The Likelihood of Human Casualty in Highway Crashes

13th Briefing: Old and New Algorithm Evaluation

Based on an Investigation Conducted for
the FHWA/NHTSA Crash Analysis Center
at George Washington University, Virginia

November 13, 1996
DeBlois Associates
Washington, D.C.

"The Likelihood of Casualty in Highway Crashes"

Introduction

This 13th briefing concerning the cited subject addresses the derivation and evaluation of algorithms for the projection of compelling injury on the basis of crash scene observable data that serve as predictors.

The methodology followed in this briefing starts with the "Old Triage" algorithm and addresses extensions and modifications leading to certain alternatives with enhanced predictive power.

Evaluation of the Predictive Ability of the Algorithms

The predictive ability of the algorithm in effect is evaluated in terms of five pertinent yardsticks defined below, relevant to any selection of predicted probability:

Correct Prediction is the fraction of correct predictions (whether for compelling or noncompelling injury), made at a selected probability level, as a percent of all predictions. Correct is by reference to the car crash experience under consideration;
Sensitivity is the fraction of predicted compelling injuries, as a percentage of all compelling injuries in the population at stake;
Specificity is the fraction of predicted noncompelling injuries, as a percentage of all noncompelling injuries in the population at stake;
False Positives is the fraction of incorrectly predicted compelling injuries as a percentage of all predicted compelling injuries; and
False Negatives is the fraction of incorrectly predicted noncompelling injuries as a percentage of all predicted noncompelling injuries.

Programmable Algorithms

Algorithms for projecting the probability of compelling injury are modeled as follows:

$$P = 1 / [1 + \exp(-w)]$$

$$w = A0 + A1*PRED1 + A2*PRED2 + A3*PRED3 + \ldots\ldots\ldots$$

Table 1. Predictors Addressed in the Algorithms of this Briefing

INTERCPT	Intercept
ROLL	Rollover Occurrence
CRUSH	Crush > 20 inches
MAXC	Max Crush, inches
INTRU	Intrusion > 12 inches
EJECT	Ejection
ENTRAP	Entrapment
GRU	Ejection or Entrapment
SEATF	Front Seating Pos.
BELT	Belt Use
BEBA	Belt Use & Bag Deployment
AGE	Occupant Age
AGER	Occupant Age > 55 yrs
OTHRINJ	Other Seriously Injured Occ

All predictors are binary (1=Yes, 0=No), except as noted.

Table 2. Predictors and Coefficients for the Algorithms Addressed in this Briefing

Predictor	Coeficient	Std.Error
	"Old Triage"	
Intercept	-4.9099	0.0399
ROLL	0.3677	0.1169
CRUSH	1.3697	0.0867
INTRU	1.3828	0.0923
EJECT	2.9083	0.0880
ENTRP	2.6321	0.1777
OTHRINJ	3.0214	0.1173
	ModfOld	
Intercept	-5.7899	0.1236
ROLL	0.4982	0.1206
CRUSH	1.3291	0.0886
INTRU	1.4608	0.0944
EJECT	2.6780	0.0915
ENTRP	2.6396	0.1793
OTHRINJ	2.9747	0.1214
AGE	0.0272	0.0016
SEATF	0.4509	0.1127
BELT	-0.9421	0.0724
BEBA	-1.1085	0.2359
	New	
Intercept	-6.3351	0.1969
ROLL	0.3589	0.2089
MAXC	0.0596	0.0032
INTRU	1.2865	0.0982
EJECT	2.1082	0.1390
ENTRP	2.0323	0.2065
OTHRINJ	2.3759	0.1587
AGE	0.0289	0.0022
SEATF	0.4778	0.1730
BELT	-0.9816	0.0920
BEBA	-1.3235	0.2559

Table 2. Cont'd

TrimdNew		
Intercept	-6.0329	0.1203
ROLL	0.4805	0.1922
MAXC	0.0647	0.0033
INTRU	1.4899	0.0929
EJECT	2.1074	0.1336
ENTRP	2.0584	0.1939
AGE	0.0316	0.0021
BELT	-0.9951	0.0901
BEBA	-1.3614	0.2564

Succinct		
Intercept	-4.6632	0.0520
ROLL	0.4750	0.1133
CRUSH	1.4369	0.0820
INTRU	1.7512	0.0841
GRU	2.7796	0.0793
AGER	1.2500	0.0703
PROT	-0.9023	0.0688

