Revised WG Final Report dated December 12, 2018

Estimation of the Reduction Effect for Traffic Accident Fatalities Study of Analysis Method

(Actions for FY 2018)

Institute for Traffic Accident Research and Data Analysis

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(Reference) SIP-adus Workshop Activities

(Reference) Effects of AEB (an ITARDA research presentation)

1. Actions for FY 2017 (details omitted)

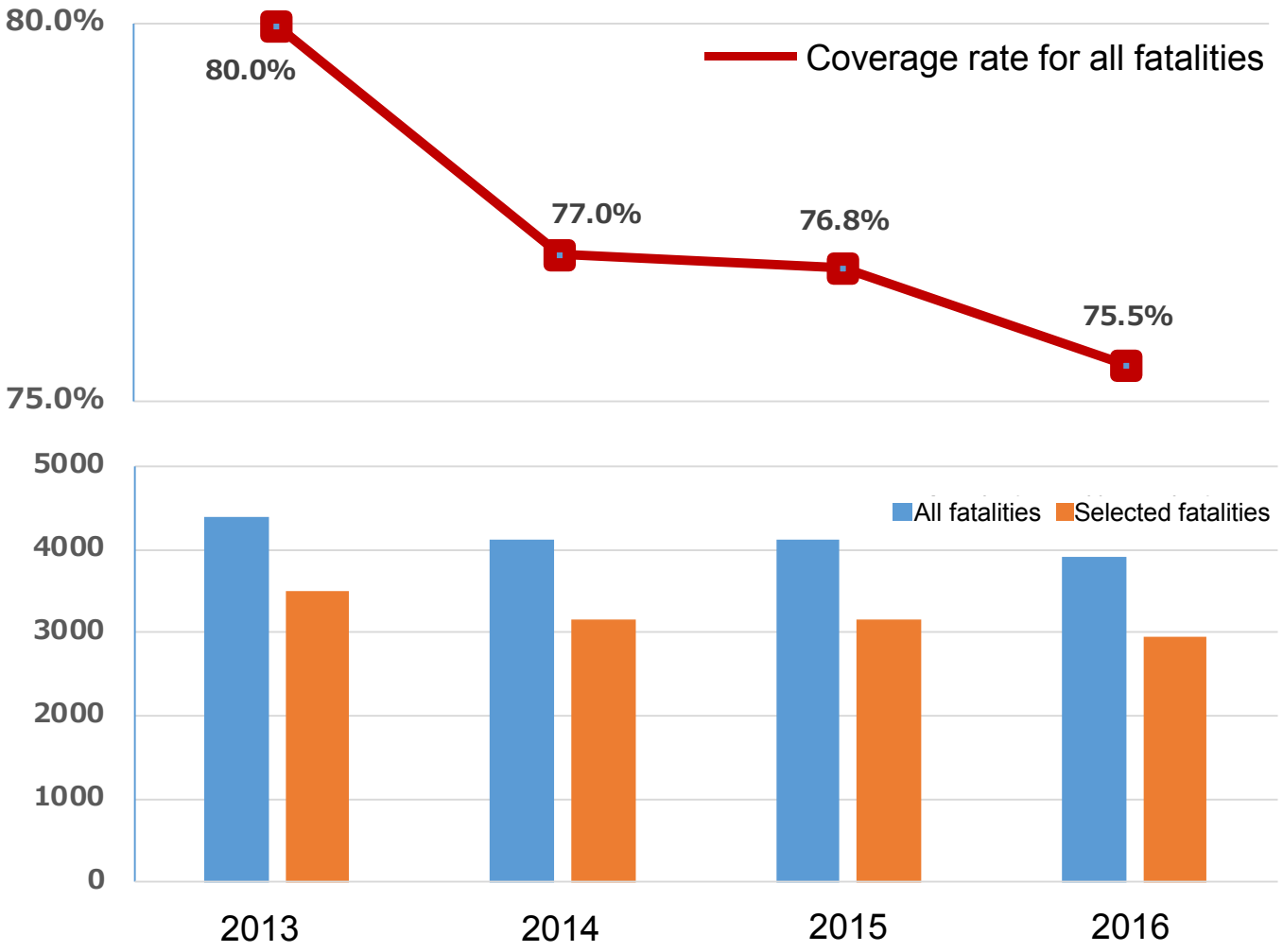
[Fixed-point observation]

- Tabulation and analysis of the SIP255 pattern

[Other analyses]

- Analysis of pattern changes
- Understanding the temporal variations regarding the SIP255 pattern and non-patterns, and their cause analysis, etc.

1. Challenges for FY 2017 - #1



The coverage rate dropped from 80% in the second year to reach 75.5% by the end of FY 2017, due to the reduction in traffic accident fatalities.

