-Total	309	63	18	130	40	93	73	8	50	39	256	34	6		1119
Indirect Contact Injury		5		3	2	1	1					1	1			14
Road Surface Contact		98	13	2	19	2	6	28	1	3	1	4	11	2		190
Unknown		23	1	3	18	12	16	17	1	6	9	28	3			137
Total		435	77	26	169	55	116	118	10	59	49	289	49	8		1460

Figure 30c. Number of pedestrian injuries related to contact location and body region for Japan (All Age Groups, AIS 2-6)

Contact Location \ Body Region		Head	Face	Neck	Chest	Abdomen	Pelvis	Arms	Legs					Unknown	Others	Total
									Overall	Femur	Knee	Lower Leg	Foot			
Part of the Vehicle	Front Bumper	5				2				17	16	46	1			87
	Top surface of bonnet/wing	29	1		8	2	1	10	2							53
	Leading edge of bonnet/wing			1	1	9	8	2		11						32
	Windscreen glass	13	1				1	1					1			17
	Windscreen frame/A pillars	24	1	1	2			1								29
	Front Panel	5			7	1	2	3		1						19
	Others	4	1	0	9	2	3	2	5	1		14	6			47
	Sub-Total	80	4	2	27	16	15	19	7	30	16	60	8			284
Indirect Contact Injury		4		15			2	1		3			1			26
Road Surface Contact		21	2		3			7		1		1	2			37
Unknown		3	3		2	2		7	1	1		4		8		31
Total		108	9	17	32	18	17	34	8	35	16	65	11	8		378

Figure 30d. Number of pedestrian injuries related to contact location and body region for Australia (All Age Groups, AIS 2-6)

Contact Location \ Body Region		Head	Face	Neck	Chest	Abdomen	Pelvis	Arms	Legs					Unknown	Others	Total
									Overall	Femur	Knee	Lower Leg	Foot			
Part of the Vehicle	Front Bumper	5							31							36
	Top surface of bonnet/wing	7			12		1	4								24
	Leading edge of bonnet/wing	6		1		7	2	2	14							32
	Windscreen glass	8	2													10
	Windscreen frame/A pillars	38	3		5	4	5	8	3							66
	Front Panel															
	Others	1							2							3
	Sub-Total	65	5	1	17	11	8	14	50							171
Indirect Contact Injury																
Road Surface Contact		4	3					2								9
Unknown		2														2
Total		71	8	1	17	11	8	16	50							182

Figure 31a. Number of pedestrian injuries related to contact location and body region for Australia, Europe, Japan and the USA (All Age Groups, AIS 2-6)

Contact	Body Region	Head	Face	Neck	Chest	Abdomen	Pelvis	Arms	Legs					Unknown	Total
									Overall	Femur	Knee	Lower Leg	Foot		
Part of the Vehicle	Front Bumper	24	2		3	5	3	6	19	59	76	476	31	1	705
	Top surface of bonnet/wing	223	15	2	139	44	43	86	23	3	1	1	2	1	583
	Leading edge of bonnet/wing	15	2	4	43	78	85	35	50	40	6	30	1		389
	Windscreen glass	344	56	12	30	5	12	23	2			1	1	1	487
	Windscreen frame/A pillars	168	28	5	35	7	14	31	5	1				2	296
	Front Panel	5	1		9	13	7	6	9	14	11	35	3		113
	Others	45	7	1	38	12	13	15	15	9	5	39	18		217
	Sub-Total	824	111	24	297	164	177	202	123	126	99	582	56	5	2790
Indirect Contact Injury		13		17	1	1	7	1		3		1	2		46
Road Surface Contact		171	22	2	22	2	9	42	6	4	3	5	15	1	304
Unknown		27	6	3	19	10	16	25	1	7	9	32	3	7	165
Total		1035	139	46	339	177	209	270	130	140	111	620	76	13	3305

Figure 31b. Number of pedestrian injuries related to contact location and body region for Australia, Europe, Japan and the USA (Ages < 16, AIS 2-6)

Contact Location	Body Region	Head	Face	Neck	Chest	Abdomen	Pelvis	Arms	Legs					Unknown	Total
									Overall	Femur	Knee	Lower Leg	Foot		
Part of the Vehicle	Front Bumper	4			1	2		3	3	30	7	47	2	1	100
	Top surface of bonnet/wing	83	6	1	17	5	8	13	2						135
	Leading edge of bonnet/wing	8		3	7	13	5	7	4	7	1	6			61
	Windscreen glass	41	4	1	2	2	2	1	1					1	55
	Windscreen frame/A pillars	9			1			2							12
	Front Panel	5			1		1	1		5	1	3			17
	Others	12		1	9	3	1	4	9	5		13	5		62
	Sub-Total	162	10	6	38	25	17	31	19	47	9	69	7	2	442
Indirect Contact Injury		1		1		1		1							4
Road Surface Contact		46	4		1		1	10					1		63
Unknown		8			1	1		5		3		4		1	23
Total		217	14	7	40	27	18	47	19	50	9	73	8	3	532

Figure 31c. Number of pedestrian injuries related to contact location and body region for Australia, Europe, Japan and the USA (Ages > 15, AIS 2-6)

Contact Location	Body Region	Head	Face	Neck	Chest	Abdomen	Pelvis	Arms	Legs					Unknown	Total
									Overall	Femur	Knee	Lower Leg	Foot		
Part of the Vehicle	Front Bumper	20	2		2	3	3	3	16	29	69	429	29		605
	Top surface of bonnet/wing	140	9	1	122	39	35	73	21	3	1	1	2	1	448
	Leading edge of bonnet/wing	7	2	1	36	65	80	28	46	33	5	24	1		328
	Windscreen glass	303	52	11	28	3	10	22	1			1	1		432
	Windscreen frame/A pillars	159	28	5	34	7	14	29	5	1				2	284
	Front Panel		1		8	13	6	5	9	9	10	32	3		96
	Others	33	7		29	9	12	11	6	4	5	26	13		155
	Sub-Total	662	101	18	259	139	160	171	104	79	90	513	49	3	2348
Indirect Contact Injury		12		16	1		7			3		1	2		42
Road Surface Contact		125	18	2	21	2	8	32	6	4	3	5	14	1	241
Unknown		19	6	3	18	9	16	20	1	4	9	28	3	6	142
Total		818	125	39	299	150	191	223	111	90	102	547	68	10	2773

Figure 32: IHRA Impact Velocity for Different AIS Segments (All Body Regions), Children (<16) vs. Adults (>15)

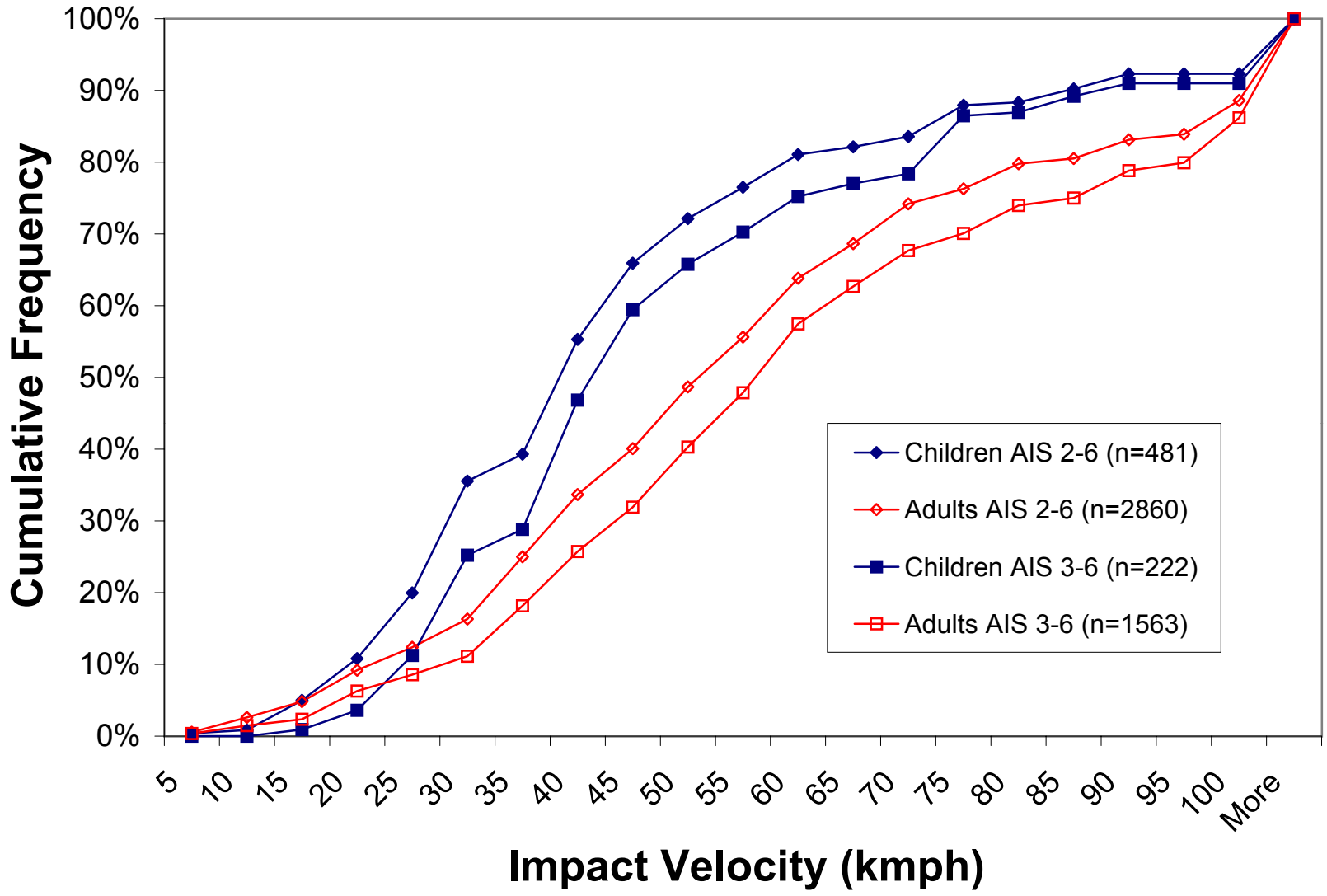


Figure 33: IHRA Impact Velocity for Different AIS Segments (Head Region), Children (<16) vs. Adults (>15)

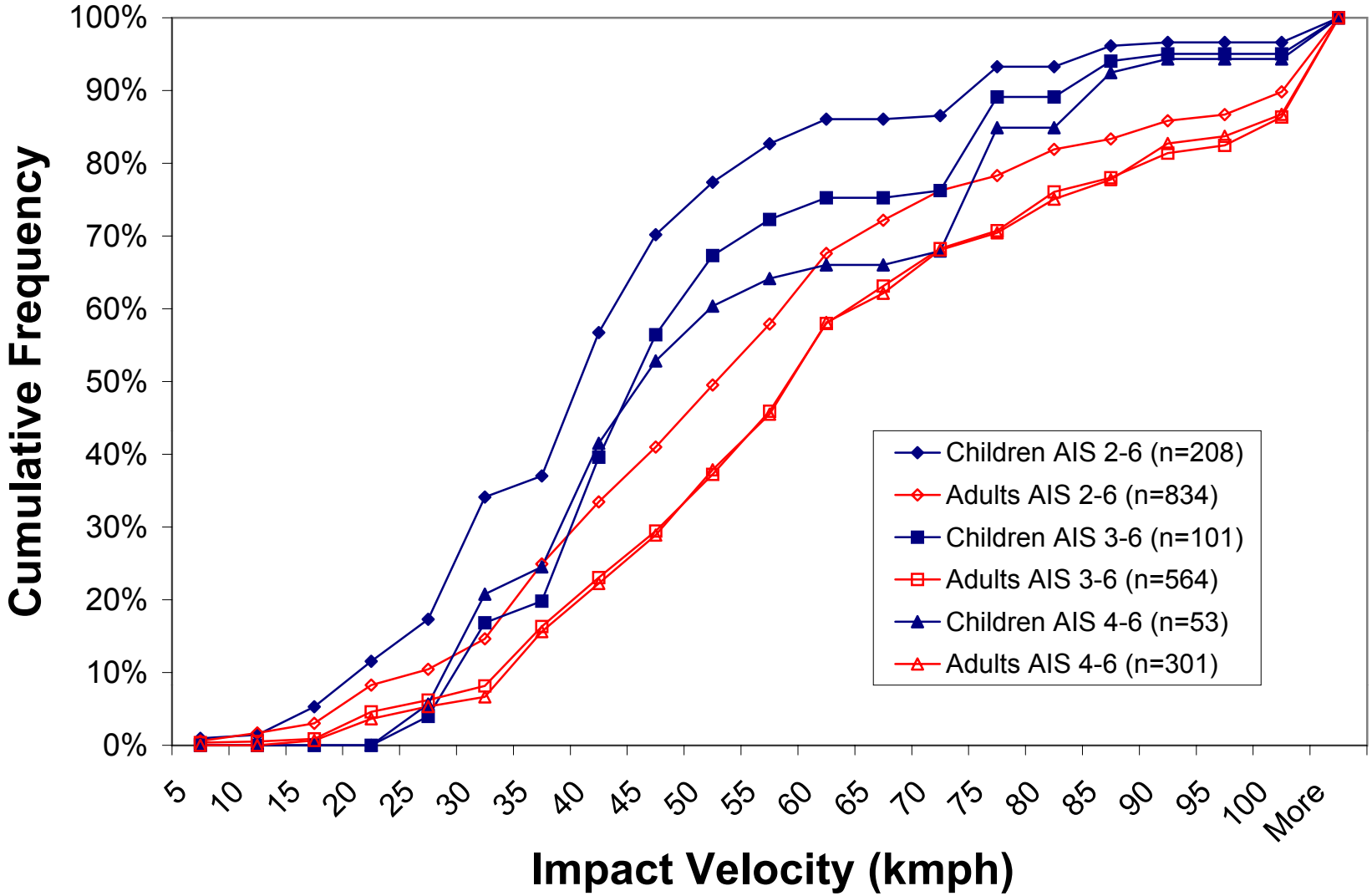


Figure 34: IHRA Impact Velocity for Different AIS Segments (Leg Region), Children (<16) vs. Adults (>15)

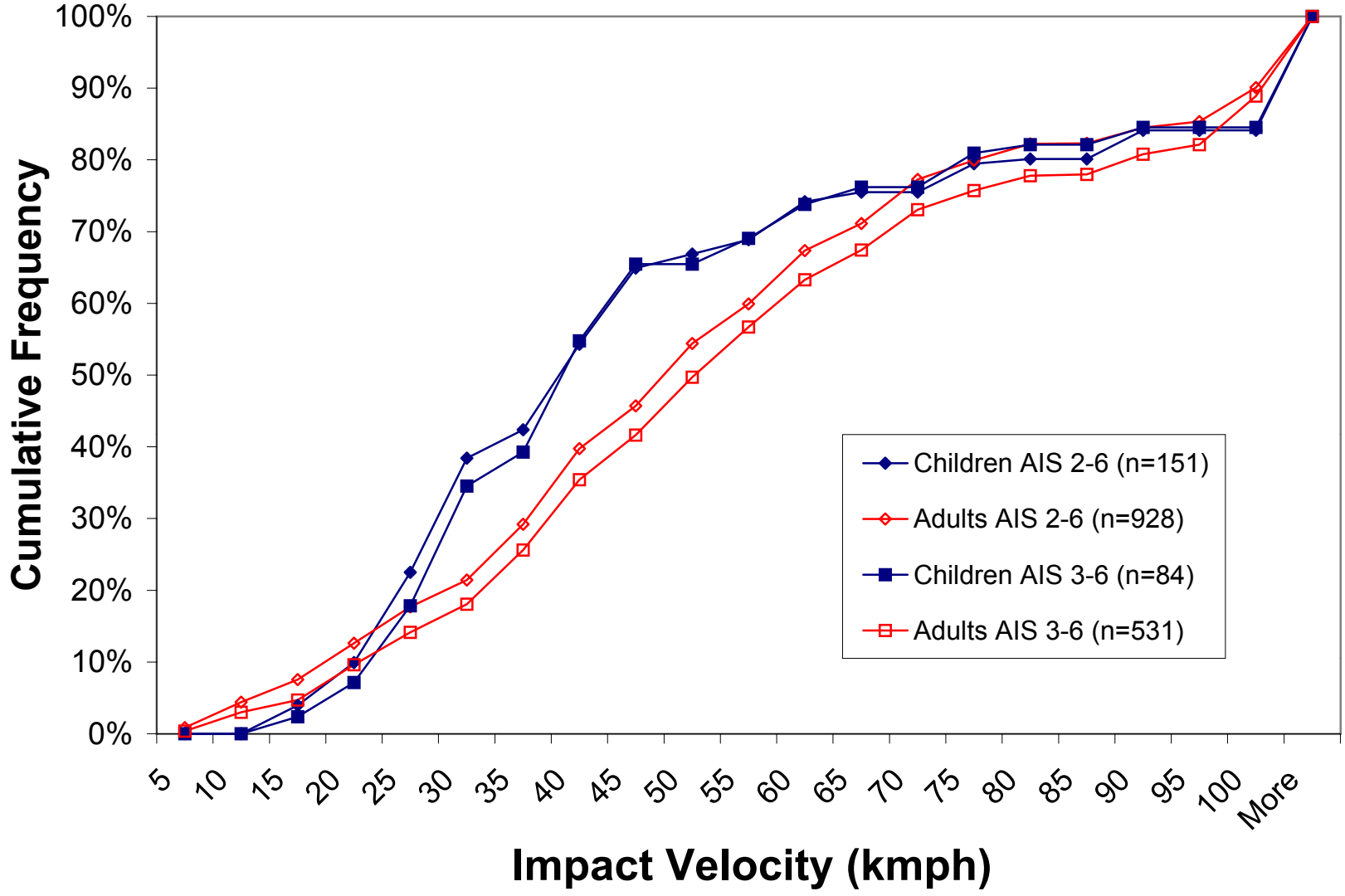
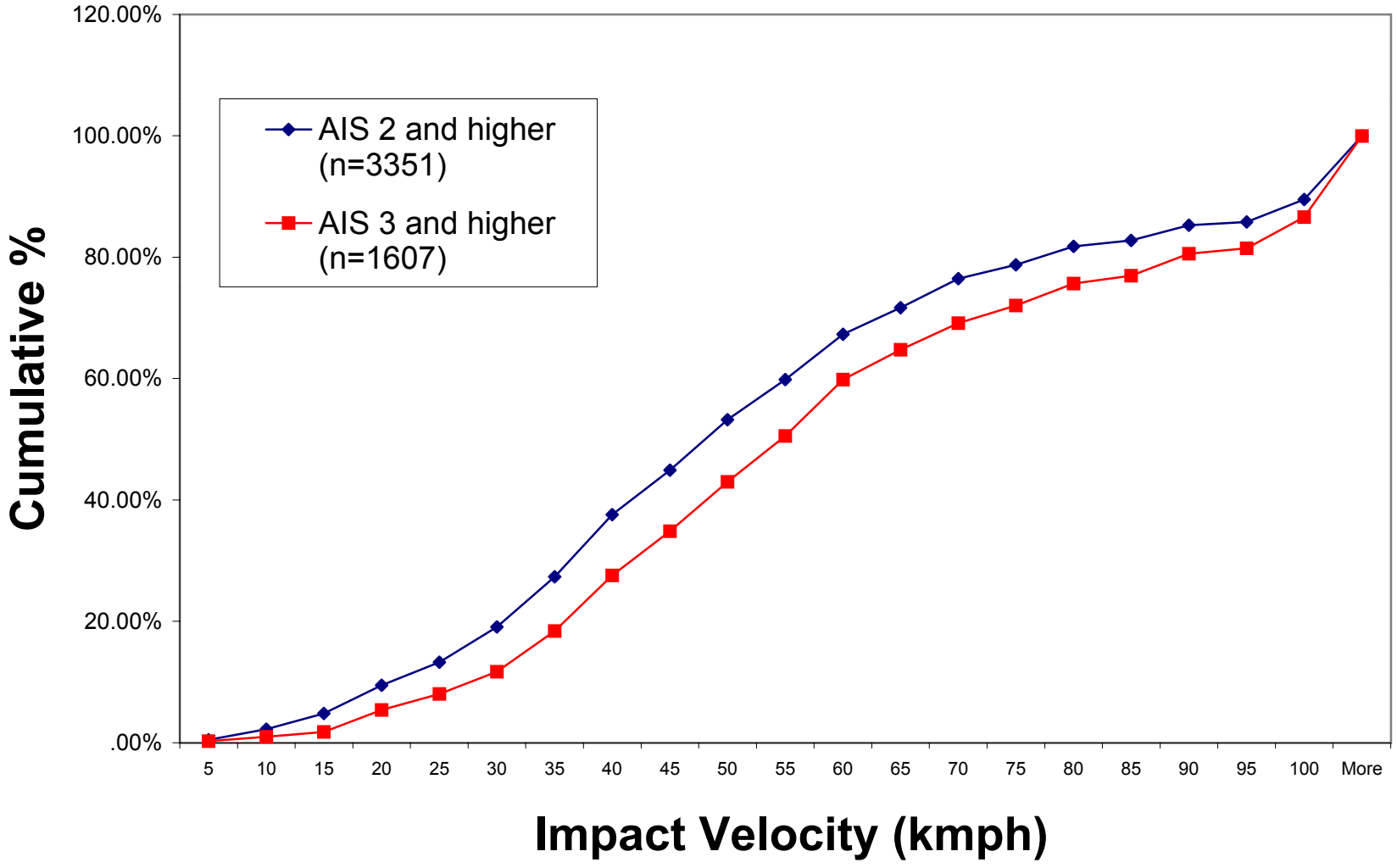