Table 3. Numerical Applications of the "Old Triage" Algorithm

OBS	RO	CR	IN	EJ	EN	OT	P
1	No	No	No	No	No	No	0.7
2	No	No	No	No	No	Yes	13.1
3	No	No	No	No	Yes	No	9.3
4	No	No	No	No	Yes	Yes	67.8
5	No	No	No	Yes	No	No	11.9
6	No	No	No	Yes	No	Yes	73.5
7	No	No	No	Yes	Yes	No	65.3
8	No	No	No	Yes	Yes	Yes	97.5
9	No	No	Yes	No	No	No	2.9
10	No	No	Yes	No	No	Yes	37.6
11	No	No	Yes	No	Yes	No	29.0
12	No	No	Yes	No	Yes	Yes	89.3
13	No	No	Yes	Yes	No	No	35.0
14	No	No	Yes	Yes	No	Yes	91.7
15	No	No	Yes	Yes	Yes	No	88.2
16	No	No	Yes	Yes	Yes	Yes	99.4
17	No	Yes	No	No	No	No	2.8
18	No	Yes	No	No	No	Yes	37.3
19	No	Yes	No	No	Yes	No	28.7
20	No	Yes	No	No	Yes	Yes	89.2
21	No	Yes	No	Yes	No	No	34.7
22	No	Yes	No	Yes	No	Yes	91.6
23	No	Yes	No	Yes	Yes	No	88.1
24	No	Yes	No	Yes	Yes	Yes	99.3
25	No	Yes	Yes	No	No	No	10.4
26	No	Yes	Yes	No	No	Yes	70.3
27	No	Yes	Yes	No	Yes	No	61.6
28	No	Yes	Yes	No	Yes	Yes	97.1
29	No	Yes	Yes	Yes	No	No	67.9
30	No	Yes	Yes	Yes	No	Yes	97.8
31	No	Yes	Yes	Yes	Yes	No	96.7
32	No	Yes	Yes	Yes	Yes	Yes	99.8
33	Yes	No	No	No	No	No	1.1
34	Yes	No	No	No	No	Yes	17.9
35	Yes	No	No	No	Yes	No	12.9
36	Yes	No	No	No	Yes	Yes	75.2
37	Yes	No	No	Yes	No	No	16.3
38	Yes	No	No	Yes	No	Yes	80.0
39	Yes	No	No	Yes	Yes	No	73.1
40	Yes	No	No	Yes	Yes	Yes	98.2
41	Yes	No	Yes	No	No	No	4.1
42	Yes	No	Yes	No	No	Yes	46.6
43	Yes	No	Yes	No	Yes	No	37.1
44	Yes	No	Yes	No	Yes	Yes	92.4
45	Yes	No	Yes	Yes	No	No	43.8

46	Yes	No	Yes	Yes	No	Yes	94.1
47	Yes	No	Yes	Yes	Yes	No	91.5
48	Yes	No	Yes	Yes	Yes	Yes	99.6
49	Yes	Yes	No	No	No	No	4.0
50	Yes	Yes	No	No	No	Yes	46.2
51	Yes	Yes	No	No	Yes	No	36.8
52	Yes	Yes	No	No	Yes	Yes	92.3
53	Yes	Yes	No	Yes	No	No	43.4
54	Yes	Yes	No	Yes	No	Yes	94.0
55	Yes	Yes	No	Yes	Yes	No	91.4
56	Yes	Yes	No	Yes	Yes	Yes	99.5
57	Yes	Yes	Yes	No	No	No	14.3
58	Yes	Yes	Yes	No	No	Yes	77.4
59	Yes	Yes	Yes	No	Yes	No	69.9
60	Yes	Yes	Yes	No	Yes	Yes	97.9
61	Yes	Yes	Yes	Yes	No	No	75.4
62	Yes	Yes	Yes	Yes	No	Yes	98.4
63	Yes	Yes	Yes	Yes	Yes	No	97.7
64	Yes	Yes	Yes	Yes	Yes	Yes	99.9