1. Challenges for FY 2017 - #2

SIP255 pattern names

- The first three letters represent the primary or the secondary party. Letters after [-] are set according to the order in the Pattern List.

- As such, it is difficult to get a grasp of the accident overview with just the pattern name.

A globally-appreciated pattern name is required

2. Actions for the FY 2018 Cabinet Office Specifications

1. **Close investigation of the traffic accident patterns**

   A New Pattern that enhances the coverage rate was created as a result of various permutations and combinations and it helped in the understanding of the overview of the accident.

2. **Organization of the past data**

   The past 4-year data was tabulated again on the basis of the New Pattern.

3. **Tabulation and analysis of the traffic accident data**

   The data for 2017 was tabulated and analyzed using the New Pattern.

   The summary of the newly-added single bicycle accidents was also analyzed.

3-(1). Close investigation of traffic accident patterns

Table: Changes in fatalities and coverage rate for the SIP255 pattern

					Target no. of persons					Selected sample size					
Type of road	Type of accident	Primary party	Secondary party	Code	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	No. of patterns
Public road	Vehicle to vehicle	Car	Car	CTC	636	631	608	587	536	583	555	521	517	476	28
		Car	Motorcycle	CTM	283	267	246	262	233	211	183	174	182	172	22
		Car	Bicycle	CTB	359	316	313	259	248	300	261	243	212	201	28
		Motorcycle	Car	MTC	204	185	186	171	179	140	130	126	111	125	13
		Motorcycle	Motorcycle	MTM	13	9	11	10	9	3	2	0	0	0	1
		Motorcycle	Bicycle	MTB	8	9	8	4	6	3	1	2	1	0	1
		Bicycle	Car	BTC	120	110	123	97	89	90	81	97	79	68	7
		Bicycle	Motorcycle	BTM	5	9	2	6	6						0
	Single vehicle	Car		SCA	655	616	578	616	586	557	497	488	475	459	47
		Motorcycle		SMA	215	197	188	203	182	164	136	143	139	128	23
	Vehicle to pedestrian	Car	Pedestrian	CTP	1301	1265	1267	1168	1130	1175	1109	1113	1045	991	50
		Motorcycle	Pedestrian	MTP	38	32	36	24	29	26	13	15	13	17	4
		Pedestrian	Car	PTC	126	112	138	87	94	106	84	113	70	81	10
		Pedestrian	Motorcycle	PTM	6	12	10	6	10						0
Expressway	Vehicle to vehicle	Car	Car	HCTC	91	65	68	75	64	72	45	51	46	46	8
		Car	Motorcycle	HCTM	7	3	5	2	4	3	1	0	0	2	1
		Motorcycle	Car	HMTC	6	5	10	6	4						0
	Single vehicle	Car		HSCA	82	83	90	68	58	69	64	66	53	41	10
		Motorcycle		HSMA	18	16	16	19	16	4	2	7	2	4	1
	Vehicle to pedestrian	Car	Pedestrian	HCTP	14	18	13	13	7	3	1	1	2	1	1
Total					4187	3960	3916	3683	3490	3509	3165	3160	2947	2812	255
Total fatalities					4388	4113	4117	3904	3694						
Coverage rate					95.4%	96.3%	95.1%	94.3%	94.5%	80.0%	77.0%	76.8%	75.5%	76.1%	

3-(1). Close investigation of traffic accident patterns

Results of last year's analysis:

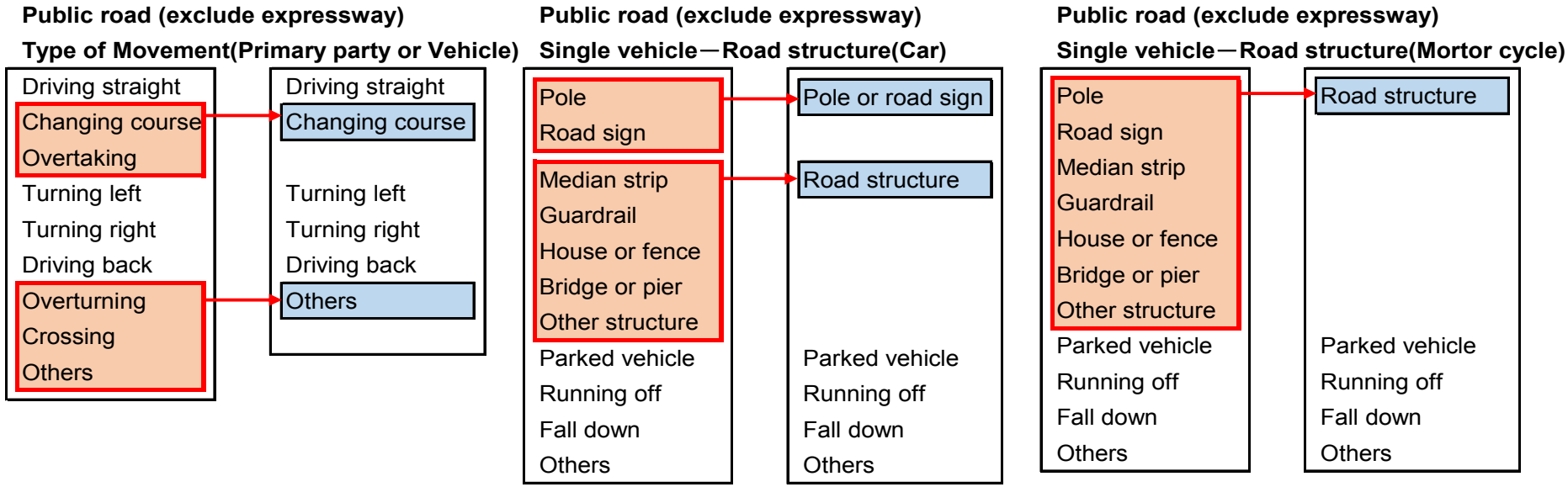
- In the SIP255 pattern, the coverage rate dropped due to the presence of 3 or less fatalities.
- When the SIP255 pattern was formulated in 2014, fatalities was less than 3 people, but in the next several years a non-pattern set of 3 or more fatalities came into existence.