Figure 35: IHRA Impact Velocity for Different AIS Segments (All Body Regions)



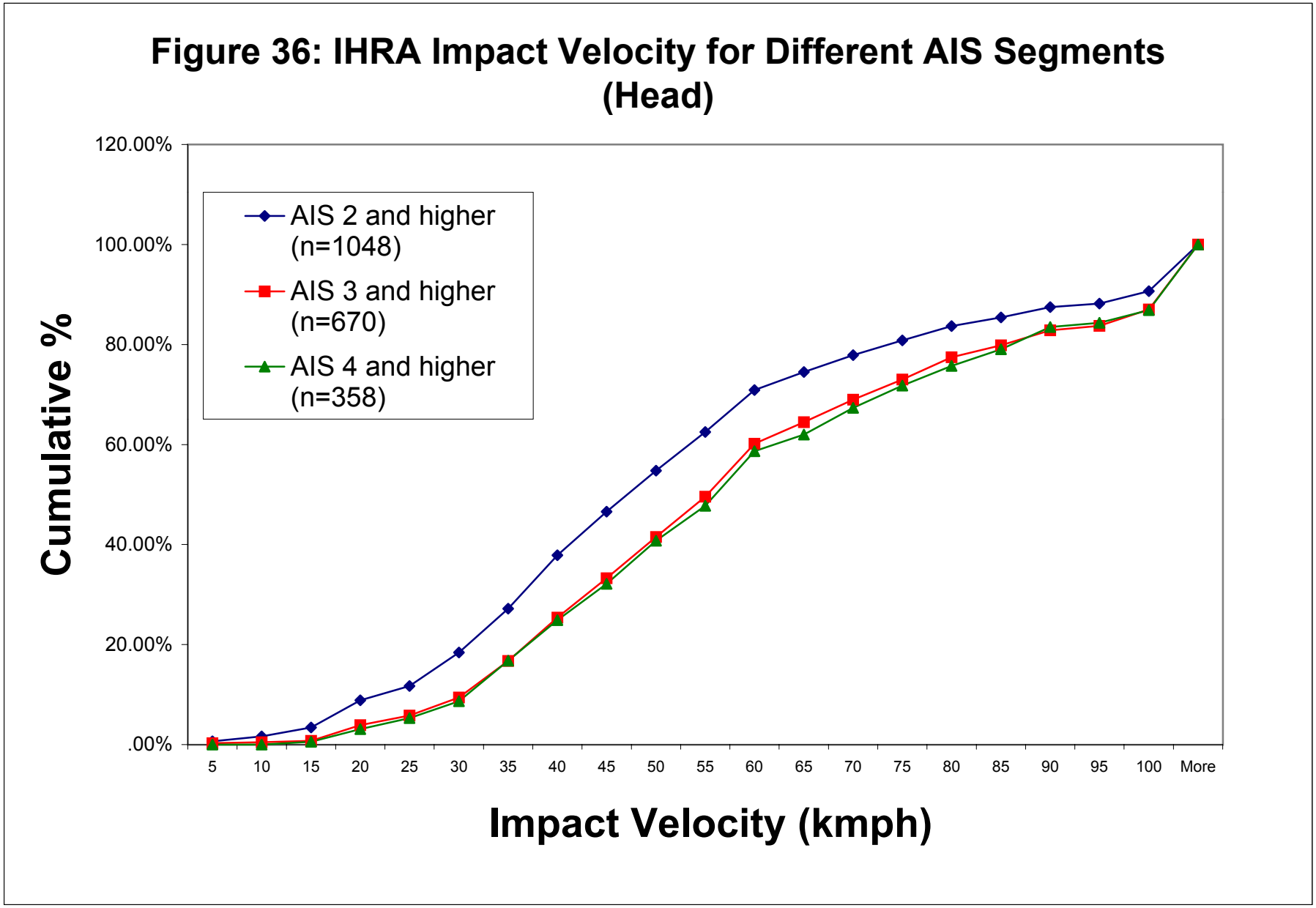
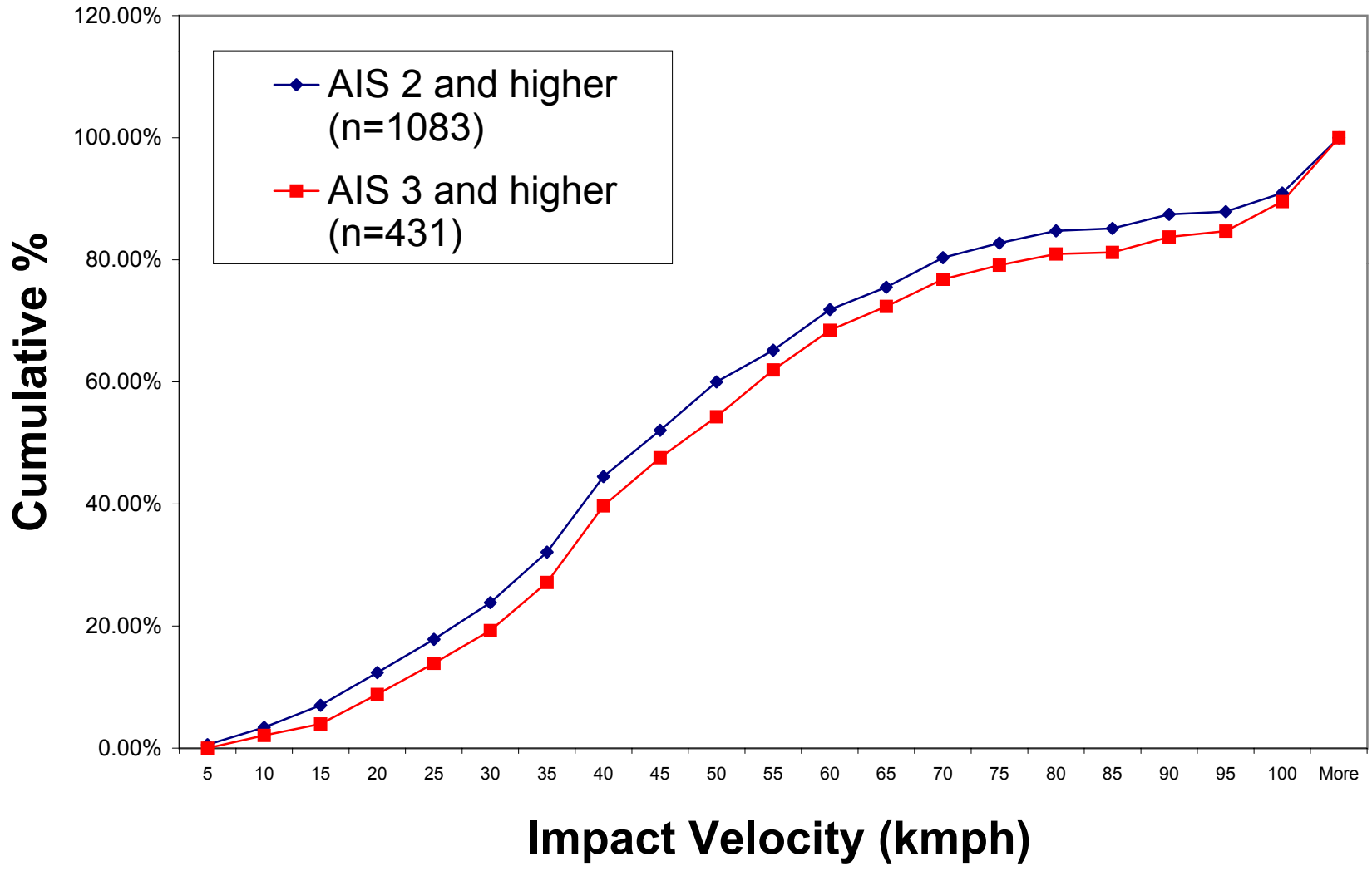


Figure 36: IHRA Impact Velocity for Different AIS Segments (Head)
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
Cumulative %
AIS 2 and higher (n=1048)
AIS 3 and higher (n=670)
AIS 4 and higher (n=358)
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More
Impact Velocity (kmph)

Figure 37: IHRA Impact Velocity for Different AIS Segments (Leg)



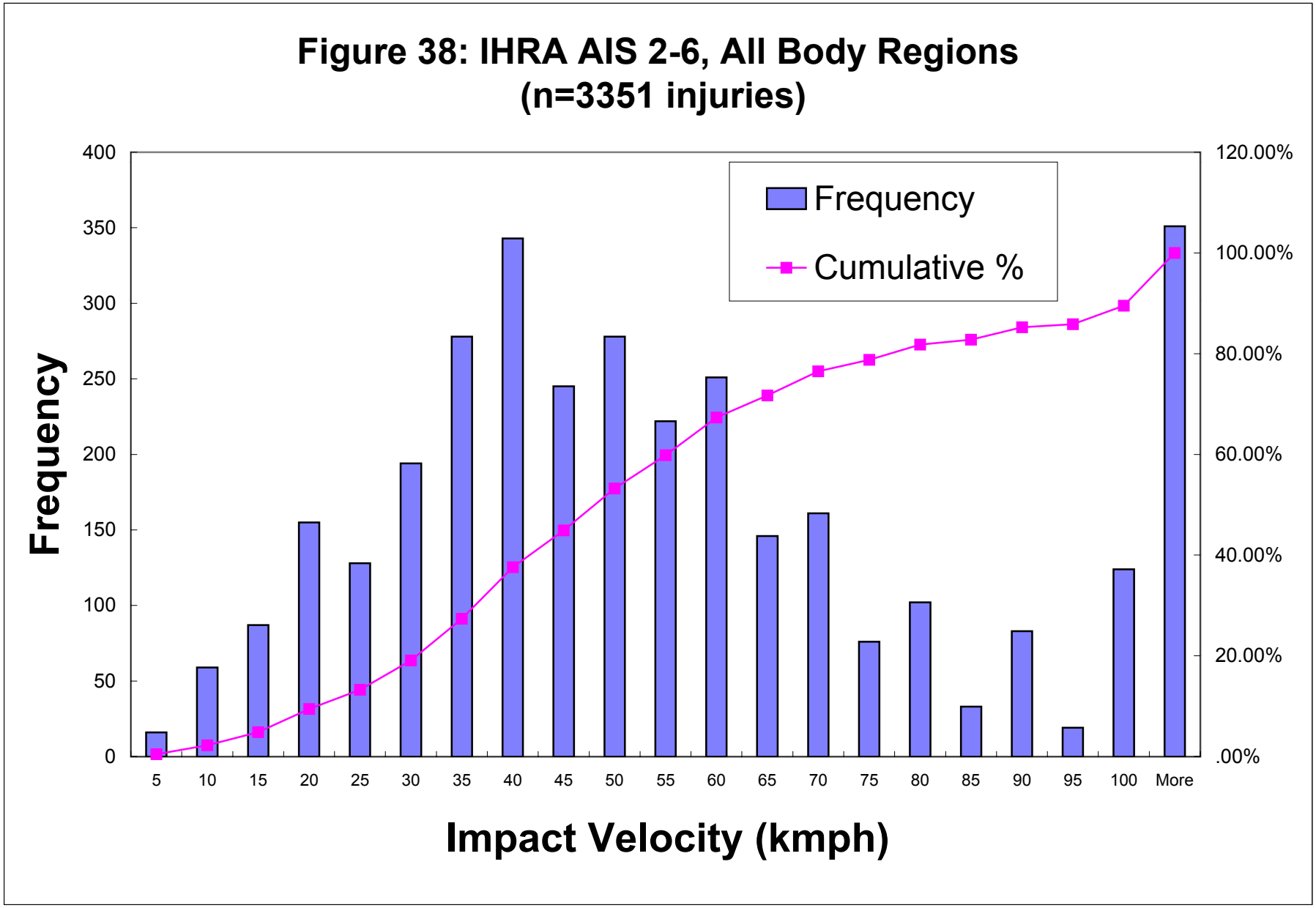


Figure 38: IHRA AIS 2-6, All Body Regions
(n=3351 injuries)
Frequency
Cumulative %
Frequency
400
350
300
250
200
150
100
50
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More
Impact Velocity (kmph)

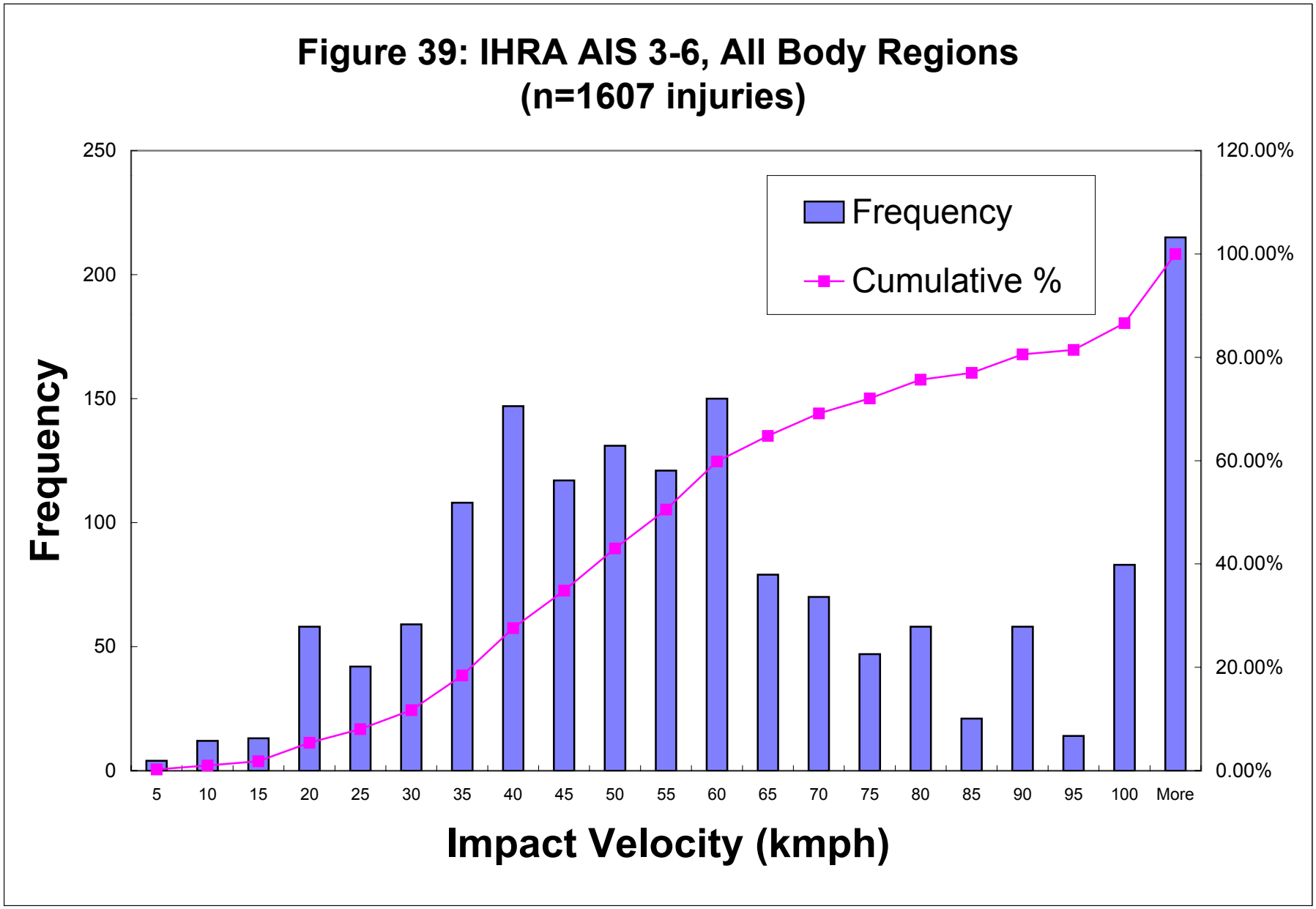


Figure 39: IHRA AIS 3-6, All Body Regions
(n=1607 injuries)
Frequency
Cumulative %
Frequency
250
200
150
100
50
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
0.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More
Impact Velocity (kmph)

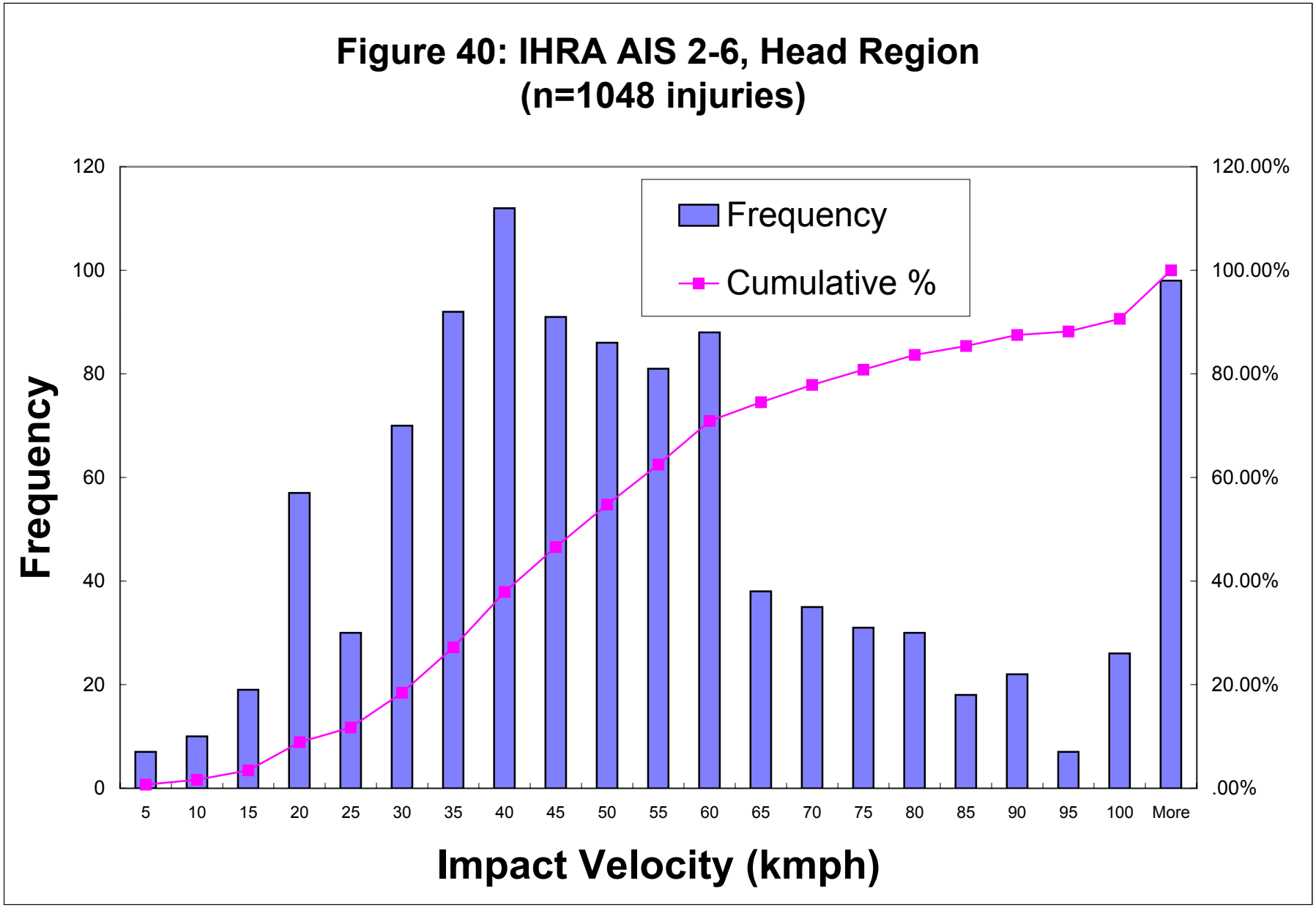


Figure 40: IHRA AIS 2-6, Head Region
(n=1048 injuries)
Frequency
Cumulative %
Frequency
120
100
80
60
40
20
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More
Impact Velocity (kmph)