Table 4. Numerical Applications of the TrimdNew Algorithm

OBS	MAXC	AGE	BE	BB	P
1	10	25	No	No	1.0
2	10	25	No	Yes	0.3
3	10	25	Yes	No	0.4
4	10	50	No	No	2.2
5	10	50	No	Yes	0.6
6	10	50	Yes	No	0.8
7	10	75	No	No	4.7
8	10	75	No	Yes	1.2
9	10	75	Yes	No	1.8
10	20	25	No	No	1.9
11	20	25	No	Yes	0.5
12	20	25	Yes	No	0.7
13	20	50	No	No	4.1
14	20	50	No	Yes	1.1
15	20	50	Yes	No	1.5
16	20	75	No	No	8.6
17	20	75	No	Yes	2.3
18	20	75	Yes	No	3.3
19	30	25	No	No	3.6
20	30	25	No	Yes	0.9
21	30	25	Yes	No	1.3
22	30	50	No	No	7.5
23	30	50	No	Yes	2.0
24	30	50	Yes	No	2.9
25	30	75	No	No	15.2
26	30	75	No	Yes	4.4
27	30	75	Yes	No	6.2

OBS	RO	IN	AGE	BE	BB	P
1	No	No	25	No	No	1.9
2	No	No	25	No	Yes	0.5
3	No	No	25	Yes	No	0.7
4	No	No	50	No	No	4.1
5	No	No	50	No	Yes	1.1
6	No	No	50	Yes	No	1.5
7	No	No	75	No	No	8.6
8	No	No	75	No	Yes	2.3
9	No	No	75	Yes	No	3.3

10	No	Yes	25	No	No	7.9
11	No	Yes	25	No	Yes	2.1
12	No	Yes	25	Yes	No	3.1
13	No	Yes	50	No	No	15.9
14	No	Yes	50	No	Yes	4.6
15	No	Yes	50	Yes	No	6.5
16	No	Yes	75	No	No	29.3
17	No	Yes	75	No	Yes	9.6
18	No	Yes	75	Yes	No	13.3
19	Yes	No	25	No	No	3.0
20	Yes	No	25	No	Yes	0.8
21	Yes	No	25	Yes	No	1.1
22	Yes	No	50	No	No	6.4
23	Yes	No	50	No	Yes	1.7
24	Yes	No	50	Yes	No	2.5
25	Yes	No	75	No	No	13.1
26	Yes	No	75	No	Yes	3.7
27	Yes	No	75	Yes	No	5.3
28	Yes	Yes	25	No	No	12.1
29	Yes	Yes	25	No	Yes	3.4
30	Yes	Yes	25	Yes	No	4.9
31	Yes	Yes	50	No	No	23.4
32	Yes	Yes	50	No	Yes	7.2
33	Yes	Yes	50	Yes	No	10.1
34	Yes	Yes	75	No	No	40.2
35	Yes	Yes	75	No	Yes	14.7
36	Yes	Yes	75	Yes	No	19.9

OBS	EJ	AGE	BE	BB	P
1	No	25	No	No	1.9
2	No	25	No	Yes	0.5
3	No	25	Yes	No	0.7
4	No	50	No	No	4.1
5	No	50	No	Yes	1.1
6	No	50	Yes	No	1.5
7	No	75	No	No	8.6
8	No	75	No	Yes	2.3
9	No	75	Yes	No	3.3
10	Yes	25	No	No	13.7
11	Yes	25	No	Yes	3.9
12	Yes	25	Yes	No	5.5
13	Yes	50	No	No	25.9
14	Yes	50	No	Yes	8.2
15	Yes	50	Yes	No	11.4
16	Yes	75	No	No	43.5
17	Yes	75	No	Yes	16.5
18	Yes	75	Yes	No	22.2

OBS	EN	AGE	BE	BB	P
1	No	25	No	No	1.9
2	No	25	No	Yes	0.5
3	No	25	Yes	No	0.7
4	No	50	No	No	4.1
5	No	50	No	Yes	1.1
6	No	50	Yes	No	1.5
7	No	75	No	No	8.6
8	No	75	No	Yes	2.3
9	No	75	Yes	No	3.3
10	Yes	25	No	No	13.1
11	Yes	25	No	Yes	3.7
12	Yes	25	Yes	No	5.3
13	Yes	50	No	No	25.0
14	Yes	50	No	Yes	7.9
15	Yes	50	Yes	No	11.0
16	Yes	75	No	No	42.3
17	Yes	75	No	Yes	15.8
18	Yes	75	Yes	No	21.3

OBS	RO	MAXC	IN	EJ	EN	AGE	BE	BB	P
1	Yes	30	Yes	Yes	Yes	75	No	No	98.8
2	No	30	Yes	Yes	Yes	75	No	No	98.1
3	Yes	20	Yes	Yes	Yes	75	No	No	97.7
4	Yes	30	Yes	Yes	Yes	50	No	No	97.4
5	Yes	30	Yes	Yes	Yes	75	Yes	No	96.8
6	No	20	Yes	Yes	Yes	75	No	No	96.4
7	No	30	Yes	Yes	Yes	50	No	No	95.9
8	Yes	10	Yes	Yes	Yes	75	No	No	95.8
9	Yes	30	Yes	Yes	Yes	75	No	Yes	95.5
10	Yes	20	Yes	Yes	Yes	50	No	No	95.2
11	No	30	Yes	Yes	Yes	75	Yes	No	95.0
12	Yes	30	No	Yes	Yes	75	No	No	94.9
13	Yes	30	Yes	Yes	Yes	25	No	No	94.5
14	Yes	20	Yes	Yes	Yes	75	Yes	No	94.1
15	No	10	Yes	Yes	Yes	75	No	No	93.3
16	Yes	30	Yes	Yes	Yes	50	Yes	No	93.3
17	No	30	Yes	Yes	Yes	75	No	Yes	92.9
18	No	20	Yes	Yes	Yes	50	No	No	92.4
19	No	30	No	Yes	Yes	75	No	No	92.0
20	Yes	20	Yes	Yes	Yes	75	No	Yes	91.7

OBS	RO	MAXC	IN	EJ	EN	AGE	BE	BB	P
1	No	10	No	No	No	25	No	Yes	0.3
2	No	10	No	No	No	25	Yes	No	0.4
3	Yes	10	No	No	No	25	No	Yes	0.4
4	No	20	No	No	No	25	No	Yes	0.5
5	No	10	No	No	No	50	No	Yes	0.6
6	Yes	10	No	No	No	25	Yes	No	0.6
7	No	20	No	No	No	25	Yes	No	0.7
8	No	10	No	No	No	50	Yes	No	0.8
9	Yes	20	No	No	No	25	No	Yes	0.8
10	No	30	No	No	No	25	No	Yes	0.9
11	Yes	10	No	No	No	50	No	Yes	0.9
12	No	10	No	No	No	25	No	No	1.0
13	No	10	Yes	No	No	25	No	Yes	1.1
14	No	20	No	No	No	50	No	Yes	1.1
15	Yes	20	No	No	No	25	Yes	No	1.1
16	No	10	No	No	No	75	No	Yes	1.2
17	No	30	No	No	No	25	Yes	No	1.3
18	Yes	10	No	No	No	50	Yes	No	1.3
19	No	20	No	No	No	50	Yes	No	1.5
20	Yes	30	No	No	No	25	No	Yes	1.5

Table 5. Numerical Applications of the Succinct Algorithm

OBS	GR	RO	CR	IN	PR	AG	P
1	No	No	No	No	No	No	0.9
2	No	No	No	No	No	Yes	3.2
3	No	No	No	No	Yes	No	0.4
4	No	No	No	No	Yes	Yes	1.3
5	No	No	No	Yes	No	No	5.2
6	No	No	No	Yes	No	Yes	15.9
7	No	No	No	Yes	Yes	No	2.2
8	No	No	No	Yes	Yes	Yes	7.1
9	No	No	Yes	No	No	No	3.8
10	No	No	Yes	No	No	Yes	12.2
11	No	No	Yes	No	Yes	No	1.6
12	No	No	Yes	No	Yes	Yes	5.3
13	No	No	Yes	Yes	No	No	18.6
14	No	No	Yes	Yes	No	Yes	44.4
15	No	No	Yes	Yes	Yes	No	8.5
16	No	No	Yes	Yes	Yes	Yes	24.5
17	No	Yes	No	No	No	No	1.5
18	No	Yes	No	No	No	Yes	5.0
19	No	Yes	No	No	Yes	No	0.6
20	No	Yes	No	No	Yes	Yes	2.1
21	No	Yes	No	Yes	No	No	8.0
22	No	Yes	No	Yes	No	Yes	23.4
23	No	Yes	No	Yes	Yes	No	3.4
24	No	Yes	No	Yes	Yes	Yes	11.0
25	No	Yes	Yes	No	No	No	6.0
26	No	Yes	Yes	No	No	Yes	18.2
27	No	Yes	Yes	No	Yes	No	2.5
28	No	Yes	Yes	No	Yes	Yes	8.3
29	No	Yes	Yes	Yes	No	No	26.9
30	No	Yes	Yes	Yes	No	Yes	56.2
31	No	Yes	Yes	Yes	Yes	No	13.0
32	No	Yes	Yes	Yes	Yes	Yes	34.2
33	Yes	No	No	No	No	No	13.2
34	Yes	No	No	No	No	Yes	34.7
35	Yes	No	No	No	Yes	No	5.8
36	Yes	No	No	No	Yes	Yes	17.7
37	Yes	No	No	Yes	No	No	46.7
38	Yes	No	No	Yes	No	Yes	75.4
39	Yes	No	No	Yes	Yes	No	26.2
40	Yes	No	No	Yes	Yes	Yes	55.4
41	Yes	No	Yes	No	No	No	39.0
42	Yes	No	Yes	No	No	Yes	69.1
43	Yes	No	Yes	No	Yes	No	20.6
44	Yes	No	Yes	No	Yes	Yes	47.5
45	Yes	No	Yes	Yes	No	No	78.7
46	Yes	No	Yes	Yes	No	Yes	92.8