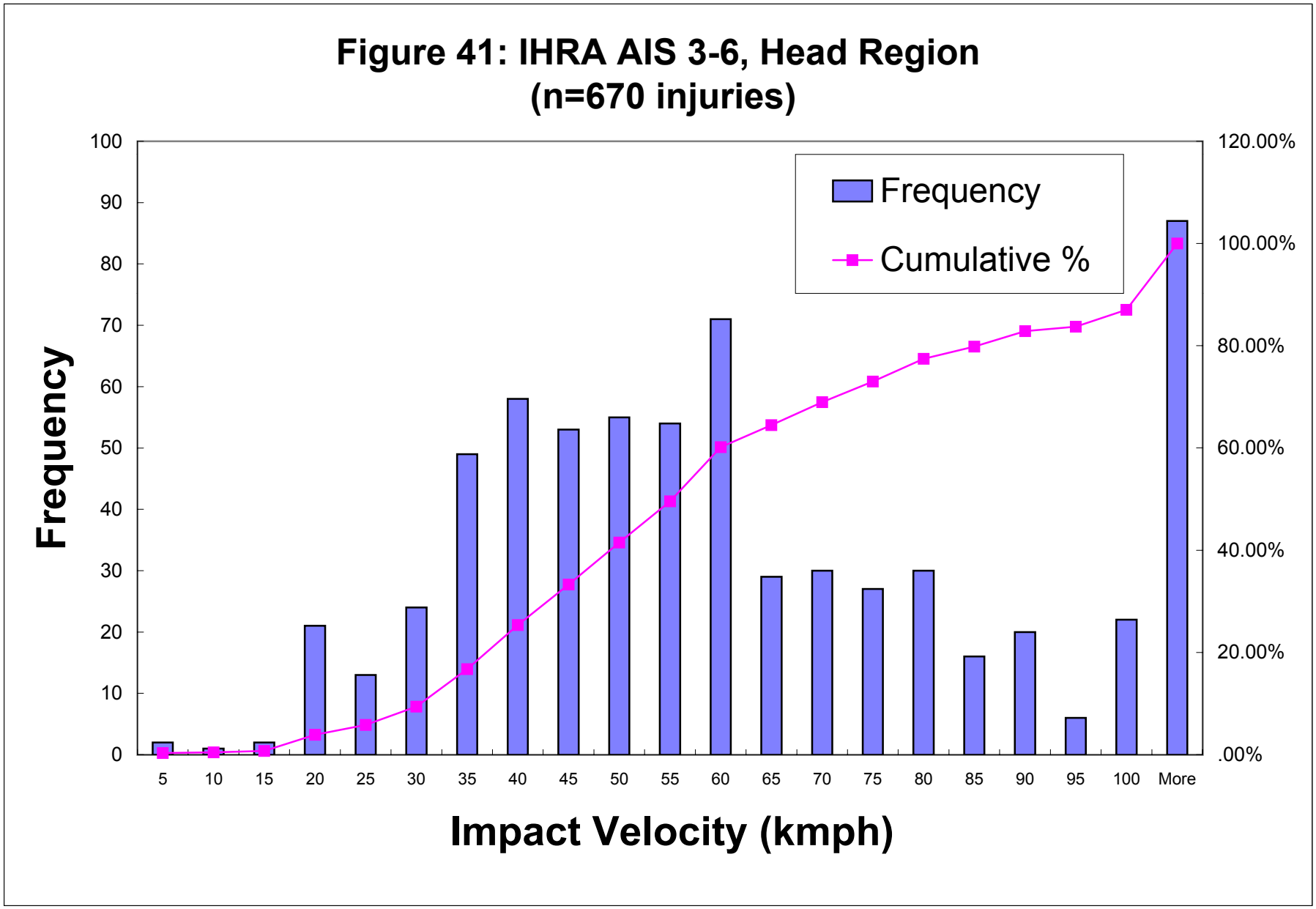


Figure 41: IHRA AIS 3-6, Head Region
(n=670 injuries)
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
10
20
30
40
50
60
70
80
90
100
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

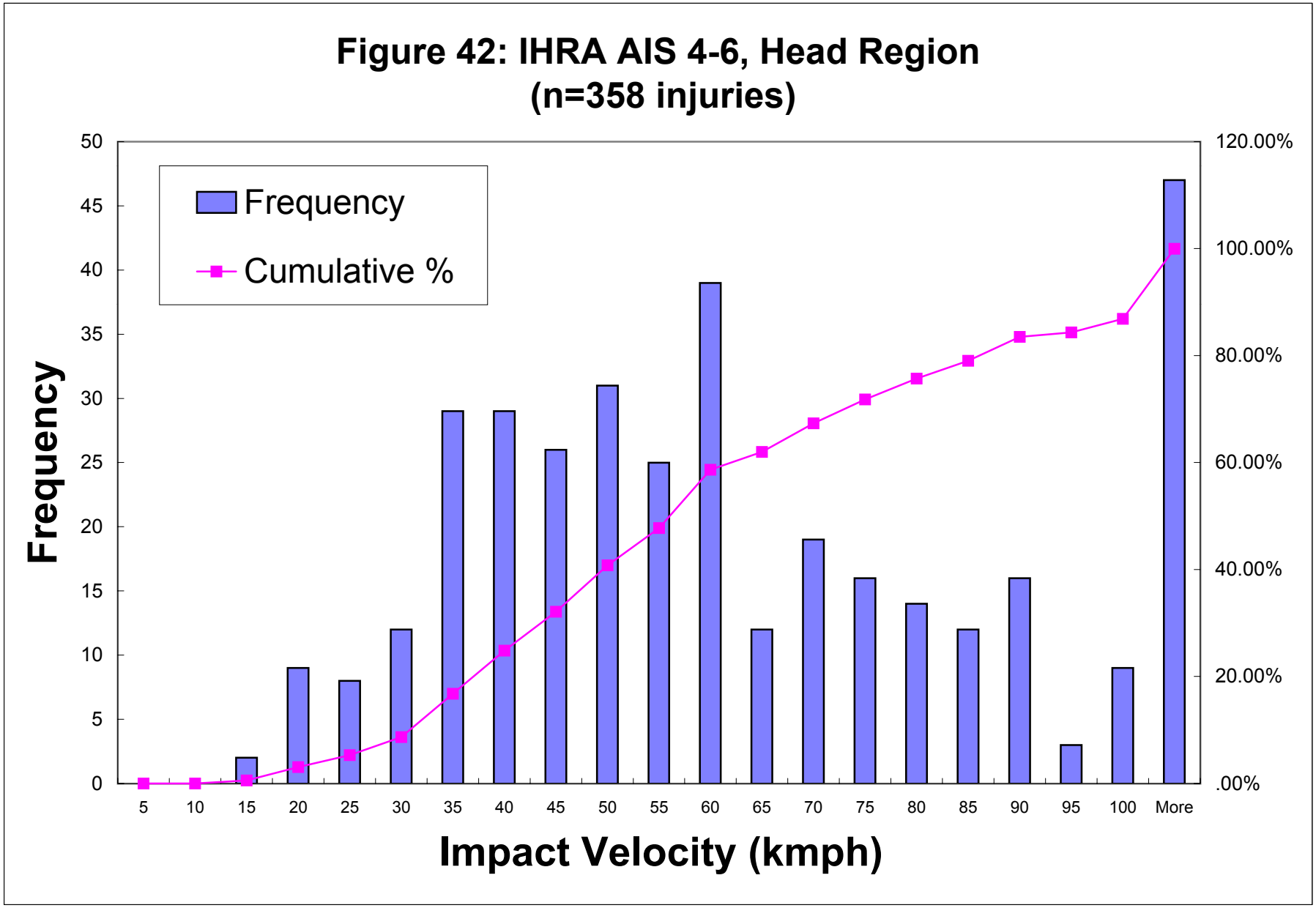


Figure 42: IHRA AIS 4-6, Head Region
(n=358 injuries)
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
5
10
15
20
25
30
35
40
45
50
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

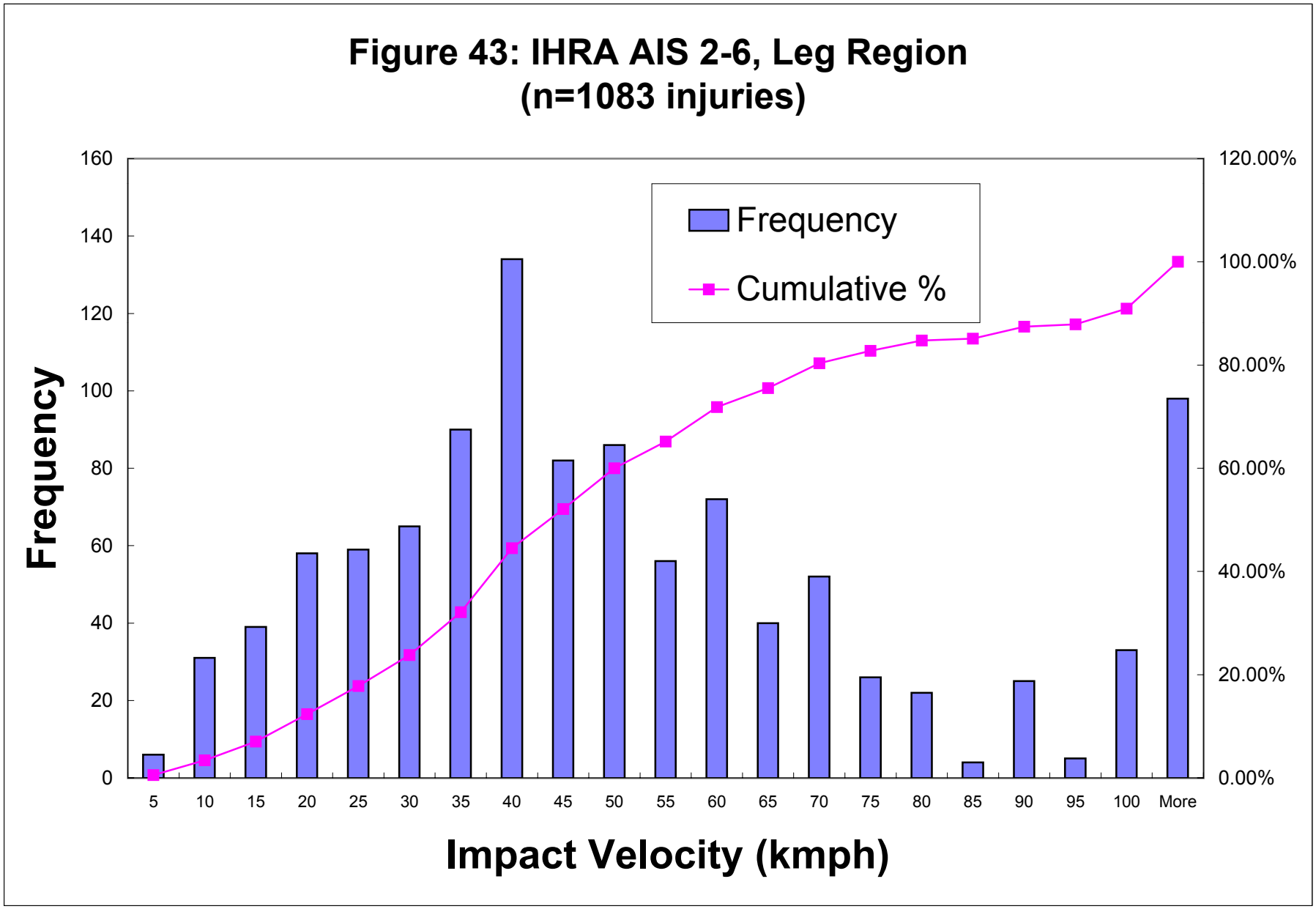


Figure 43: IHRA AIS 2-6, Leg Region
(n=1083 injuries)
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
20
40
60
80
100
120
140
160
0.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

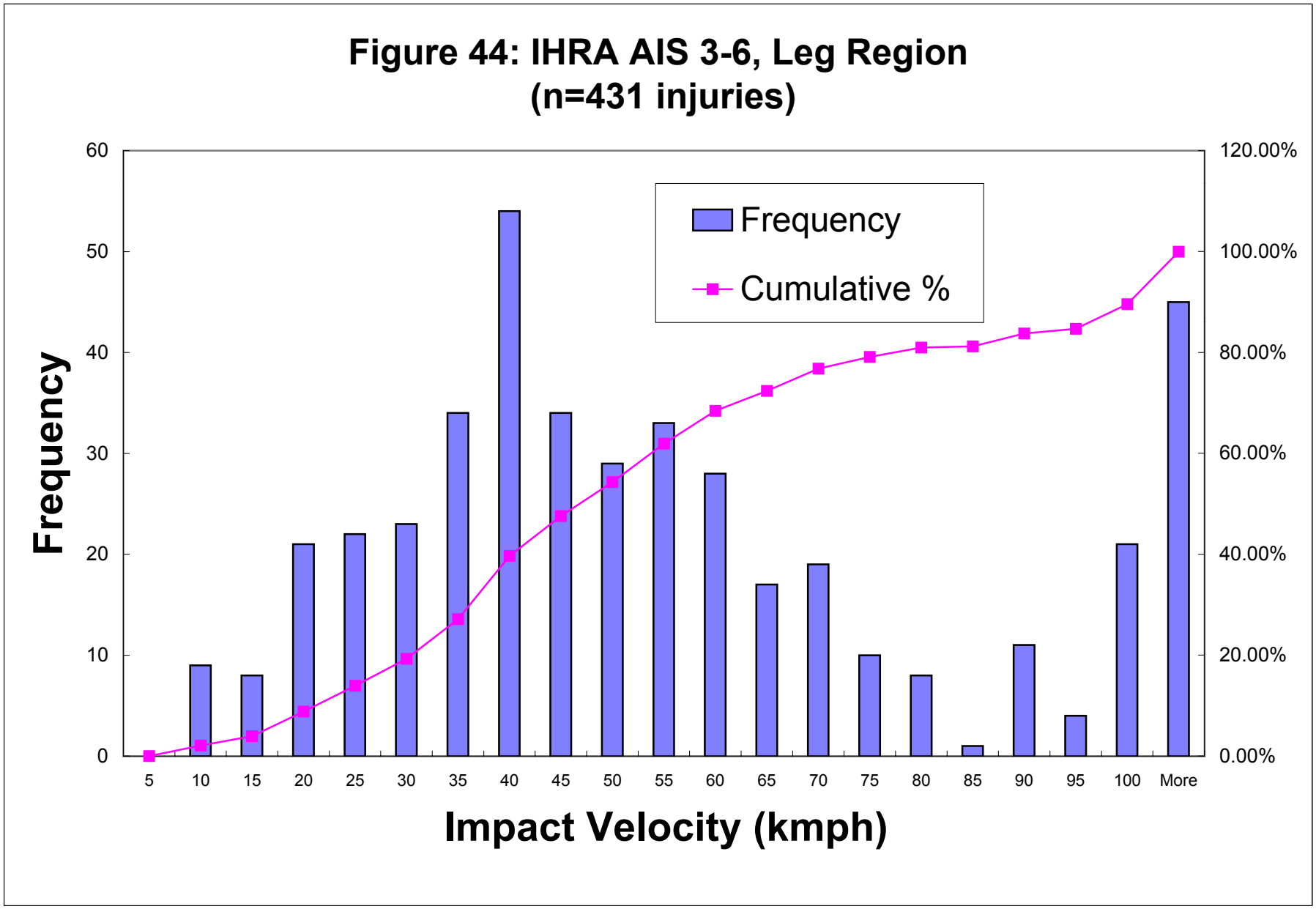


Figure 44: IHRA AIS 3-6, Leg Region
(n=431 injuries)
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
10
20
30
40
50
60
0.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

Figure 45: IHRA Impact Velocity for Different AIS Segments (All Body Regions), Age < 16

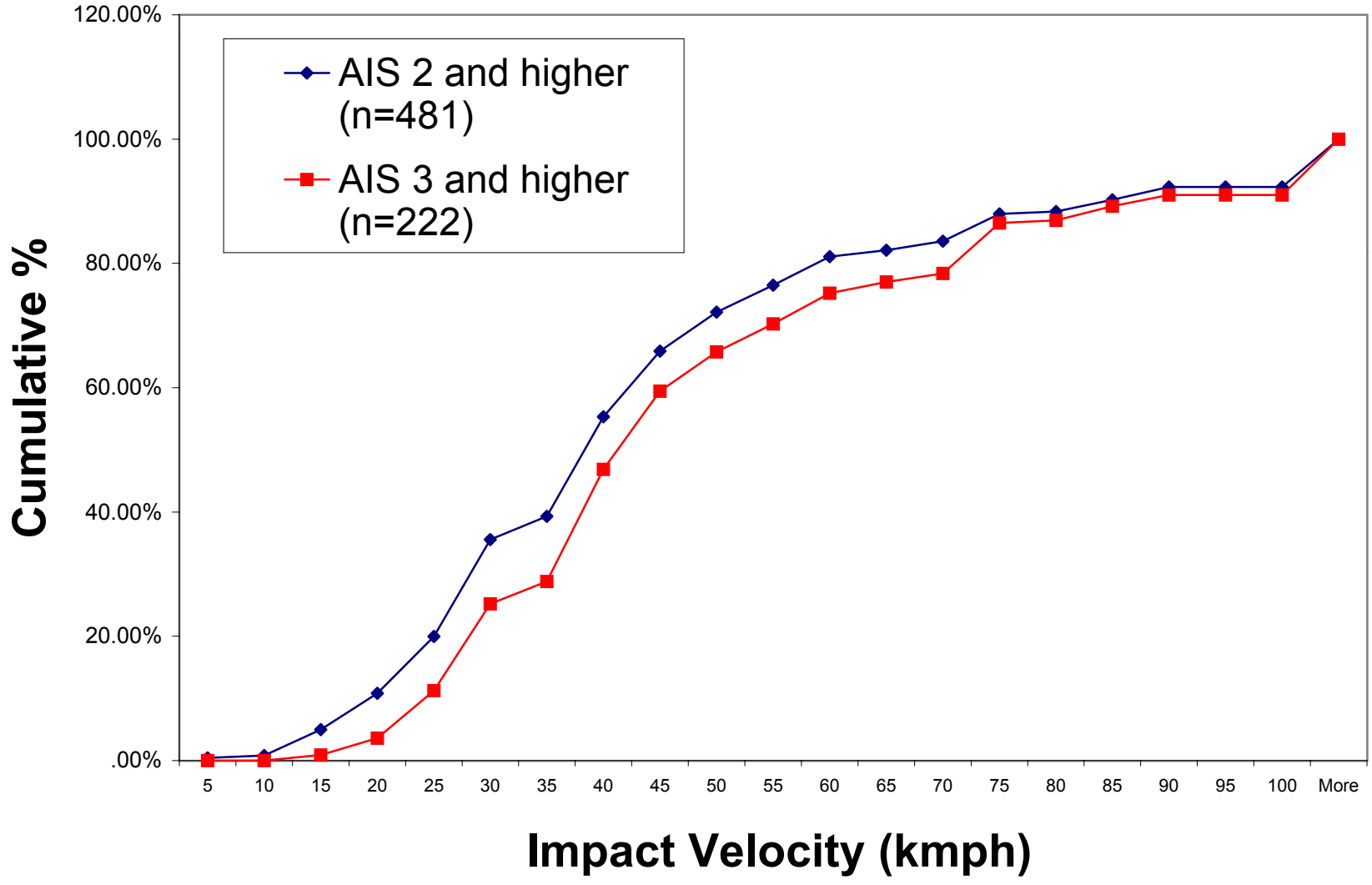


Figure 46: IHRA Impact Velocity for Different AIS Segments (Head Region), Age < 16