47	Yes	No	Yes	Yes	Yes	No	59.9
48	Yes	No	Yes	Yes	Yes	Yes	83.9
49	Yes	Yes	No	No	No	No	19.6
50	Yes	Yes	No	No	No	Yes	46.0
51	Yes	Yes	No	No	Yes	No	9.0
52	Yes	Yes	No	No	Yes	Yes	25.7
53	Yes	Yes	No	Yes	No	No	58.5
54	Yes	Yes	No	Yes	No	Yes	83.1
55	Yes	Yes	No	Yes	Yes	No	36.4
56	Yes	Yes	No	Yes	Yes	Yes	66.6
57	Yes	Yes	Yes	No	No	No	50.7
58	Yes	Yes	Yes	No	No	Yes	78.2
59	Yes	Yes	Yes	No	Yes	No	29.4
60	Yes	Yes	Yes	No	Yes	Yes	59.3
61	Yes	Yes	Yes	Yes	No	No	85.6
62	Yes	Yes	Yes	Yes	No	Yes	95.4
63	Yes	Yes	Yes	Yes	Yes	No	70.6
64	Yes	Yes	Yes	Yes	Yes	Yes	89.4

Table 6. Casualties as a Function of Crash and Occupant Conditions

1: Ejection or Entrapment?
2: Rollover?
3: Max Crush of 20 inches or more?
4: Intrusion of 12 inches or more?
5: Restrained Occupant?
6: Occupant 55 yrs old or older?
PC: Percent of Occupants w Compelling Injury
CPC: Cumulative PC
PN: Percent of Occupants w Noncompelling Injury
CC: Count of Occupants w Compelling Injury Per Year
CN: Count of Occupants w Noncompelling Injury Per Year
CCC: Cumulative CC
CCN: Cumulative CN
Prob: Probability of Compelling Injury, roughly: [100*CC/(CC+CN)]

1	2	3	4	5	6	PC	CPC	PN	Prob	CC	CN	CCC	CCN
No	No	No	No	No	No	16.29	16.3	32.01	0.861	8389	899356	8389	899356
No	No	No	No	No	Yes	4.73	21.0	2.81	2.798	2438	78896	10827	978252
No	No	No	No	Yes	No	6.17	27.2	45.30	0.232	3177	1272956	14004	2251208
No	No	No	No	Yes	Yes	4.29	31.5	7.29	0.994	2210	204969	16214	2456177
No	No	No	Yes	No	No	3.13	34.6	0.73	6.846	1612	20436	17826	2476613
No	No	No	Yes	No	Yes	1.01	35.6	0.05	26.533	518	1337	18344	2477950
No	No	No	Yes	Yes	No	2.74	38.4	0.84	5.301	1410	23464	19754	2501414
No	No	No	Yes	Yes	Yes	1.11	39.5	0.14	12.047	570	3878	20324	2505292
No	No	Yes	No	No	No	5.91	45.4	2.06	4.671	3044	57875	23368	2563167
No	No	Yes	No	No	Yes	2.17	47.6	0.12	23.654	1116	3356	24484	2566523
No	No	Yes	No	Yes	No	3.38	50.9	1.85	3.029	1741	51926	26225	2618449
No	No	Yes	No	Yes	Yes	0.76	51.7	0.26	4.813	392	7224	26617	2625673
No	No	Yes	Yes	No	No	4.84	56.5	0.43	16.124	2494	12084	29111	2637757
No	No	Yes	Yes	No	Yes	1.41	58.0	0.02	55.456	726	543	29837	2638300
No	No	Yes	Yes	Yes	No	2.37	60.3	0.42	8.698	1220	11928	31057	2650228
No	No	Yes	Yes	Yes	Yes	0.82	61.1	0.04	27.113	425	1064	31482	2651292
No	Yes	No	No	No	No	1.07	62.2	1.35	1.334	551	37922	32033	2689214
No	Yes	No	No	No	Yes	0.14	62.4	0.06	3.967	71	1607	32104	2690821
No	Yes	No	No	Yes	No	0.97	63.3	2.01	0.816	500	56587	32604	2747408
No	Yes	No	No	Yes	Yes	0.22	63.5	0.15	2.373	112	4307	32716	2751715
No	Yes	No	Yes	No	No	0.75	64.3	0.15	7.893	386	4191	33102	2755906
No	Yes	No	Yes	No	Yes	0.32	64.6	0.01	46.926	163	172	33265	2756078
No	Yes	No	Yes	Yes	No	1.21	65.8	0.28	6.888	625	7871	33890	2763949
No	Yes	No	Yes	Yes	Yes	0.11	65.9	0.01	13.109	55	342	33945	2764291
No	Yes	Yes	No	No	No	0.15	66.1	0.02	9.906	78	657	34023	2764948
No	Yes	Yes	No	No	Yes	.	.	0.00	.	.	47	.	2764995
No	Yes	Yes	No	Yes	No	.	.	0.02	.	.	539	.	2765534
No	Yes	Yes	No	Yes	Yes	.	.	0.00	.	.	23	.	2765557
No	Yes	Yes	Yes	No	No	0.67	66.8	0.03	26.875	343	869	34366	2766426

No	Yes	Yes	Yes	No	Yes	0.06	66.8	0.00	58.626	29	19	34395	2766445
No	Yes	Yes	Yes	Yes	No	0.20	67.0	0.02	12.606	104	669	34499	2767114
No	Yes	Yes	Yes	Yes	Yes	0.04	67.1	0.00	16.828	18	85	34517	2767199
Yes	No	No	No	No	No	9.90	77.0	0.69	19.785	5100	19260	39617	2786459
Yes	No	No	No	No	Yes	1.32	78.3	0.05	32.196	680	1334	40297	2787793
Yes	No	No	No	Yes	No	1.14	79.4	0.12	14.186	588	3313	40885	2791106
Yes	No	No	No	Yes	Yes	0.18	79.6	0.01	22.349	93	302	40978	2791408
Yes	No	No	Yes	No	No	3.23	82.8	0.07	42.781	1665	2074	42643	2793482
Yes	No	No	Yes	No	Yes	0.12	82.9	0.00	35.049	61	105	42704	2793587
Yes	No	No	Yes	Yes	No	0.82	83.8	0.02	37.106	422	666	43126	2794253
Yes	No	No	Yes	Yes	Yes	0.28	84.0	0.00	57.214	147	102	43273	2794355
Yes	No	Yes	No	No	No	1.85	85.9	0.09	25.934	954	2537	44227	2796892
Yes	No	Yes	No	No	Yes	0.30	86.2	0.00	74.043	155	51	44382	2796943
Yes	No	Yes	No	Yes	No	0.44	86.6	0.03	19.371	224	870	44606	2797813
Yes	No	Yes	No	Yes	Yes	0.04	86.7	0.00	13.041	22	138	44628	2797951
Yes	No	Yes	Yes	No	No	2.67	89.3	0.05	49.346	1374	1314	46002	2799265
Yes	No	Yes	Yes	No	Yes	0.64	90.0	0.00	92.043	331	27	46333	2799292
Yes	No	Yes	Yes	Yes	No	1.60	91.6	0.02	52.666	825	691	47158	2799983
Yes	No	Yes	Yes	Yes	Yes	0.15	91.7	0.00	75.923	76	22	47234	2800005
Yes	Yes	No	No	No	No	3.82	95.6	0.21	23.958	1969	5822	49203	2805827
Yes	Yes	No	No	No	Yes	0.22	95.8	0.00	55.518	111	83	49314	2805910
Yes	Yes	No	No	Yes	No	0.55	96.3	0.04	19.538	284	1091	49598	2807001
Yes	Yes	No	No	Yes	Yes	0.09	96.4	0.00	45.037	47	54	49645	2807055
Yes	Yes	No	Yes	No	No	2.13	98.5	0.07	35.105	1099	1892	50744	2808947
Yes	Yes	No	Yes	No	Yes	0.14	98.7	.	.	72	.	50816	.
Yes	Yes	No	Yes	Yes	No	0.52	99.2	0.02	31.454	270	548	51086	2809495
Yes	Yes	No	Yes	Yes	Yes	0.04	99.2	0.00	57.062	23	16	51109	2809511
Yes	Yes	Yes	No	No	No	0.21	99.5	0.01	22.759	110	348	51219	2809859
Yes	Yes	Yes	No	No	Yes	.	.	0.00	.	.	0	.	.
Yes	Yes	Yes	No	Yes	No	.	.	0.00	.	.	0	.	.
Yes	Yes	Yes	Yes	No	No	0.34	99.8	0.00	61.179	173	102	51392	2809961
Yes	Yes	Yes	Yes	No	Yes	0.04	99.8	.	.	22	.	51414	.
Yes	Yes	Yes	Yes	Yes	No	0.14	100.0	0.00	70.490	70	27	51484	2809988
Yes	Yes	Yes	Yes	Yes	Yes	0.02	100.0	0.00	44.300	11	13	51495	2810001