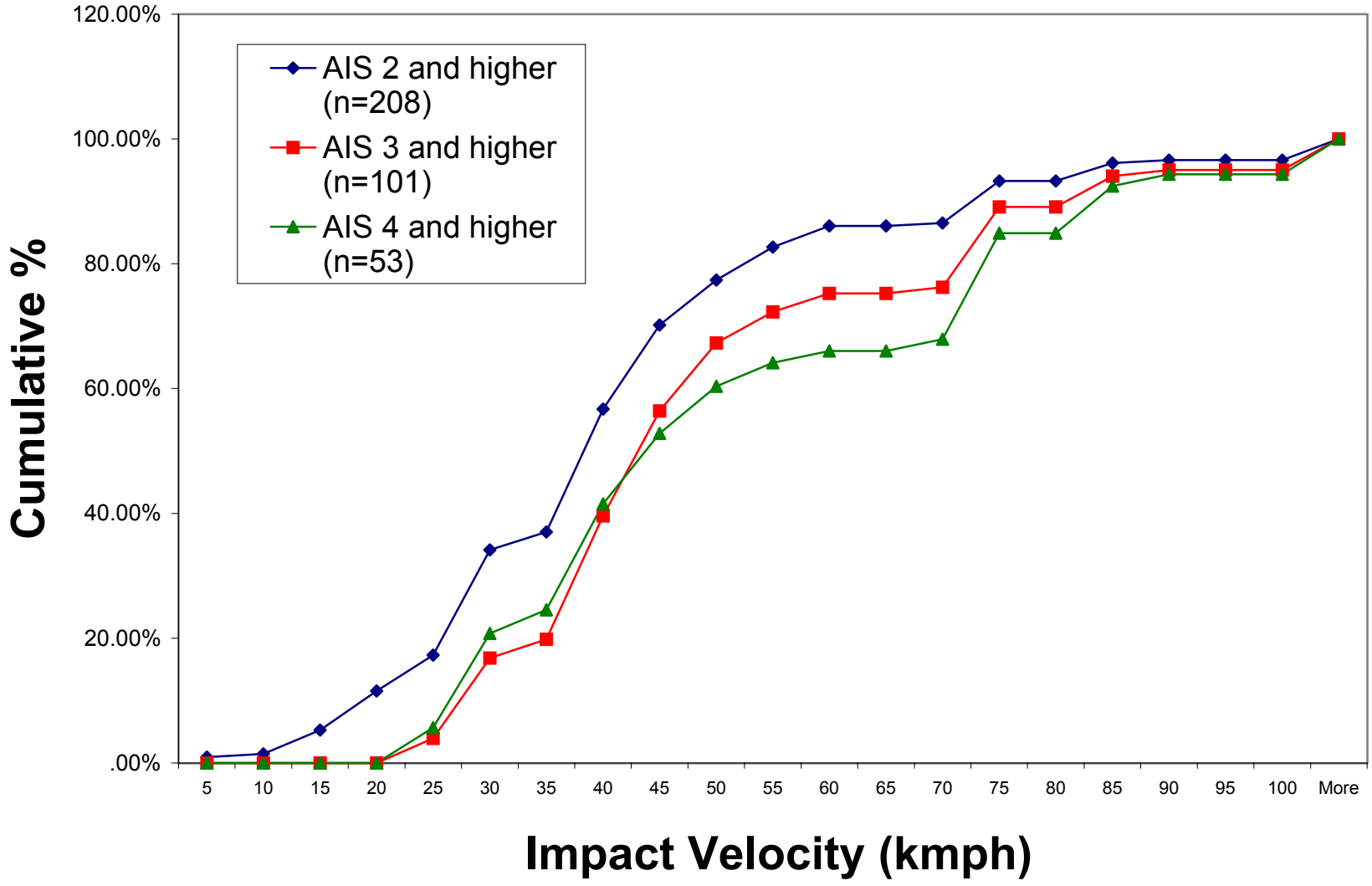
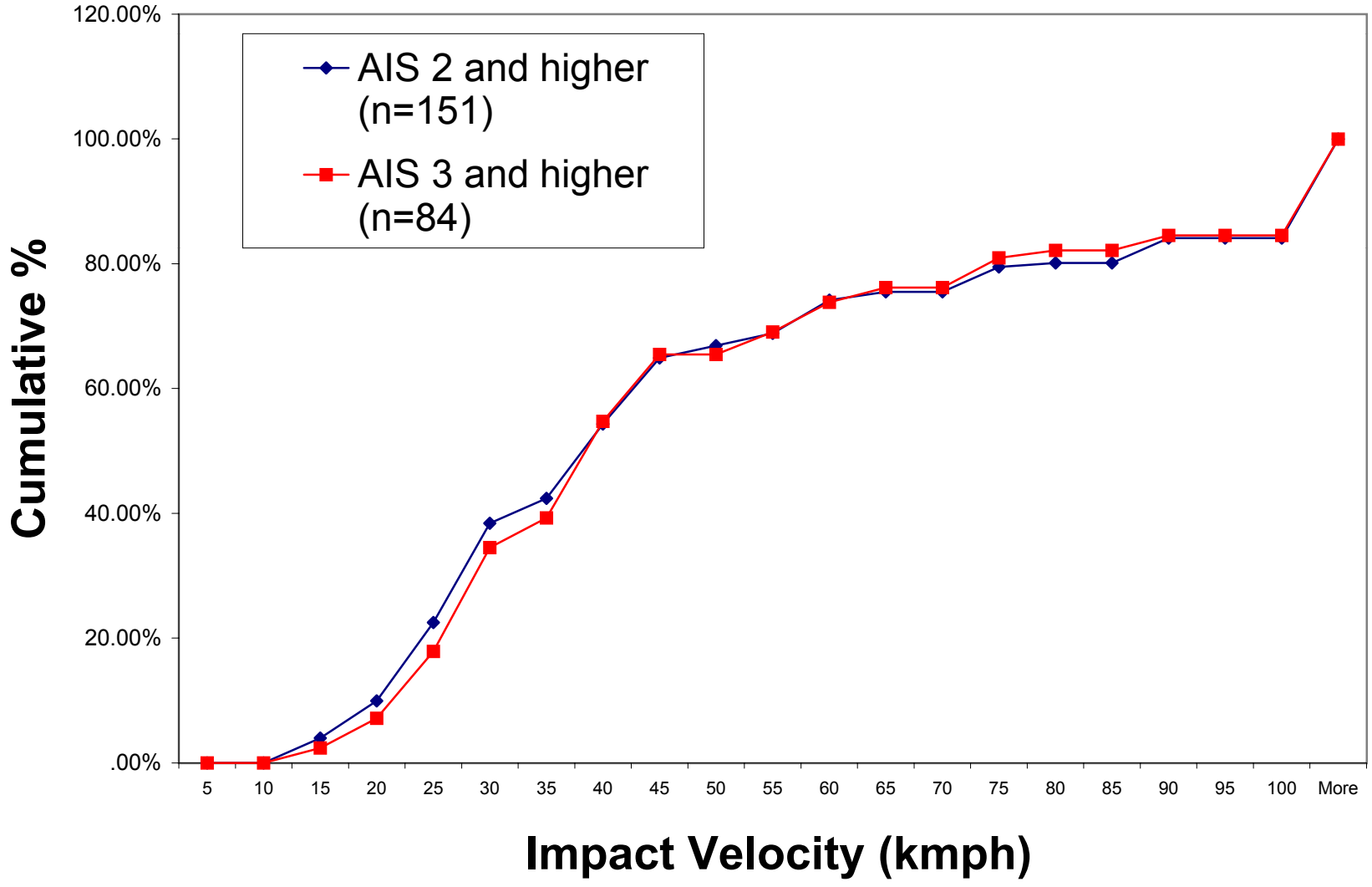


Figure 47: IHRA Impact Velocity for Different AIS Segments (Leg Region), Age < 16



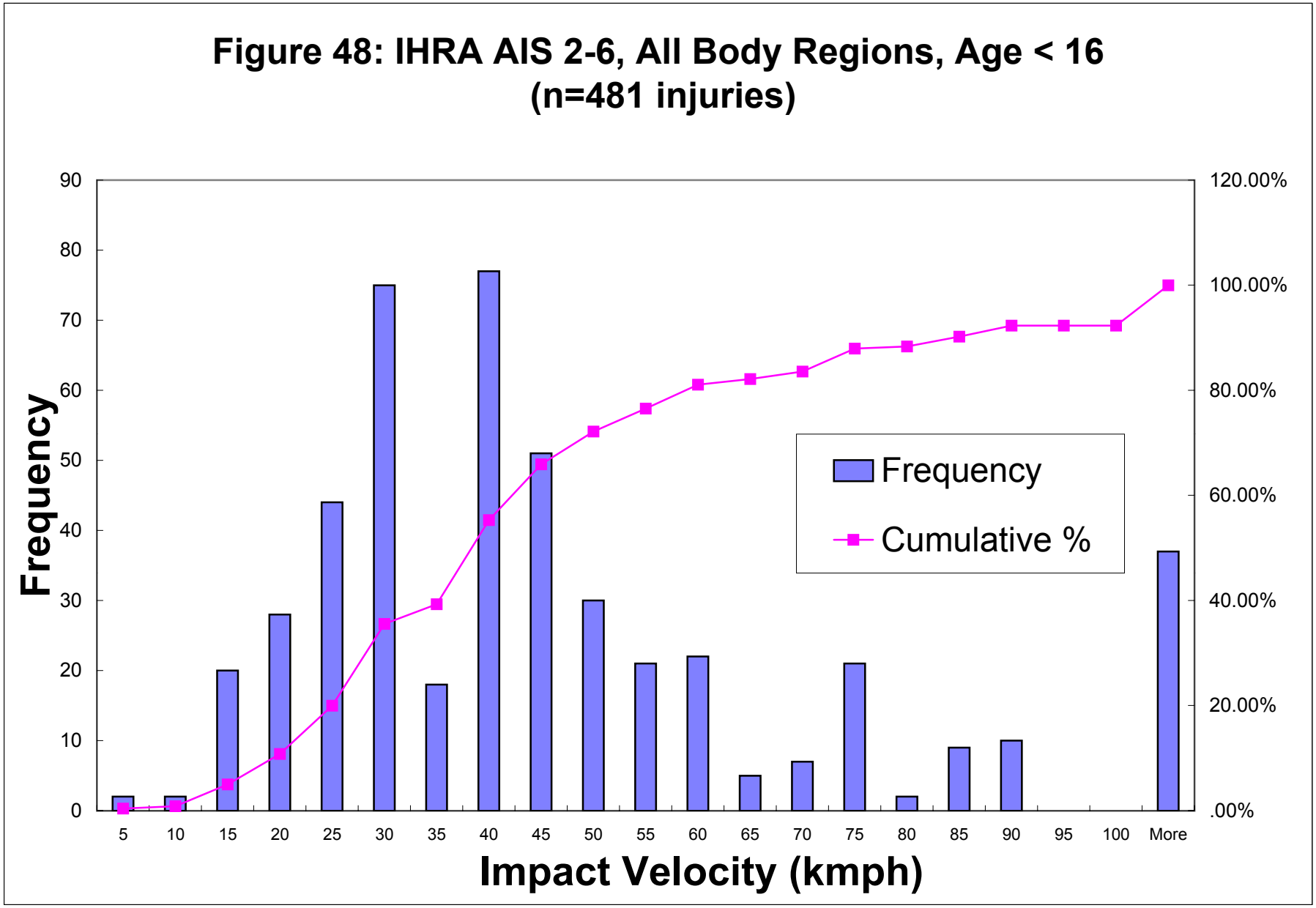


Figure 48: IHRA AIS 2-6, All Body Regions, Age < 16
(n=481 injuries)
Frequency
Impact Velocity (kmph)
Frequency
Cumulative %
0
10
20
30
40
50
60
70
80
90
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

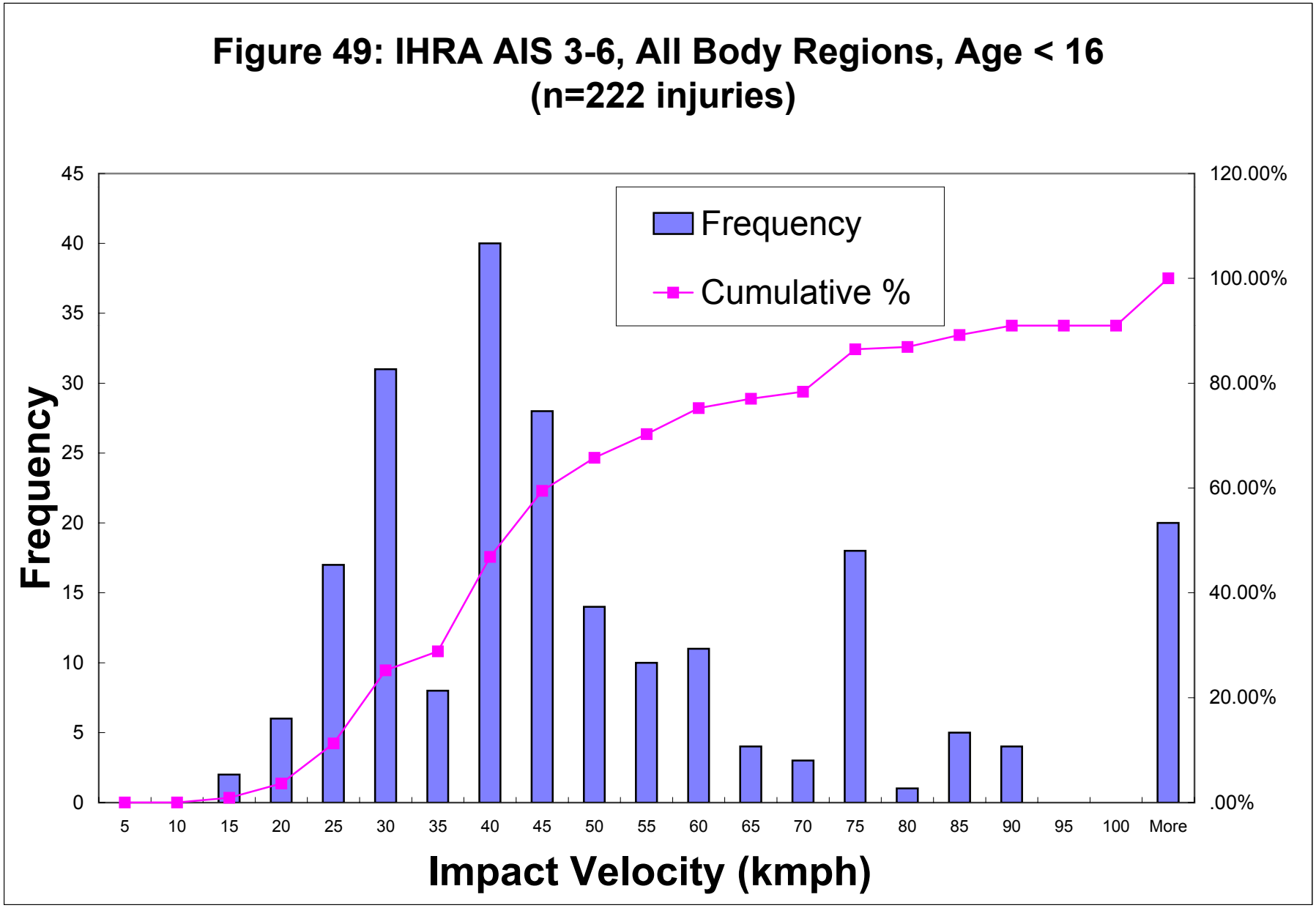


Figure 49: IHRA AIS 3-6, All Body Regions, Age < 16
(n=222 injuries)
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
5
10
15
20
25
30
35
40
45
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

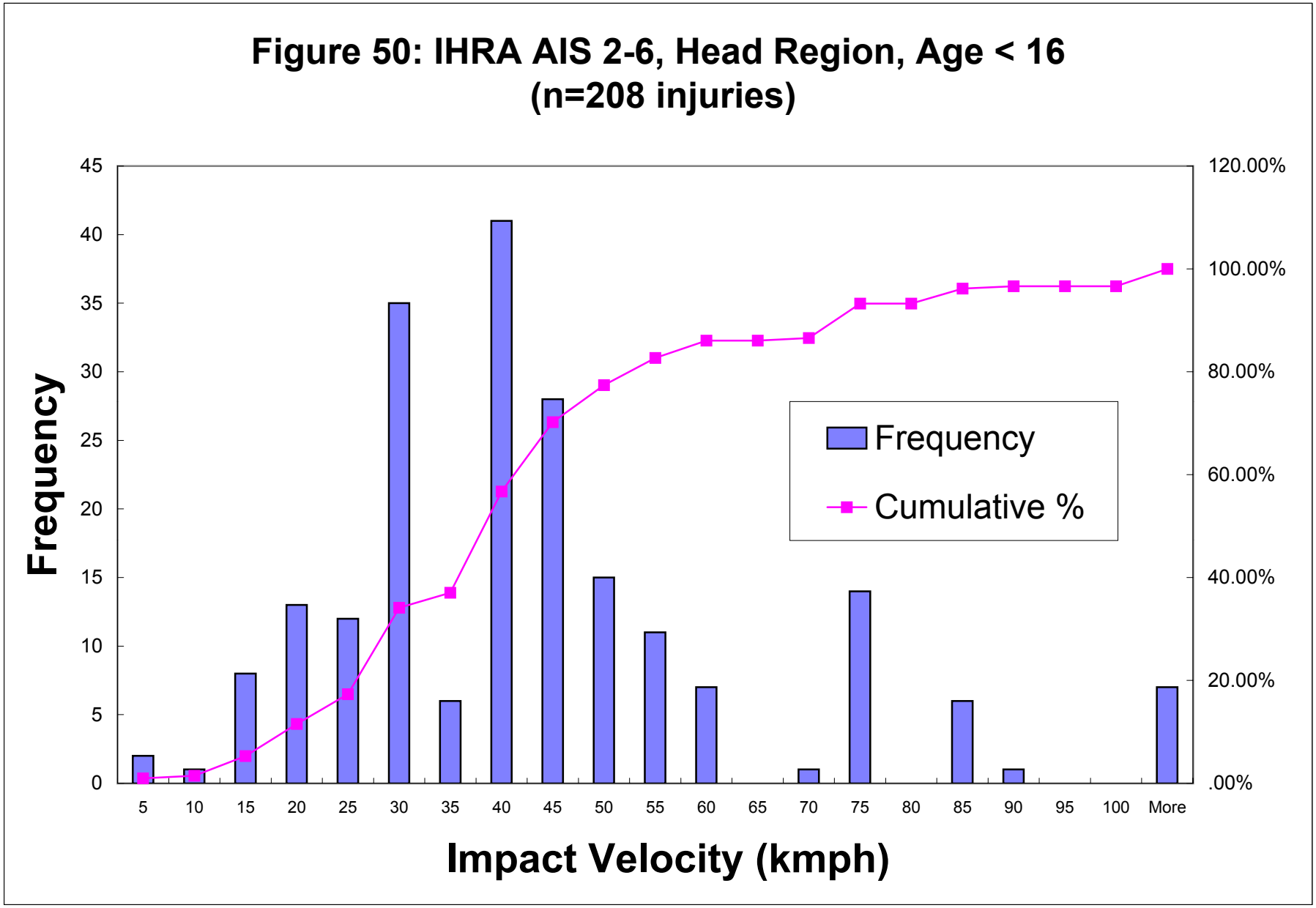


Figure 50: IHRA AIS 2-6, Head Region, Age < 16
(n=208 injuries)
Frequency
45
40
35
30
25
20
15
10
5
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
Frequency
Cumulative %
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More
Impact Velocity (kmph)