Fig. 1. Evaluation of the Predictive Merits of Any Fair Algorithm for the Projection of Compelling Injury

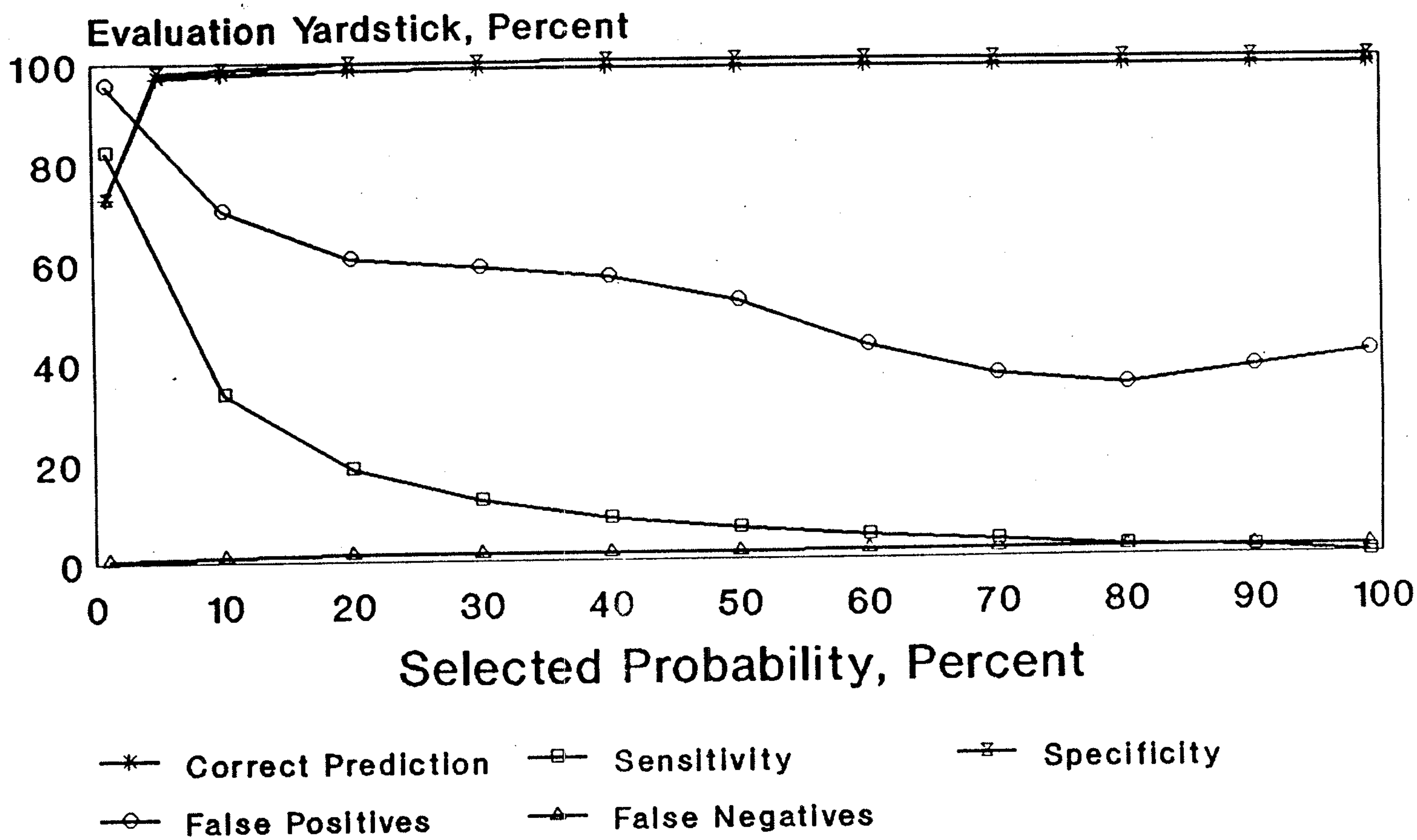