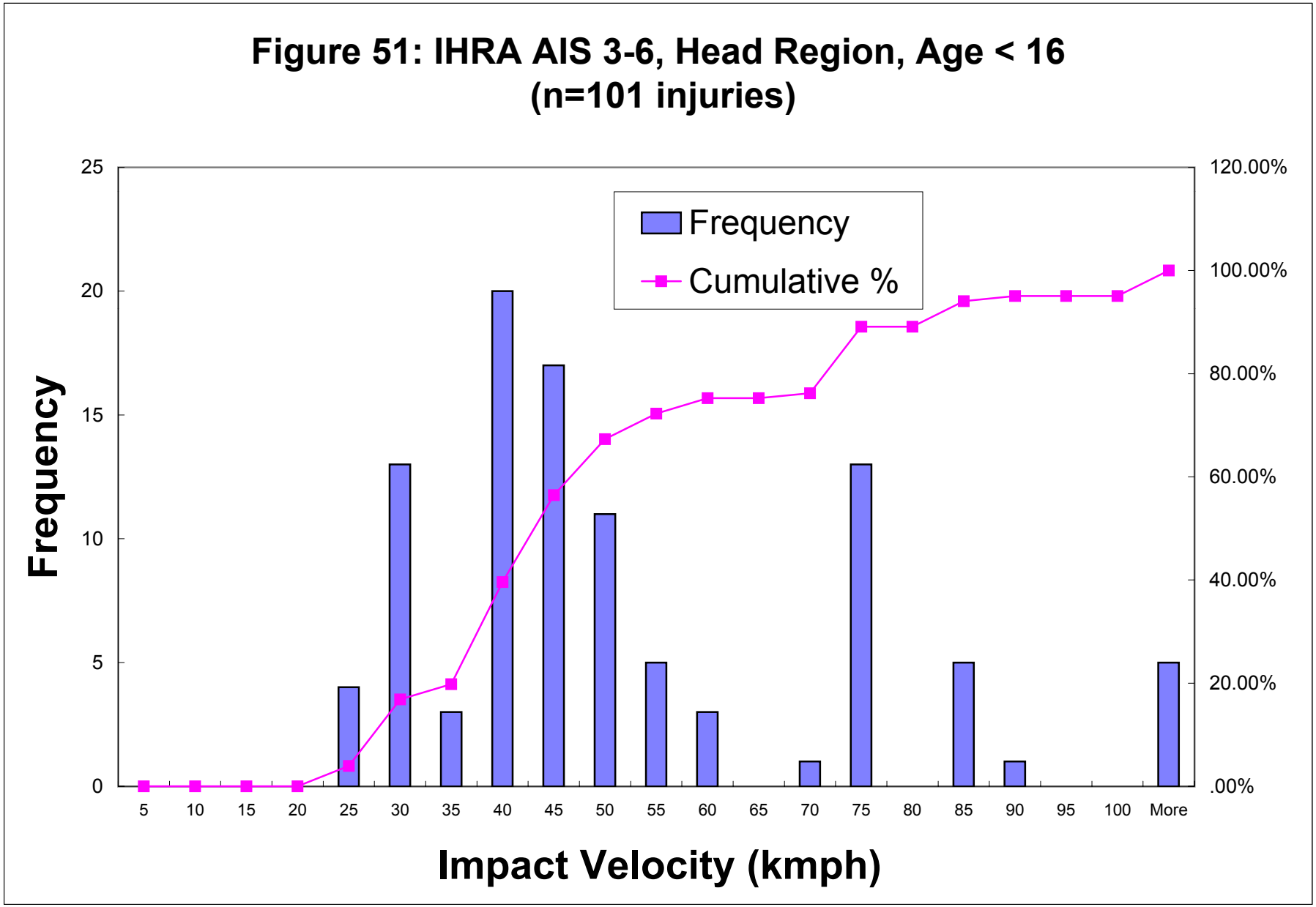


Figure 51: IHRA AIS 3-6, Head Region, Age < 16
(n=101 injuries)
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
5
10
15
20
25
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

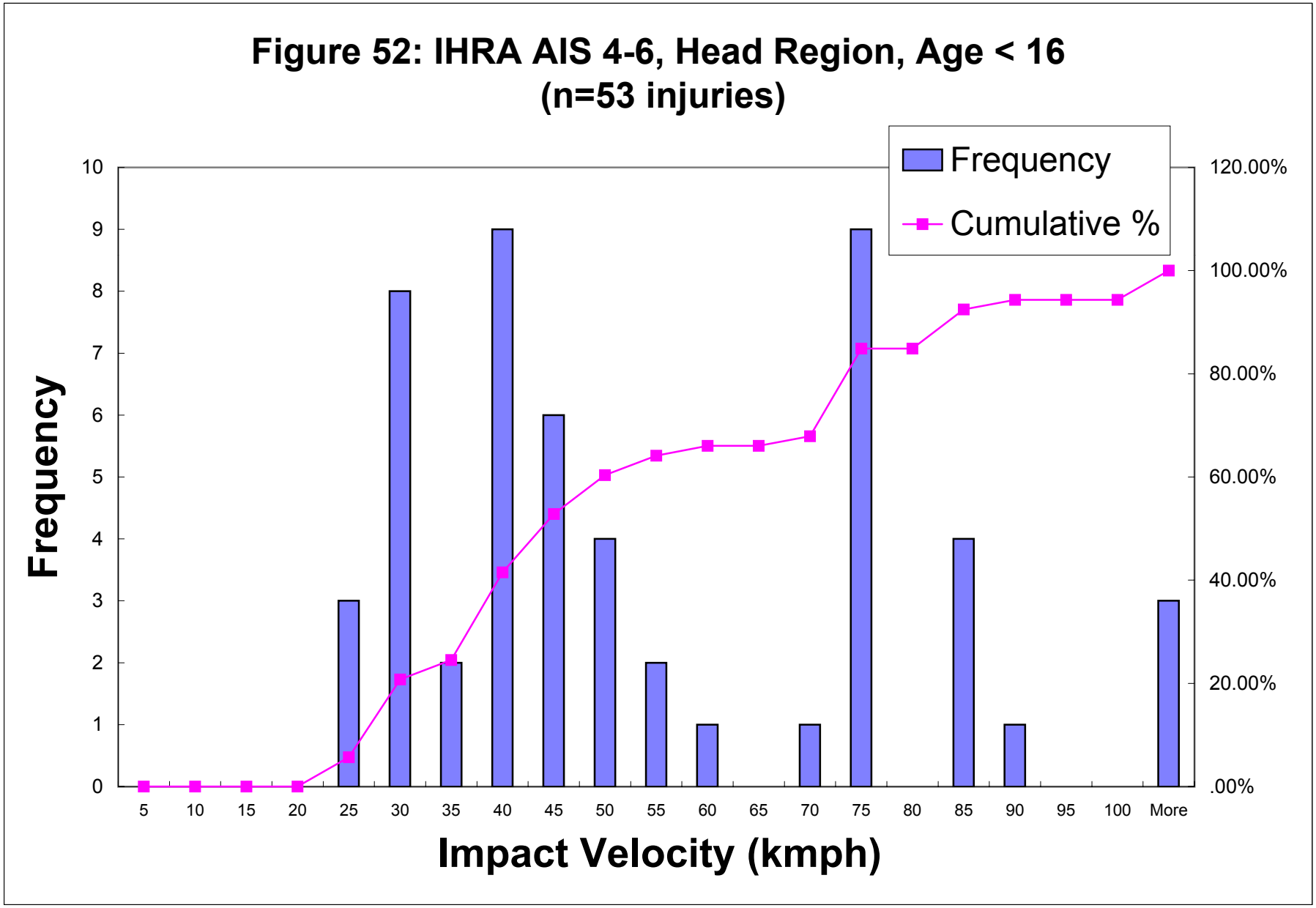


Figure 52: IHRA AIS 4-6, Head Region, Age < 16
(n=53 injuries)
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
1
2
3
4
5
6
7
8
9
10
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

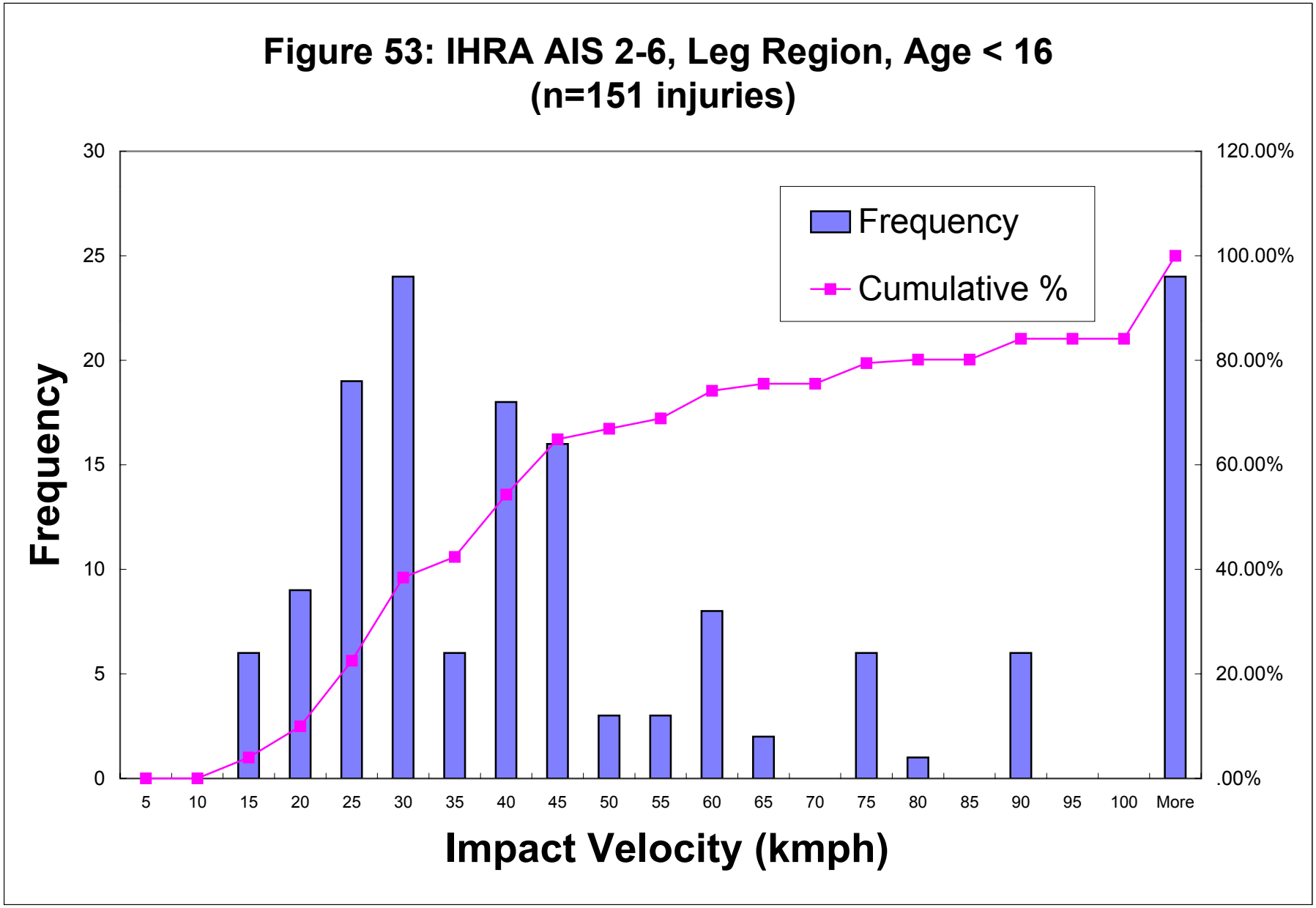


Figure 53: IHRA AIS 2-6, Leg Region, Age < 16
(n=151 injuries)
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
5
10
15
20
25
30
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

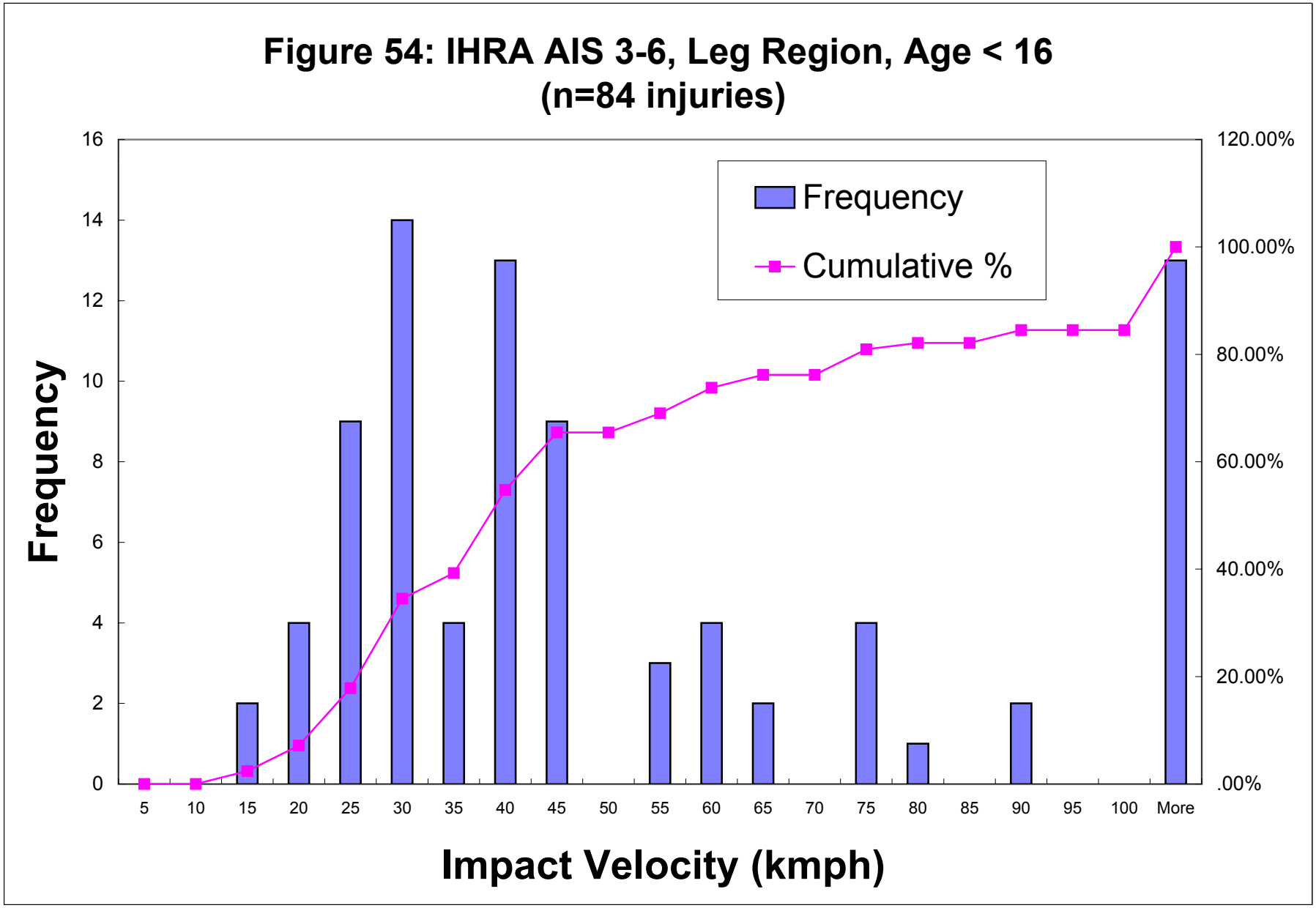


Figure 54: IHRA AIS 3-6, Leg Region, Age < 16
(n=84 injuries)
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
2
4
6
8
10
12
14
16
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

Figure 55: IHRA Impact Velocity for Different AIS Segments (All Body Regions), Age > 15

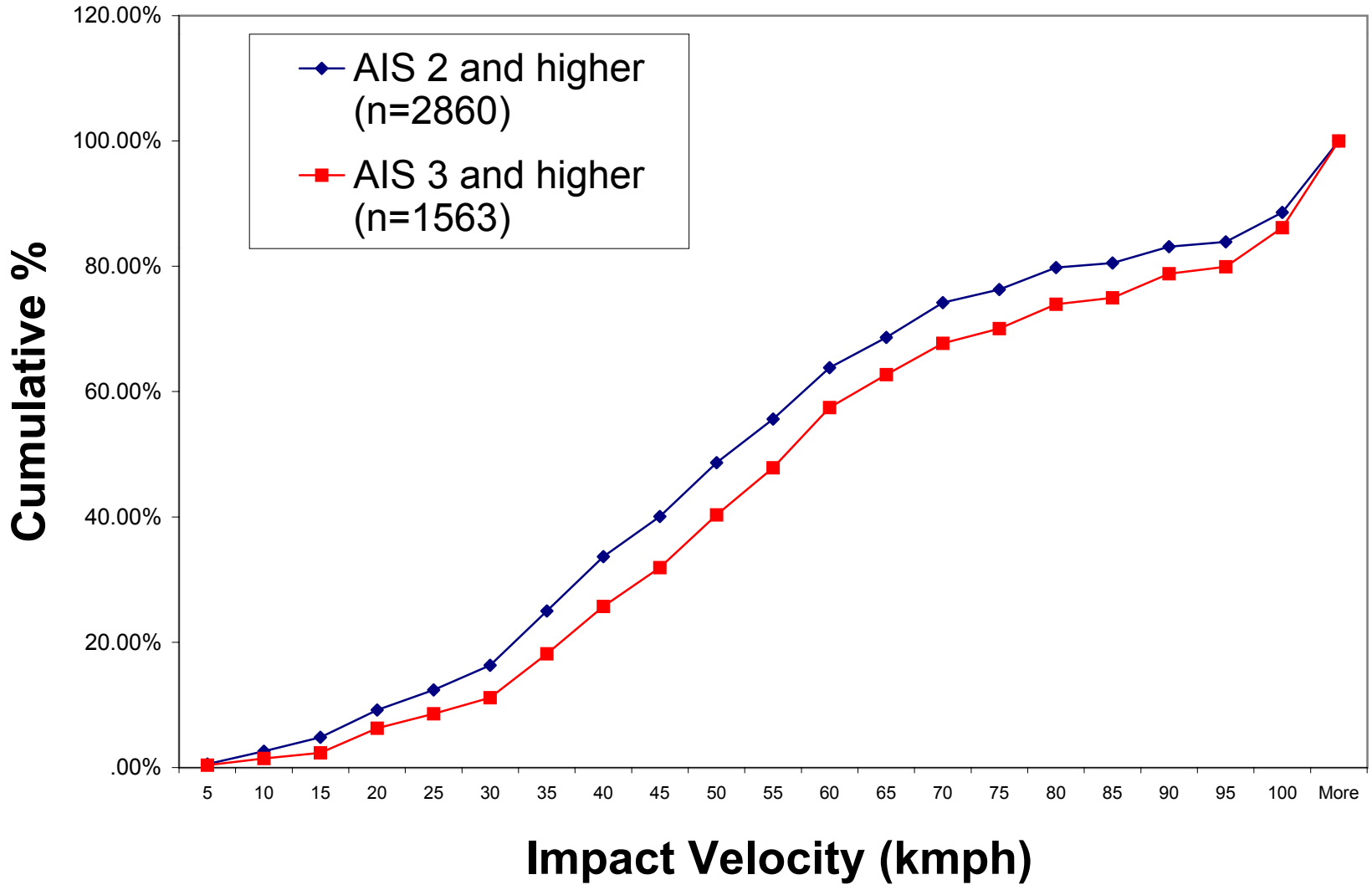


Figure 56: IHRA Impact Velocity for Different AIS Segments (Head Region), Age > 15

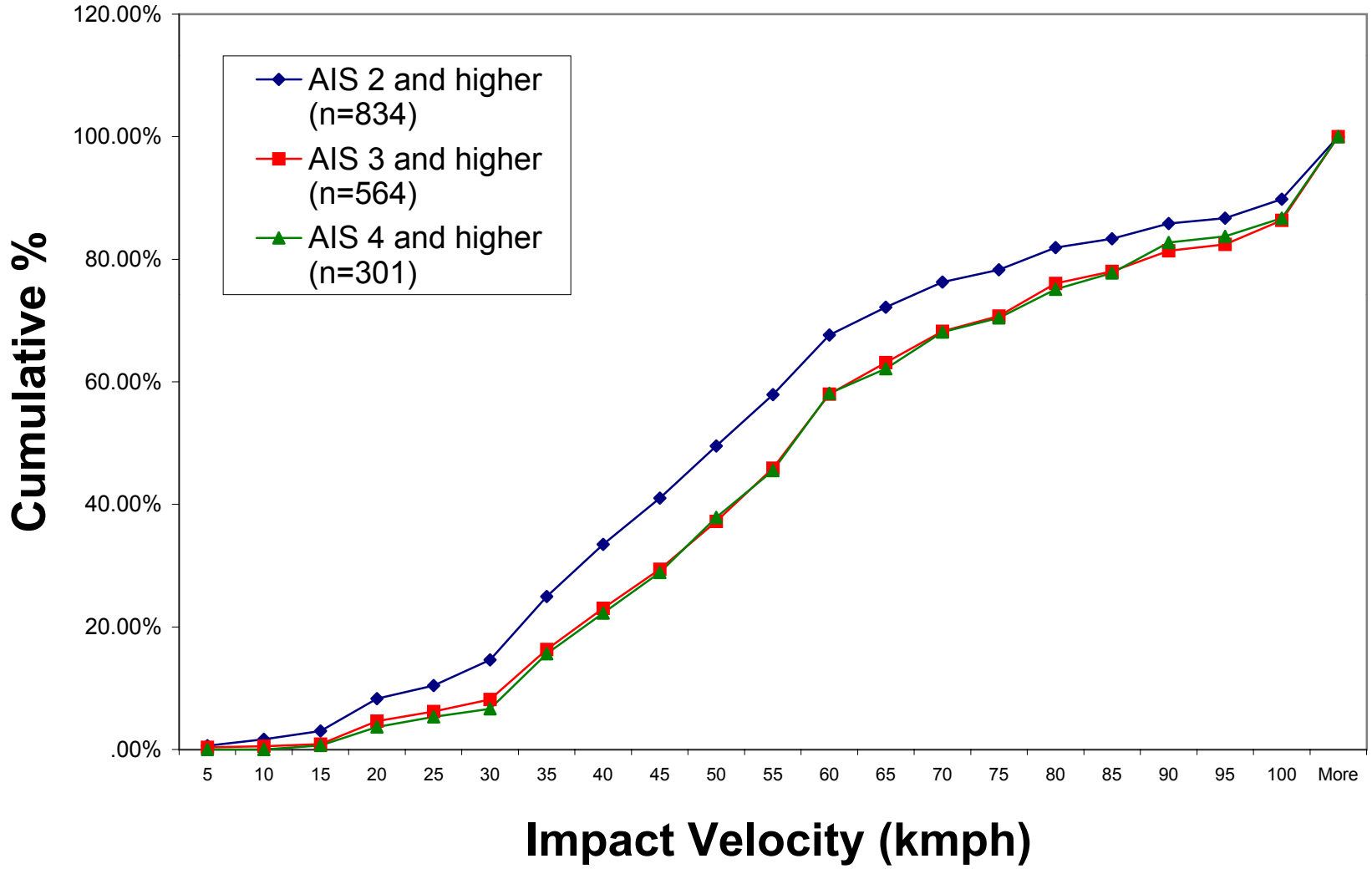
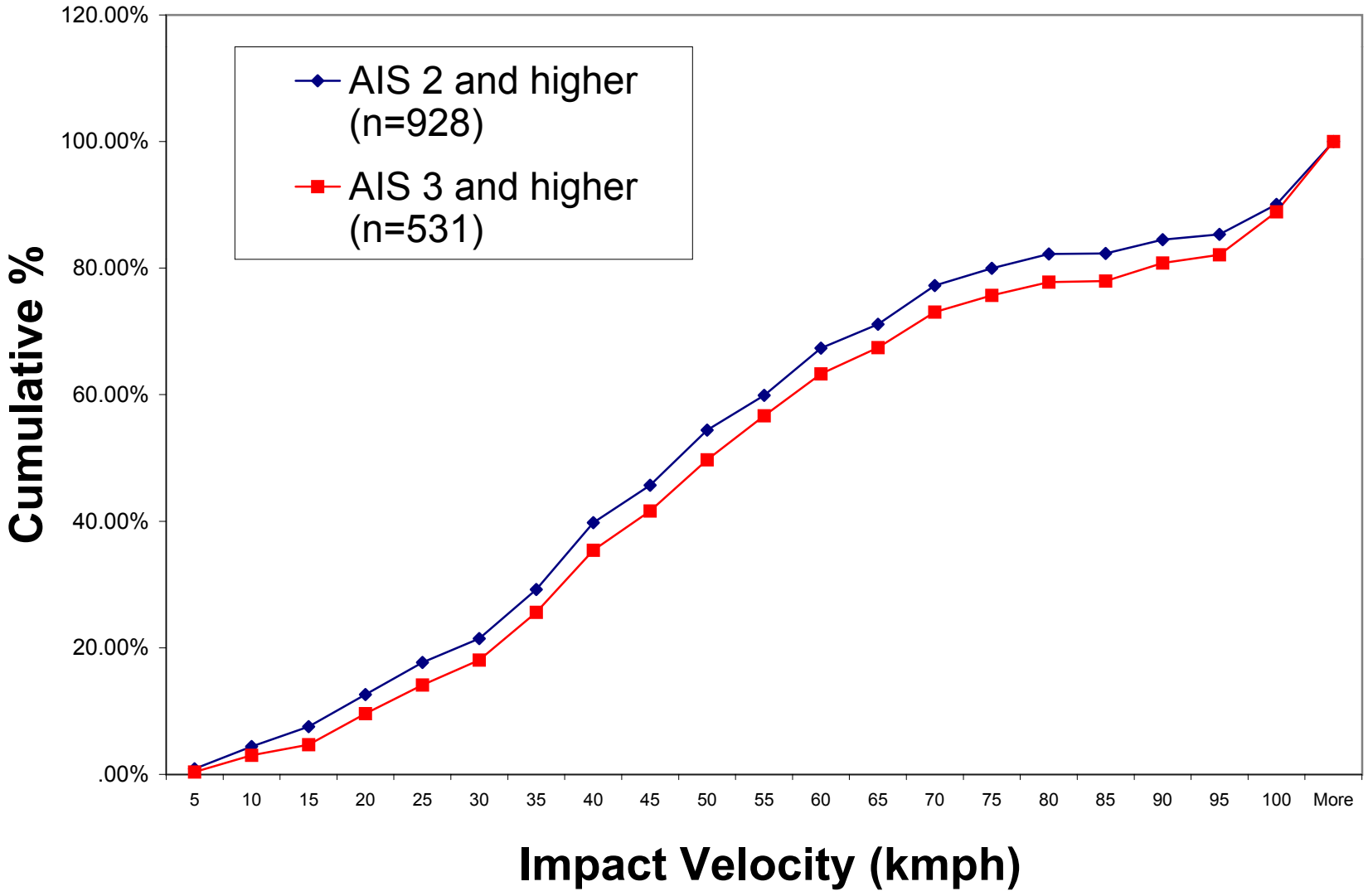


Figure 57: IHRA Impact Velocity for Different AIS Segments (Leg Region), Age > 15



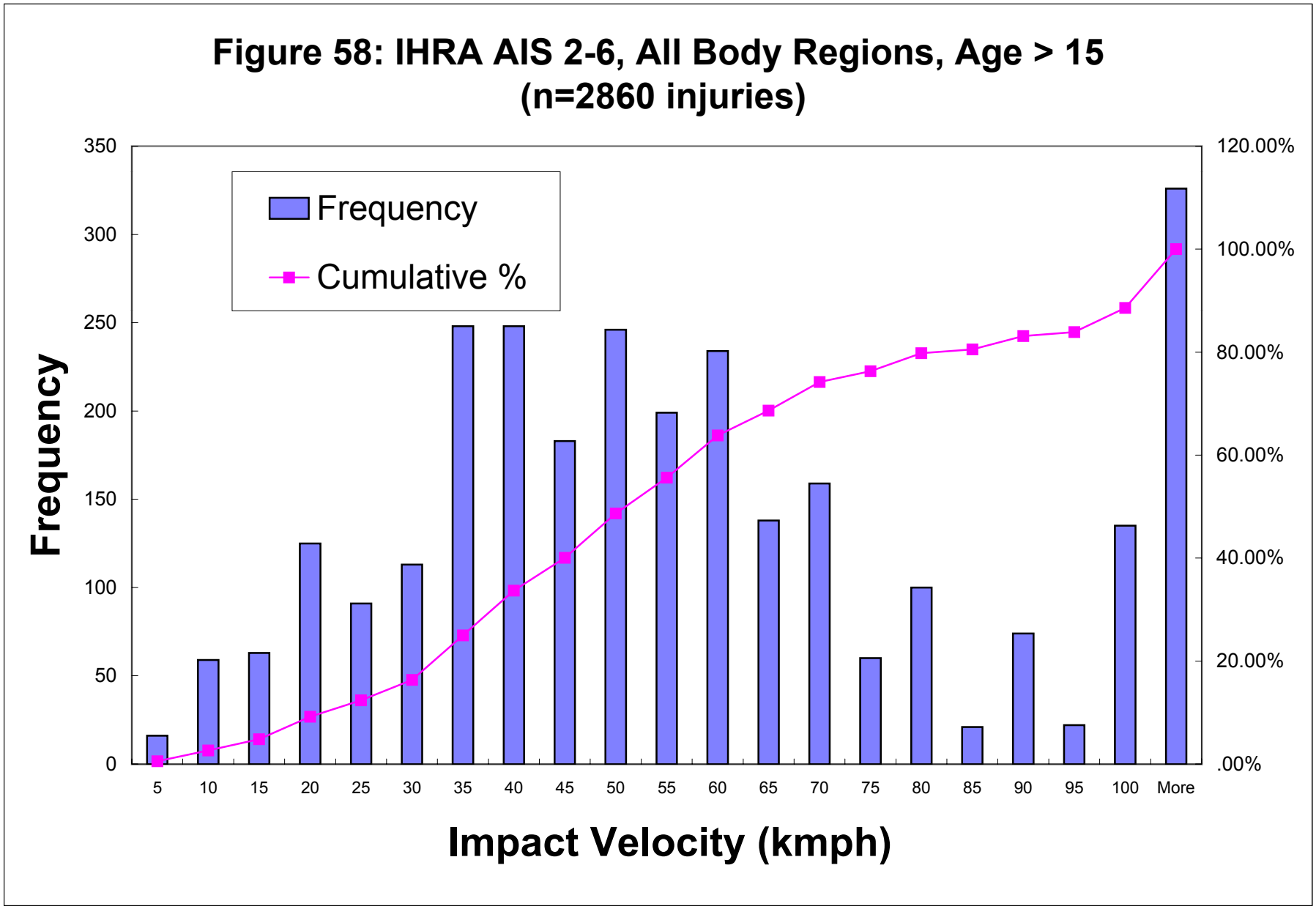


Figure 58: IHRA AIS 2-6, All Body Regions, Age > 15
(n=2860 injuries)
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
350
300
250
200
150
100
50
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

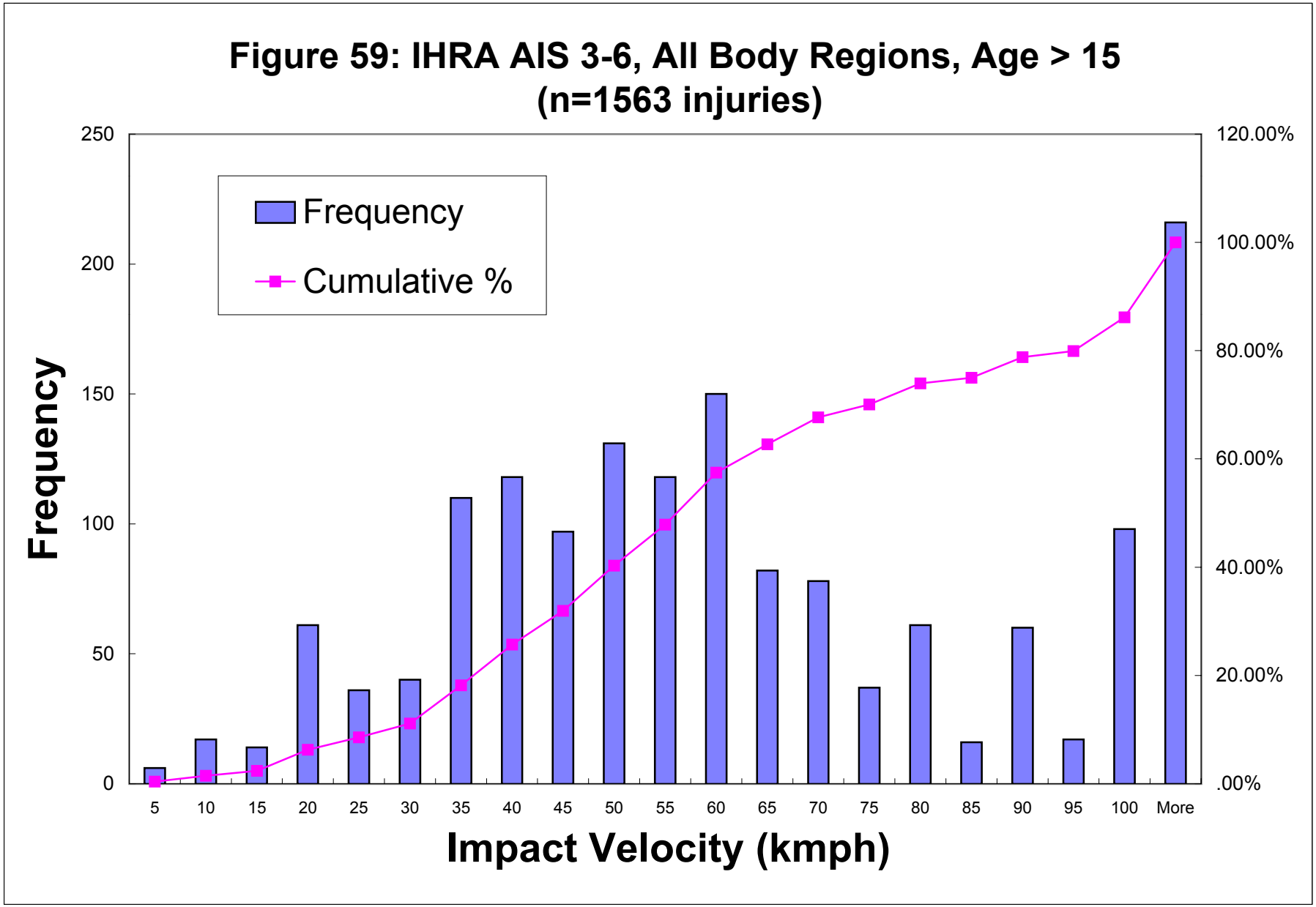


Figure 59: IHRA AIS 3-6, All Body Regions, Age > 15
(n=1563 injuries)
Frequency
Cumulative %
Frequency
250
200
150
100
50
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More
Impact Velocity (kmph)

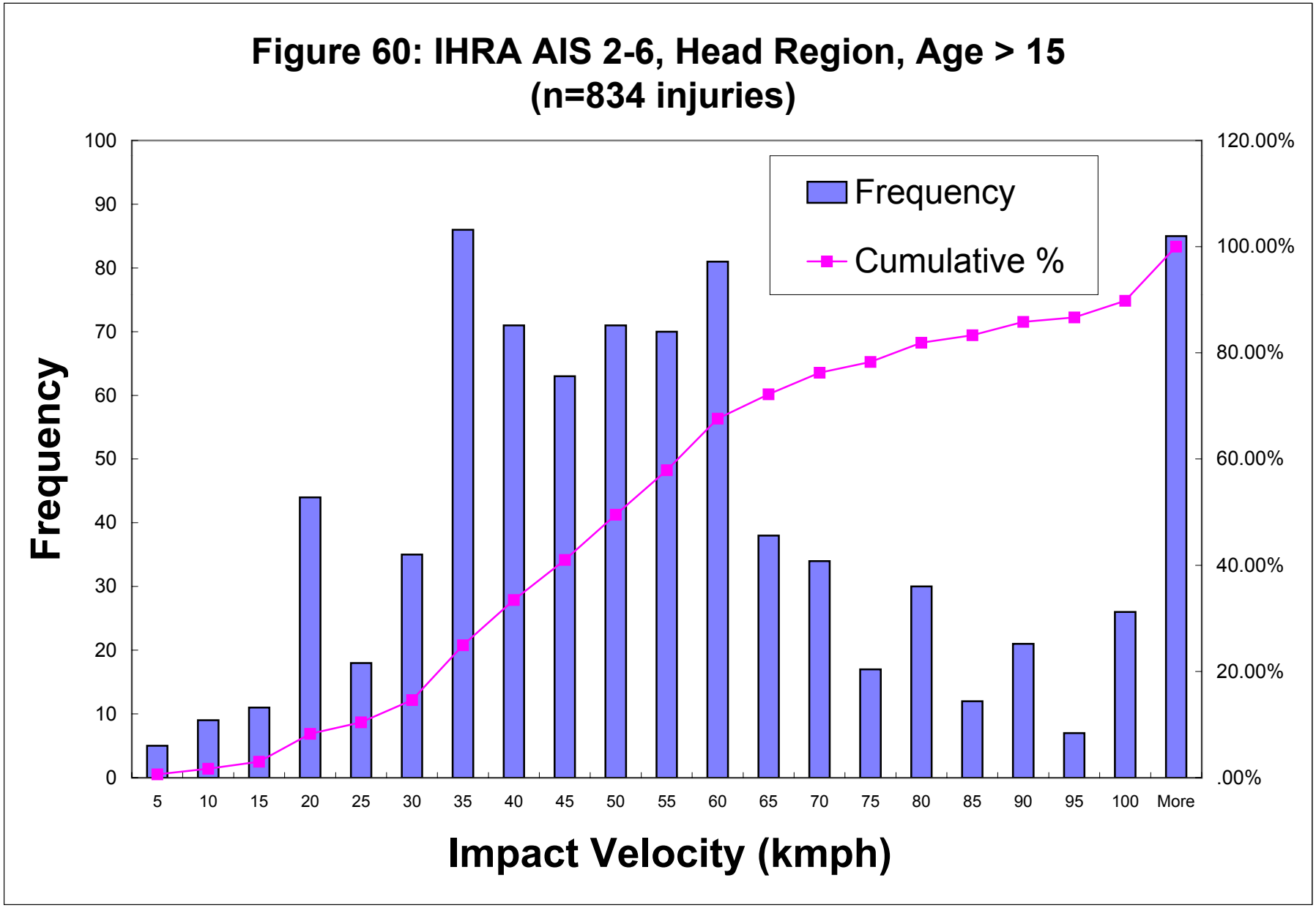


Figure 60: IHRA AIS 2-6, Head Region, Age > 15
(n=834 injuries)
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
10
20
30
40
50
60
70
80
90
100
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

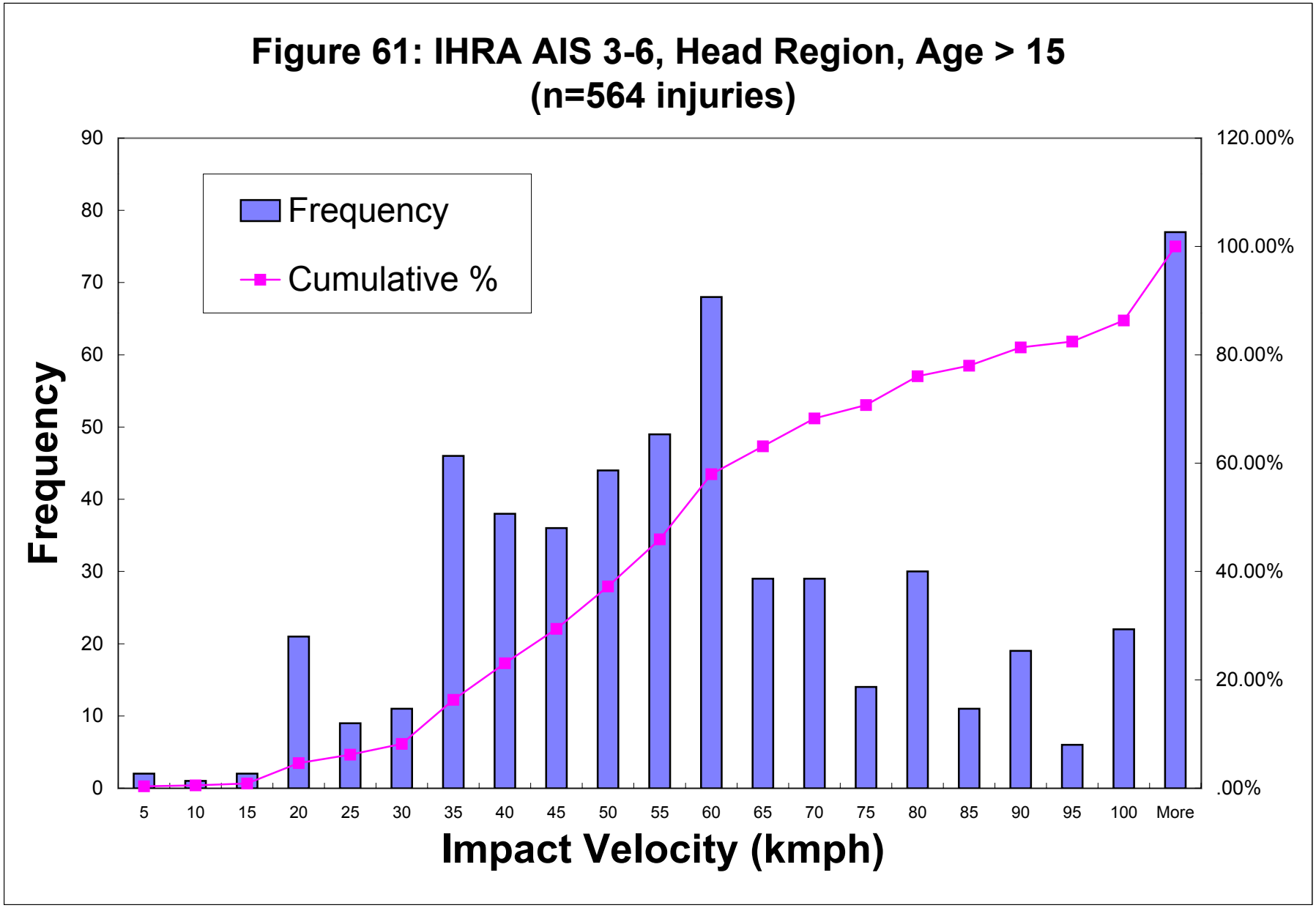


Figure 61: IHRA AIS 3-6, Head Region, Age > 15
(n=564 injuries)
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
10
20
30
40
50
60
70
80
90
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