Fig. 2. Sensitivity of Shown Algorithms for the Projection of Compelling Injury

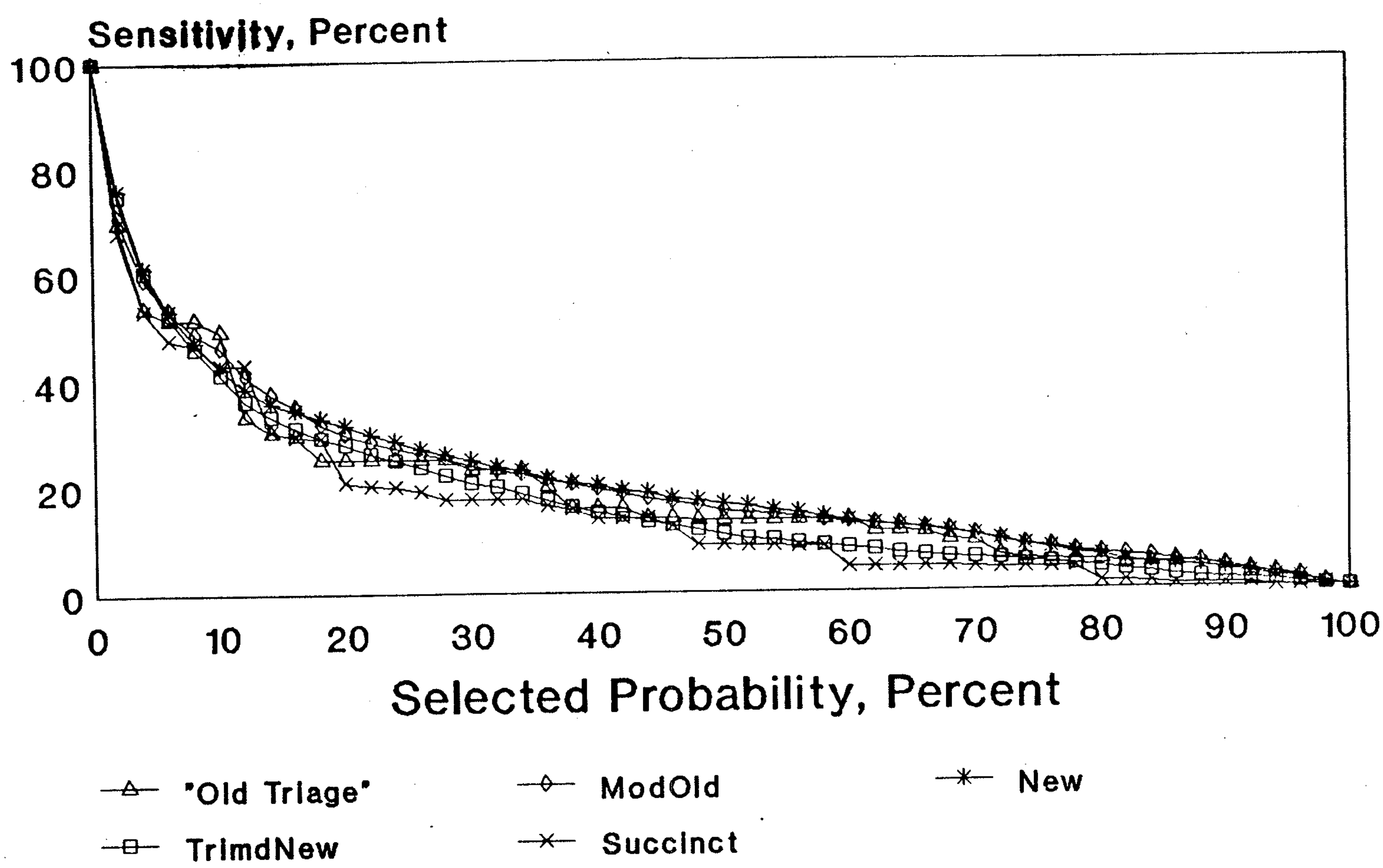

Fig. 3. Rate of False Positives in Shown Algorithms for Compelling Injury