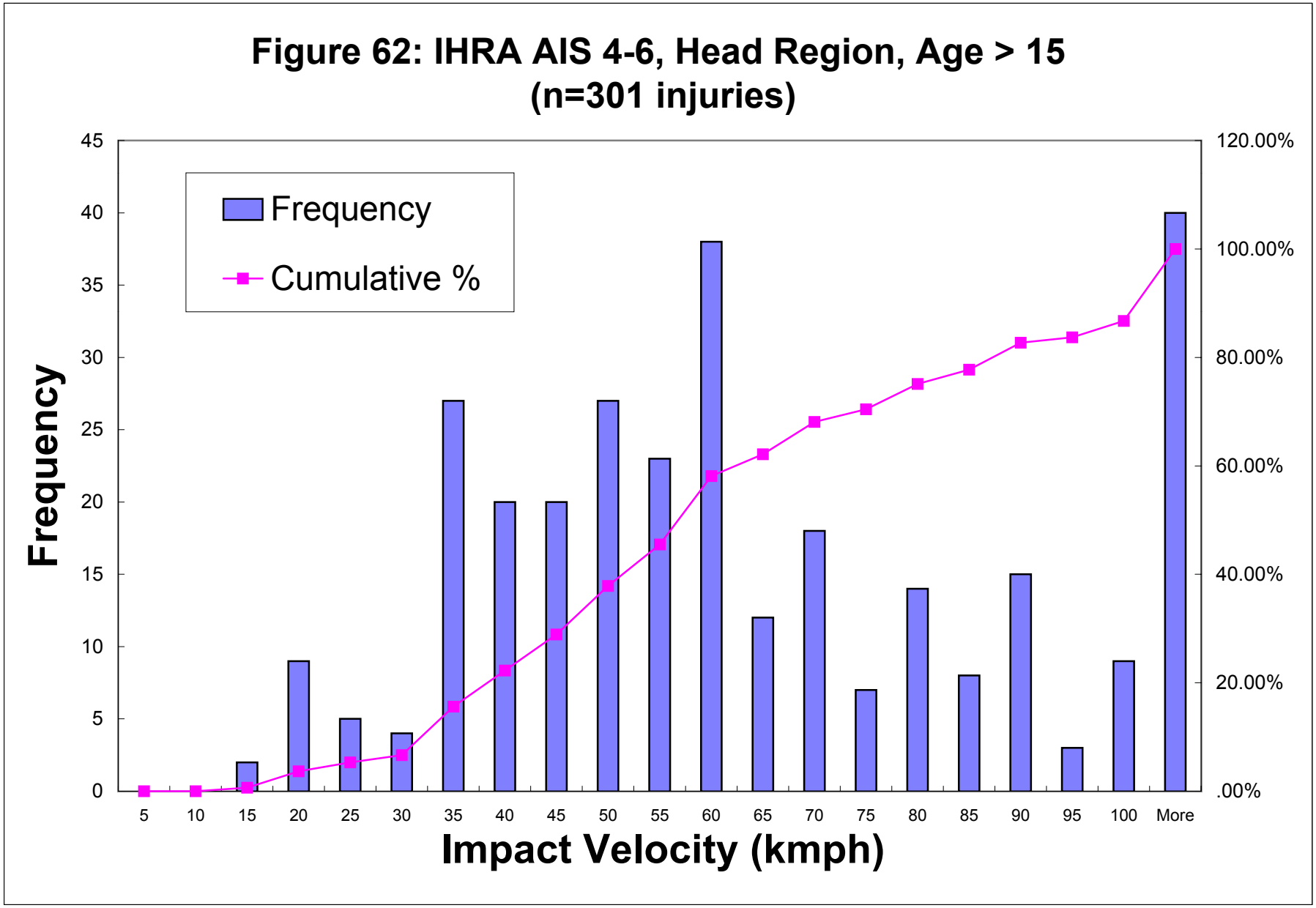


Figure 62: IHRA AIS 4-6, Head Region, Age > 15
(n=301 injuries)
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
5
10
15
20
25
30
35
40
45
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

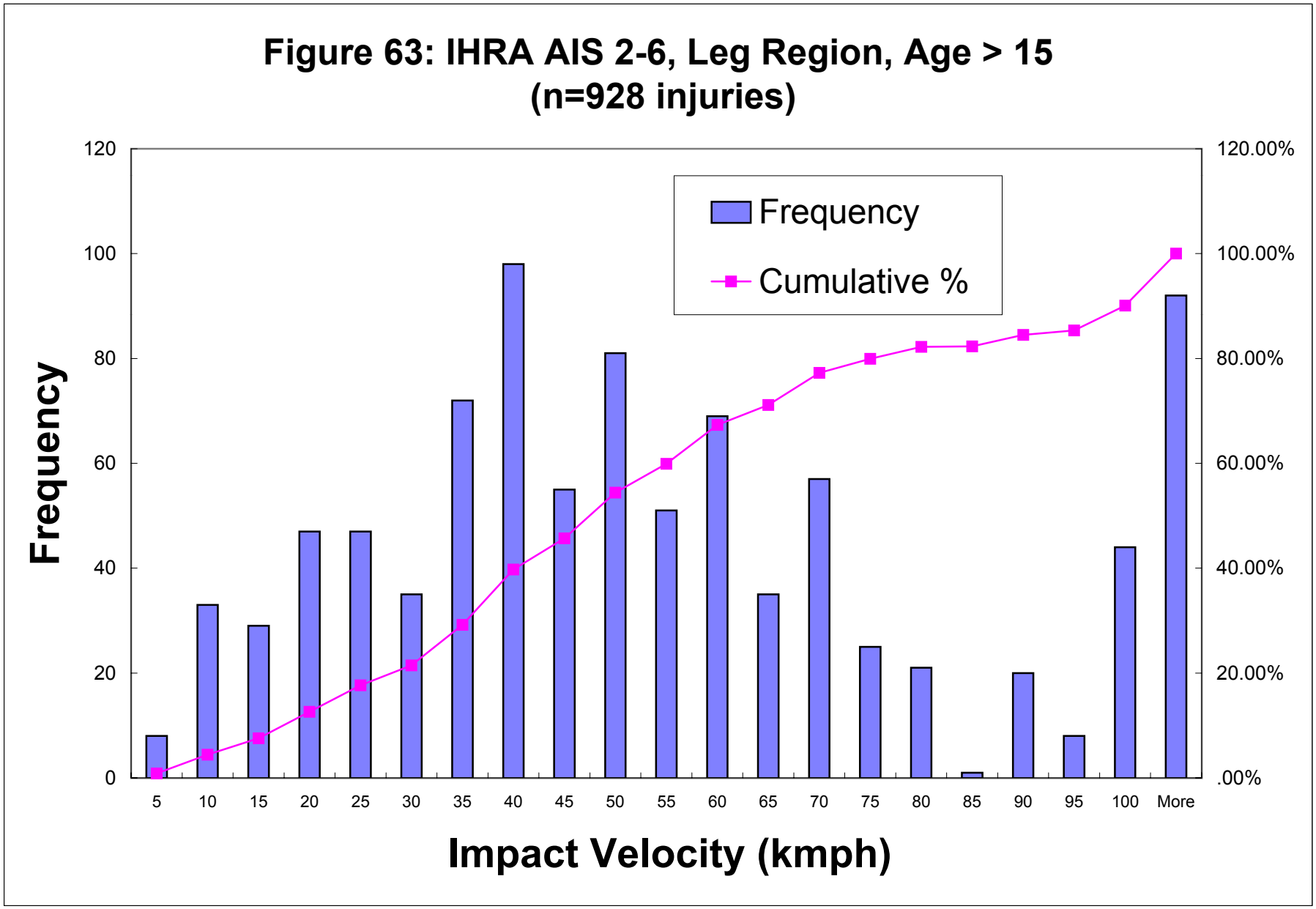


Figure 63: IHRA AIS 2-6, Leg Region, Age > 15
(n=928 injuries)
Frequency
Cumulative %
Frequency
120
100
80
60
40
20
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More
Impact Velocity (kmph)

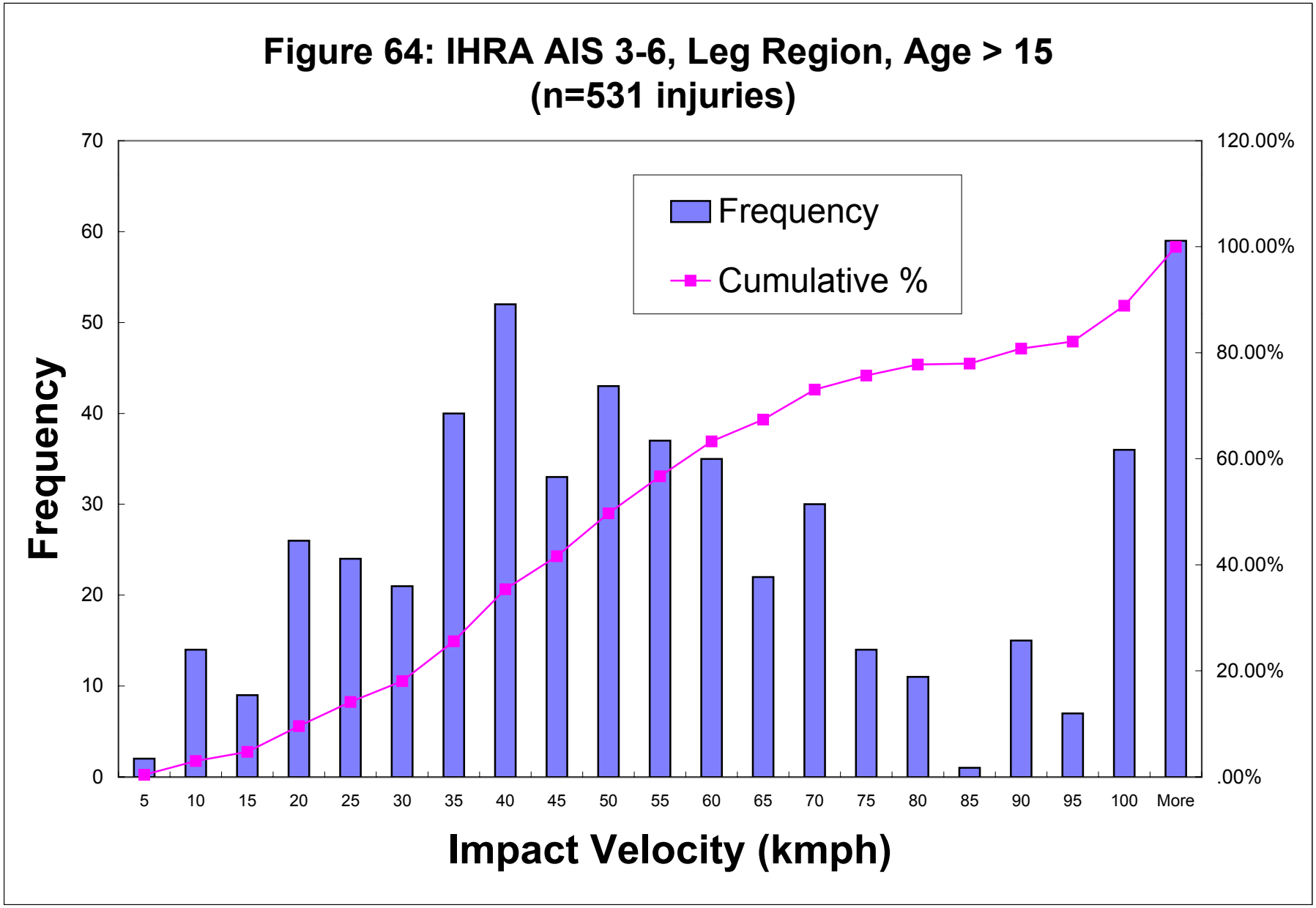


Figure 64: IHRA AIS 3-6, Leg Region, Age > 15
(n=531 injuries)
Frequency
Cumulative %
Frequency
Impact Velocity (kmph)
0
10
20
30
40
50
60
70
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
More

Appendix D: Adult Head Test Method (Draft)

Adult head test method is now under discussion and will be incorporated in the future report.

Appendix E: Child Head Test Method (Draft)

Child head test method is now under discussion and will be incorporated in the future report.

Appendix F: Document List of IHRA/Pedestrian Safety WG

No.	Submitted by		Title	Distributed at
IHRA/PS/ 1	JAPAN		PROGRESS REPORT I IHRA/PEDESTRIAN SAFETY	1st Meeting
IHRA/PS/ 2	JAPAN		PROGRESS REPORT II IHRA/PEDESTRIAN SAFETY	1st Meeting
IHRA/PS/ 3	JAPAN		ESV/IHRA PROJECT PEDESTRIAN SAFETY PLAN	1st Meeting
IHRA/PS/ 4	JAPAN		ESV/IHRA PROJECT PEDESTRIAN SAFETY ACCIDENT PROCEDURE	1st Meeting
IHRA/PS/ 5	JAPAN		ESV/IHRA PROJECT PEDESTRIAN SAFETY REVIEW OF FRUITS OF PAST STUDIES AND STUDY ON PENDING TECHNICAL ITEMS PROCEDURE	1st Meeting
IHRA/PS/ 6	JAPAN		ESV/IHRA PROJECT PEDESTRIAN SAFETY SURVEY OF THE EFFECT OF INVESTMENT IN TRAFFIC SAFETY FACILITIES PROCEDURE	1st Meeting
IHRA/PS/ 7	JAPAN		ESV/IHRA PROJECT PEDESTRIAN SAFETY STUDY ON BIOMECHANICS PROCEDURE	1st Meeting
IHRA/PS/ 8	JAPAN		ESV/IHRA PROJECT PEDESTRIAN SAFETY PREPARATION OF UNIFIED TEST PROCEDURE	1st Meeting
IHRA/PS/ 9	JAPAN		ESV/IHRA PROJECT PEDESTRIAN SAFETY REVIEW OF FRUITS OF PAST STUDIES AND SAMPLING ON PENDING TECHNICAL ITEMS	1st Meeting
IHRA/PS/ 10	JAPAN		Current Situation of Pedestrian Accident in Japan	1st Meeting
IHRA/PS/ 11	JAPAN		The Present Situation of Pedestrian Accidents in Japan	1st Meeting
IHRA/PS/ 12	JAPAN		Current Situation of Pedestrian Accidents and Research into Pedestrian Protection in Japan	1st Meeting
IHRA/PS/ 13	USA		Technical Report Problem Determination, Vehicle/Pedestrian Collisions March 12,	1st Meeting
IHRA/PS/ 14	POLAND		Present Situation of Research on Pedestrian Safety in Poland	1st Meeting
IHRA/PS/ 15	JAPAN		DRAFT AGENDA, The 1st IHRA/Pedestrian Safety W/G Meeting	1st Meeting
IHRA/PS/ 16	AUSTRALIA		PEDESTRIAN FATALITIES IN AUSTRALIA	1st Meeting
IHRA/PS/ 17	AUSTRALIA		PEDESTRIAN CASUALTIES: CHILDREN IN EARLY SCHOOL YEARS	1st Meeting
IHRA/PS/ 18	EC	EEVC	Costs and benefits of the EEVC pedestrian impact requirements	1st Meeting
IHRA/PS/ 19	EC	EEVC	A REVISION OF THE TRL PEDESTRIAN COST BENEFIT STUDY	1st Meeting
IHRA/PS/ 20	EC	EEVC/CEVE	EEVC Working Group 10 Report Proposals for methods to evaluate pedestrian protection for passenger cars	1st Meeting
IHRA/PS/ 21	EC		DRAFT, PROPOSAL FOR A EUROPEAN PARLIAMENT AND COUNCIL DIRECTIVE, RELATING TO THE PROTECTION OF PEDESTRIANS AND OTHER ROAD USERS IN THE EVENT OF A COLLISION WITH A MOTOR VEHICLE AND AMENDING	1st Meeting
IHRA/PS/ 22	USA		U.S. Research Activities	1st Meeting
IHRA/PS/ 23	USA	AAMA	COMMITTEE ORGANIZATION CHART(, etc).	1st Meeting

IHRA/PS/ 24	EC	ACEA	Figure 13 Degradation of Foam Properties with Use New Foam Design	1st Meeting
IHRA/PS/ 25	EC	EEVC	(handwriting note)	1st Meeting
IHRA/PS/ 26	JAPAN		Tables, Number of pedestrian injuries related to…	2nd Meeting
IHRA/PS/ 27	JAPAN		Comparison of legform impact test	2nd Meeting
IHRA/PS/ 28	JAPAN	Nagoya Univ., Hannover Medical School,	Shearing and Bending Effects at the Knee Joint at High Speed Lateral Loading	2nd Meeting
IHRA/PS/ 29	EC		DRAFT PROPOSAL FOR A EUROPEAN PARLIAMENT AND COUNCIL DIRECTIVE RELATING TO THE PROTECTION OF PEDESTRIANS AND OTHER ROAD USERS IN THE EVENT OF A COLLISION WITH A MOTOR VEHICLE AND AMENDING	2nd Meeting
IHRA/PS/ 30	JAPAN		Passenger cars and light commercial vehicles - Pedestrian protection - Impact test method for pedestrian head	2nd Meeting
IHRA/PS/ 31	JAPAN		Passenger cars and light commercial vehicles - Pedestrian protection - Impact test method for pedestrian leg and knee (ISO/TC22/SC10/WG2/N552)	2nd Meeting
IHRA/PS/ 32	JAPAN		Comparison of adult headform impact test	2nd Meeting
IHRA/PS/ 33	JAPAN		Meeting minutes for the 1st expert meeting of IHRA pedestrian protection 15-16 July 1997, Tokyo	2nd Meeting
IHRA/PS/ 34	USA	AAMA	ANALYSIS OF CIRCUMSTANCES AND INJURIES IN 217 PEDESTRIAN TRAFFIC FATALITIES	2nd Meeting
IHRA/PS/ 35	EC	EEVC	MIRA Benefits (TRL Summary of MIRA, Cost Benefit Report)	2nd Meeting
IHRA/PS/ 36	USA		IHRA/Pedestrian Safety Meeting	2nd Meeting
IHRA/PS/ 37	EC	EEVC	History Pedestrian Protection Research and Legistration in Europe	2nd Meeting
IHRA/PS/ 38	EC	EEVC	EEVC Working Group 17 Pedestrian Safety	2nd Meeting
IHRA/PS/ 39	EC	EEVC	89th Meeting of Working Group on Motor Vehicles Brussels, 30 January 1998 Agenda Item 11: Exchange of views on legislationto be drafted with regard to pedestrian safety	2nd Meeting
IHRA/PS/ 40	JAPAN		PROGRESS REPORT III IHRA/PEDESTRIAN SAFETY	2nd Meeting
IHRA/PS/ 41	USA		Traffic Safety Facts 1996 Pedestrians	2nd Meeting
IHRA/PS/ 42	USA		Traffic Safety Facts 1996 A Compilation of Motor Vehicle Crash Data from the Fatality Analysis Reporting System and the General Estimates System	2nd Meeting
IHRA/PS/ 43	USA		Development of a Non-Frangible Pedestrian Legform Impactor	2nd Meeting
IHRA/PS/ 44	USA		PEDESTRIAN CRASH DATA STUDY(PCDS)	2nd Meeting
IHRA/PS/ 45	USA		U.S. PEDESTRIAN ANALYSIS	2nd Meeting
IHRA/PS/ 46	USA	NHMRC	TEAM POLY CHILD HEAD-FORM TESTS PROVISIONAL RESULTS	2nd Meeting
IHRA/PS/ 47	EC	EEVC	Pedestrian Accident Survey Europe	2nd Meeting
IHRA/PS/ 48	USA	AAMA	Tables, Pedestrians Killed by Age Group…	2nd Meeting
IHRA/PS/ 49	EC	ACEA	EUROPEAN VEHICLE CLASSIFICATION	2nd Meeting

IHRA/PS/ 50		JAPAN		GENERAL CONCEPT	2nd Meeting
IHRA/PS/ 51		JAPAN		Agenda IHRA/Pedestrian Safety 2nd Experts Meeting	2nd Meeting
IHRA/PS/ 52		JAPAN		Attendees at IHRA Pedestrian Safety W/G 2nd Meeting, March 3-5,	2nd Meeting
IHRA/PS/ 53		JAPAN		ESV/IHRA PROJECT PEDESTRIAN SAFETY Status Report, June	3rd Meeting
IHRA/PS/ 54	Rev.1	JAPAN		Meeting Minutes for the 2nd expert meeting of IHRA pedestrian protection 3-5 March 1998, Washington	3rd Meeting
IHRA/PS/ 55		JAPAN		IHRA/Pedestrian Safety W/G Expert Meeting (A letter dated August 3, 1998, announcing for the 3rd meeting)	3rd Meeting
IHRA/PS/ 56		JAPAN		Draft Agenda (for the 3rd Experts Meeting)	3rd Meeting
IHRA/PS/ 57		JAPAN		Establishment of an IHRA Target Injury Mitigation Level	3rd Meeting
IHRA/PS/ 58		JAPAN		Number of Car holdings in JAPAN	3rd Meeting
IHRA/PS/ 59	A	JAPAN		JAPANESE Opinion Concerning Criteria for IHRA Pedestrian Protection Test Procedure	3rd Meeting
IHRA/PS/ 59	B	EC	TRL	Extract from Injury Biomechanics, by Wismans	3rd Meeting
IHRA/PS/ 60	Rev.2	JAPAN		IHRA Pedestrian Safety Action List	3rd Meeting
IHRA/PS/ 61		EC	EEVC WG17	EEVC Working Group 17 Pedestrian Safety	3rd Meeting
IHRA/PS/ 62	Rev.1	USA & EC		Tables: Number of Pedestrian Injuries by Contact Location and Body Region for AIS 2-6 Injuries U.S. NHTSA Pedestrian Crash Data Study Classification Categories	3rd Meeting
IHRA/PS/ 63		JAPAN		Initial Draft	3rd Meeting
IHRA/PS/ 64		JAPAN	JAMA	JAMA Comment on EEVC Pedestrian Test Procedure	3rd Meeting
IHRA/PS/ 65		EC	UK	C524/049/97 Development and use of pedestrian impactors to reduce the injury potential of cars	3rd Meeting
IHRA/PS/ 66		JAPAN		Honda Press Information Honda Introduces a Pedestrian Head Injury-Reducing Safety Body	3rd Meeting
IHRA/PS/ 67		JAPAN		Total Concept of Test Procedure for IHRA Pedestrian Safety	3rd Meeting
IHRA/PS/ 68		EC	TRL	98-S10-0-03 A United Kingdom Contribution PEDESTRIAN SAFETY TESTING USING THE EEVC PEDESTRIAN IMPACTORS	3rd Meeting
IHRA/PS/ 69		JAPAN		Attendees at IHRA Pedestrian Safety W/G 3rd Meeting, September 9-11, 1998	3rd Meeting
IHRA/PS/ 70		EC	Accident Research Unit, Medical University of Hanover	Evaluation of in-dept investigations on the scene in the Hanover region Injuries to pedestrians caused by impact with the front edge of car	3rd Meeting
IHRA/PS/ 71		EC	TNO	Definitions proposed in the Synthesis Report of the EEC Biomechanics Program prepared by Betrayal Aldman	3rd Meeting
IHRA/PS/ 72		EC	TNO	Development of mechanical human body simulators - crash	3rd Meeting
IHRA/PS/ 73		EC	TNO	(Two sheets with dummy/impactor requirements)	3rd Meeting
IHRA/PS/ 74		JAPAN		Meeting Minutes for the 3rd expert meeting of IHRA pedestrian protection 9-11 September 1998, Brussels	4th Meeting
IHRA/PS/ 75		JAPAN		Draft Agenda (for the 4th Experts Meeting)	4th Meeting

IHRA/PS/ 76	JAPAN		Attendees at IHRA Pedestrian Safety W/G 4th Meeting, February 22-24, 1999	4th Meeting
IHRA/PS/ 77	JAPAN		ESV/IHRA PROJECT PEDESTRIAN SAFETY Status Report, November 12, 1998	4th Meeting
IHRA/PS/ 78	EC	EEVC	Example Headform / Specification of tool	4th Meeting
IHRA/PS/ 79	EC	TNO/VDA	Passenger car pedestrian friendliness Evaluation of proposed EEVC subsystem test procedures by mathematical simulation	4th Meeting
IHRA/PS/ 80	JAPAN	JAMA	Development of Simulation Model and Pedestrian Dummy	4th Meeting
IHRA/PS/ 81	USA	NHTSA	Table 4: Number of Pedestrian Injuries Involving LTV's by Contact Location and Body Region for AIS 2-6 Injuries (All age) Table 5: Number of Pedestrian Injuries Excluding LTV's by Contact Location and Body Region for AIS 2-6 Injuries (All age)	4th Meeting
IHRA/PS/ 82	AUSTRALIA	RARU	Fatal Pedestrian Crashes Adelaide, South Australia 1991-1997	4th Meeting
IHRA/PS/ 83	JAPAN	JARI	Cumulative Frequency of Impact Velocity for Pedestrian accidents(Fig.1) / MAIS 2+ Injuries(Fig.2) / AIS 2+ juries(Fig.3) (JARI pedestrian accident data, 1987-1988)	4th Meeting
IHRA/PS/ 84	USA	NHTSA	Pedestrian Age Distribution	4th Meeting
IHRA/PS/ 85	USA	NHTSA	Impact Speed and Injury Level / Impact Speed at All Injury Levels / All Injuries and Impact Speed / Head Injuries and Impact Speed / Leg Injuries and Impact Speed	4th Meeting
IHRA/PS/ 86	EC	ACEA	Age Distribution of Pedestrian Casualties	4th Meeting
IHRA/PS/ 87	EC	TRL	Road User Fatalities 1996, others	4th Meeting
IHRA/PS/ 88	EC	EEVC WG17	Comparison Between Dose-response and Cumulative Methods of Injury Risk Analysis and Implications on the JARI Injury Risk	4th Meeting
IHRA/PS/ 89	EC	EEVC WG10	EEVC WG10 Committee Paper on Pedestrian Leg Injuries	4th Meeting
IHRA/PS/ 90	JAPAN	JARI	Test Tool Table IHRA 4th Meeting in Adelaide Feb. 22-24, 1999	4th Meeting
IHRA/PS/ 91	JAPAN		Calibration Test for Head Form Impactor (ISO/TC22/SC10/WG2	4th Meeting
IHRA/PS/ 92	USA	NHTSA	Free-Motion Headform Drawing Package	4th Meeting
IHRA/PS/ 93	USA	NHTSA	Free-Motion Headform User's Manual	4th Meeting
IHRA/PS/ 94	JAPAN	JARI	JARI Journal Data	4th Meeting
IHRA/PS/ 95	EC	TRL	Further Pedestrian Accident Reconstruction's with the Upper Legform Impactor	4th Meeting
IHRA/PS/ 96	EC	EEVC	Improved test methods to evaluate pedestrian protection afforded by passenger cars (EEVC WG17)	5th Meeting
IHRA/PS/ 97-1	JAPAN	JASIC	Meeting Minutes for the 4th expert meeting of IHARA pedestrian protection 22-24 February 1999, Stamford Grand Hotel, Adelaide,	5th Meeting
IHRA/PS/ 97-2	JAPAN		ESV/IHRA PROJECT PEDESTRIAN SAFETY Status Report, June 24, 1999	5th Meeting
IHRA/PS/ 98	JAPAN	JASIC	Draft Agenda (for the 5th Experts Meeting)	5th Meeting
IHRA/PS/ 99	JAPAN	JASIC	Attendees at IHRA Pedestrian Safety W/G 5th Meeting, September 15-17, 1999	5th Meeting

IHRA/PS/ 100		USA	NHTSA	Pedestrian Cumulative Velocity Curve	5th Meeting
IHRA/PS/ 101		EC	TRL	Analysis of pedestrian accidents, using police fatal accident files and SHIPS data PUBLICATION PENDING @8/9/99	5th Meeting
IHRA/PS/ 102		JAPAN	JARI/JAMA	Current Situation of Pedestrian Accident in Japan - Statistical and Microscopic Data -	5th Meeting
IHRA/PS/ 103	Rev.1	AUSTRALIA	RARU	Impact speed distribution data in Australia (2 data tables and 4 figures)	5th Meeting
IHRA/PS/ 104		JAPAN	JARI	A Study on the EEVC Upper Legform Test by Computer Simulation 9934564 - Impact Energy According to the Vehicle Stiffness -	5th Meeting
IHRA/PS/ 105		JAPAN	JARI	Impact Response and Biofidelity of Pedestrian Legform Impactors IRCOBI 1999	5th Meeting
IHRA/PS/ 106		USA	NHTSA	Test Procedure Comparison Preliminary HIC Values - Ford Taurus Central Hood Impacts -	5th Meeting
IHRA/PS/ 107		AUSTRALIA	RARU	Pedestrian Impact Test on the Ten Top-selling Cars in Australia	5th Meeting
IHRA/PS/ 108			RARU	Status Report on Vehicle Design and Pedestrian Protection Activities in Australia	5th Meeting
IHRA/PS/ 109		JAPAN	TSNRI/JMOT	Head Injury Risk in Car-Pedestrian Impactand table of Pedestrian Age and Vehicle Shape	5th Meeting
IHRA/PS/ 110	Rev.1	JAPAN & EC	JARI & TRL	Table of Test Tool (Adult Headform, Child Headform, Legform and Upper Legform)	8th Meeting
IHRA/PS/ 111		JAPAN & EC	JARI & TRL	Table of Test Tool Evaluation (Upper Legform, Legform, Child Headform and Adult Headform)	5th Meeting
IHRA/PS/ 112		USA	NHTSA	IHRA P/S Meeting #5 U.S. Status	5th Meeting
IHRA/PS/ 113	Rev.6	JAPAN		IHRA Draft: Adult Head - Passenger vehicles - Pedestrian protection - Impact test method for adult pedestrian head	9th Meeting
IHRA/PS/ 114	Rev.1	JAPAN		Draft Agenda (for the 6th Experts Meeting)	6th Meeting
IHRA/PS/ 115	Rev.1	JAPAN		Revised Meeting Minutes for the 5th expert meeting of IHARA pedestrian protection15-17 September 1999, JASIC, Tokyo, Japan	6th Meeting
IHRA/PS/ 116		JAPAN		ESV/IHRA PROJECT Pedestrian Safety Status Report V, March 9,	6th Meeting
IHRA/PS/ 117		JAPAN		Contents of revision of adult head test procedure	6th Meeting
IHRA/PS/ 118	Rev.4	JAPAN		IHRA Draft: Child Head - Passenger vehicles - Pedestrian protection - Impact test method for child pedestrian head	9th Meeting
IHRA/PS/ 119	Rev.1	JAPAN		IHRA Draft: Leg - Passenger cars and light truck vehicles - Pedestrian protection - Impact test method for pedestrian thigh, leg and knee	9th Meeting
IHRA/PS/ 120		JAPAN		Attendees at IHRA Pedestrian Safety W/G 6th Meeting, March 15-	6th Meeting
IHRA/PS/ 121		JAPAN	JARI	Data of vehicle front shape	6th Meeting

IHRA/PS/ 122		EC	ACEA	Data of shape parameter definitions	6th Meeting
IHRA/PS/ 123		EC	EEVC	SAE variation revel	6th Meeting
IHRA/PS/ 124		USA	NHTSA	Computer simulation tentative agenda	6th Meeting (Ad-hoc Meeting at 14, Mar.)
IHRA/PS/ 125		USA	NHTSA	Case 95-49-607 Summary	6th Meeting (Ad-hoc Meeting at 14, Mar.)
IHRA/PS/ 126		USA	NHTSA	Case 98-82-608 Summary	6th Meeting (Ad-hoc Meeting at 14, Mar.)
IHRA/PS/ 127		JAPAN	JARI	(No Title)	6th Meeting (Ad-hoc Meeting at 14, Mar.)
IHRA/PS/ 128		JAPAN	JARI	Case 94 10 175 Summary	6th Meeting (Ad-hoc Meeting at 14, Mar.)
IHRA/PS/ 129		AUSTRALIA	RARU	Seminar Outline	6th Meeting (Ad-hoc Meeting at 14, Mar.)
IHRA/PS/ 130		AUSTRALIA	RARU	Head impact modeling using MADYMO simulations of documented pedestrian accidents(1998)	6th Meeting (Ad-hoc Meeting at 14, Mar.)
IHRA/PS/ 131		USA	NHTSA	MADYMO pedestrian reconstruction study	6th Meeting (Ad-hoc Meeting at 14, Mar.)
IHRA/PS/ 132		JAPAN	HONDA	The development of HONDA pedestrian dummy	6th Meeting (Ad-hoc Meeting at 14, Mar.)
IHRA/PS/ 133		JAPAN	GESAC and HONDA R&D	Current status of Polar II development	6th Meeting (Ad-hoc Meeting at 14, Mar.)
IHRA/PS/ 134		EC	EEVC	EEVC headform development	6th Meeting
IHRA/PS/ 135		EC	EEVC	EEVC pedestrian headform development 1	6th Meeting
IHRA/PS/ 136		EC	EEVC	Effective head impact mass	6th Meeting
IHRA/PS/ 137		EC	EEVC	FTSS launches EEVC WG17 pedestrian headform impactors	6th Meeting
IHRA/PS/ 138		AUSTRALIA	RARU	Comparison of headforms with and without skin	6th Meeting
IHRA/PS/ 139		EC	TRL	Investigation of potential for improvements in car A-pillar design for pedestrian safety	6th Meeting
IHRA/PS/ 140		USA	NHTSA	49 CFR (Oct. 1999) Ch.V part 523 - Vehicle classification	6th Meeting
IHRA/PS/ 141		JAPAN	GESAC and HONDA R&D	Current status of Polar II development (Summary)	6th Meeting
IHRA/PS/ 142		USA	NHTSA	Development of improved injury criteria for the assessment of advanced automotive restraint systems II	6th Meeting
IHRA/PS/ 143		EC	EEVC	Assessment of the damped production version of the TRL pedestrian legform impactor	6th Meeting
IHRA/PS/ 144		USA	NHTSA	NHTSA activities (IHRA P/S Meeting #6)	6th Meeting
IHRA/PS/ 145		EC	EEVC	Progress EEVC WG17/EC	6th Meeting
IHRA/PS/ 146		EC	EEVC	Proposal for draft final report contents	6th Meeting
IHRA/PS/ 146	Rev.2	JAPAN		IHRA/Pedestrian Safety WG Report, June 2001	7th Meeting
IHRA/PS/ 147		JAPAN	JASIC	Assignment for the 7th IHRA/PS WG	7th Meeting
IHRA/PS/ 148		JAPAN	JASIC	ESV/IHRA PROJECT PEDESTRAN SAFETY 5-year WG Status Report	7th Meeting
IHRA/PS/ 149	Rev.1	JAPAN	JASIC	IHRA/ Pedestrian Safety Working Group Members	7th Meeting
IHRA/PS/ 150		JAPAN	JASIC	Study of human head weight	7th Meeting
IHRA/PS/ 151	Rev.1	JAPAN	JASIC	Draft Agenda (for the 7th Experts Meeting)	7th Meeting
IHRA/PS/ 152		JAPAN	JARI	Template of Vehicle Front Shape	7th Meeting
IHRA/PS/ 153		JAPAN	JARI	Car front shape data from ACEA with the template proposed by Japan	7th Meeting
IHRA/PS/ 153-2		USA	AAM	Vehicle Front Shape data with template proposed by Japan	7th Meeting
IHRA/PS/ 154		USA	NHTSA	Distribution of Head Contact Wrap Around Distance	7th Meeting
IHRA/PS/ 155		AUSTRALIA	RARU	Australian Car Shapes (RARU)	7th Meeting

IHRA/PS/ 156		JAPAN	JASIC	Meeting Minutes (Rev.2) for the 6th experts meeting of IHRA	7th Meeting
IHRA/PS/ 157		JAPAN		Summary of IHRA Pedestrian Safety WG Activities - Proposed Test Methods to Evaluate Pedestrian Protection Afforded by Passenger Cars	7th Meeting
IHRA/PS/ 158		JAPAN	JASIC	Attendees at IHRA Pedestrian Safety WG 7th Meeting	7th Meeting
IHRA/PS/ 159		JAPAN	JASIC	Document List of IHRA/Pedestrian Safety WG	7th Meeting
IHRA/PS/ 160-1		USA	NHTSA	Grobal Pedestrian Accident Data - Trends and Comparisons	7th Meeting
IHRA/PS/ 160-2		USA	NHTSA	Grobal Pedestrian Accident Data - Trends and Comparisons	7th Meeting
IHRA/PS/ 161		EU	TNO	Impact test method for [fill in: adult or child] pedestrian head	7th Meeting
IHRA/PS/ 162		JAPAN	JARI	Computer Simulation Result	7th Meeting
IHRA/PS/ 163		USA	NHTSA	NHTSA MADYMO Simulations	7th Meeting
IHRA/PS/ 164		EU	EEVC	MANUAL - MADYMO v5.4 Multi Body Pedestrian Models - DRAFT VERSION	7th Meeting
IHRA/PS/ 165		EU	TRL	IMPLICATIONS FOR REGULATION - SOCIETAL AND ECONOMICAL	7th Meeting
IHRA/PS/ 166		JAPAN	JARI	Effective Mass of Child Head - 6-year old child	7th Meeting
IHRA/PS/ 167		JAPAN	JARI	Effective Head Mass at Impact	7th Meeting
IHRA/PS/ 168		USA	NHTSA	NHTSA Head Impact Testing - Instrumentation Issues	7th Meeting
IHRA/PS/ 169		USA	NHTSA	Finding the Moment of Inertia of a Headform	7th Meeting
IHRA/PS/ 170		EU	TRL	ASSESMENT OF TNO'S NEW CHILD & ADULT HEADFORM IMPACTORS FOR EEVC (WG17)	7th Meeting
IHRA/PS/ 171		JAPAN	JARI/JAMA	COMPUTER SIMULATION RESULTS (Child 6 years old)	7th Meeting
IHRA/PS/ 172		USA	NHTSA	COMPLETE ASSEMBLY HYBRID III 6 YEAR OLD	7th Meeting
IHRA/PS/ 173		JAPAN	JAMA	Diameter of Child Head	7th Meeting
IHRA/PS/ 174		JAPAN	JAMA	Car Feasibility - Difficulty in bonnet design concerning head impact test	7th Meeting
IHRA/PS/ 175		JAPAN	JAMA	WAD	7th Meeting
IHRA/PS/ 176		JAPAN	JAMA	Proposed vehicle speed and head impactor speed	7th Meeting
IHRA/PS/ 177		USA	NHTSA	Pedestrian Crash Data Study - update w/521 Cases	7th Meeting
IHRA/PS/ 178		USA	NHTSA	Weights and dimensions of the Hybrid III three and six year old dummy heads	7th Meeting
IHRA/PS/ 179	Rev.1	USA	NHTSA	Global Accident Data	9th Meeting
IHRA/PS/ 180		JAPAN	JASIC	Meeting Minutes for the 7th experts meeting of IHRA	8th Meeting
IHRA/PS/ 181		JAPAN	JASIC	Draft Agenda (for the 8th Experts Meeting)	8th Meeting
IHRA/PS/ 182		JAPAN	JASIC	Attendees at IHRA Pedestrian Safety WG 8th Meeting	8th Meeting
IHRA/PS/ 183		USA	NHTSA	WAD Measurement in PCDS Study	8th Meeting
IHRA/PS/ 184		JAPAN	JARI	Car Front Shape Corridor	8th Meeting
IHRA/PS/ 185	1/3-3/3	JAPAN	JARI	JARI Pedestrian Simulation Results and PMHS Test Results	8th Meeting
IHRA/PS/ 186		USA	NHTSA	Wrap Around Distance (WAD) Analysis	8th Meeting
IHRA/PS/ 187		JAPAN	JAMA	WAD Distribution	8th Meeting
IHRA/PS/ 188		USA	NHTSA	Moment of Inertia Validation	8th Meeting
IHRA/PS/ 189		EU	TRL	OBSERVATIONS ON IHRA ACCIDENT DATABASE	8th Meeting

IHRA/PS/ 190		USA	NHTSA	MAIS against country in IHRA database	8th Meeting
IHRA/PS/ 191		USA	NHTSA	Low Profile Vehicle Descriptions	8th Meeting
IHRA/PS/ 192	Rev.1	JAPAN	JASIC	Draft Agenda (for the 9th Experts Meeting)	9th Meeting
IHRA/PS/ 193		USA	NHTSA	Assessment of an Advanced Pedestrian Dummy for Use in Full-Scale Case Reconstructions	9th Meeting
IHRA/PS/ 194		JAPAN	JASIC	Meeting Minutes for the 8th experts meeting of IHRA	9th Meeting
IHRA/PS/ 195		JAPAN	JASIC	Attendees at IHRA Pedestrian Safety WG 9th Meeting	9th Meeting
IHRA/PS/ 196		USA	NHTSA	IHRA adult and child headform	9th Meeting
IHRA/PS/ 197		JAPAN		IHRA/PS New Terms of Reference	9th Meeting
IHRA/PS/ 198	Rev.1	JAPAN	JARI	Impact Condition of Adult Head	9th Meeting
IHRA/PS/ 199		EU	TRL	IHRA Pedestrian Grobal Accident Dataset	9th Meeting
IHRA/PS/ 200		(all experts)		2001 REPORT (DRAFT)	17th ESV Conference

Appendix G: Technical Feasibility (OICA)

Technical feasibility is now under discussion and will be incorporated in the future report.