Actions for this year:

- Integrate existing data to secure 3 or more fatalities
- Select non-pattern sets with many fatalities over several years

3-(2). Creation of New Pattern – Integrating the items

[Modifications for public roads]



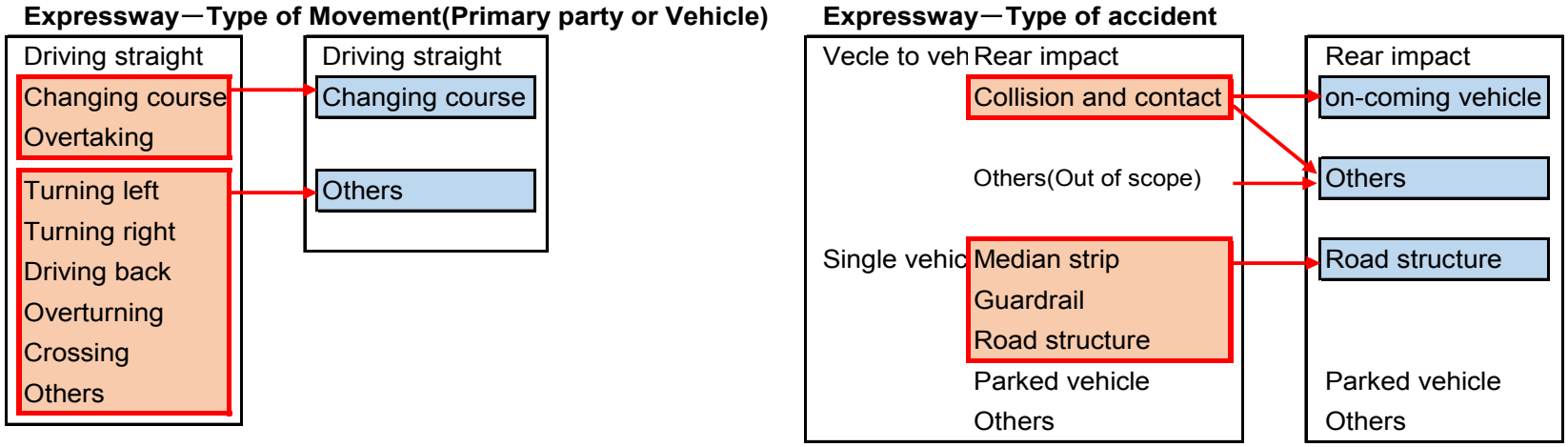
- Type of vehicle movement:
  - Similar vehicle movements such as “changing course” and “overtaking” were integrated.
  - Items with zero fatalities such as “overturning” and “crossing” were integrated with “others”.
- Road structures in single vehicle accidents:
  - Subdivision of road structures based on the Traffic Accident Statistics Record was eliminated and revised as needed.

    For cars, which had high fatalities due to collision with poles, it was differentiated into “pole” and “road sign”.

    For others, “pole” and “road sign” were integrated as “road structures”.

3-(2). Creation of New Pattern – Integrating the items

[Modifications for expressways]



- Type of vehicle movement:
  - "Changing course" and "overtaking" were integrated, as for public roads.
  - "Turning left", "turning right" and "driving back" were integrated with "others".
- Type of accident
  - Vehicle to vehicle accidents of "collision and contact" were classified into "on-coming vehicles" and "others".
  - A non-pattern item "others" was added for vehicle to vehicle accidents.
  - Single vehicle accident items of "median strip" and "guardrail" were integrated with "road structures".

3-(2). Creation of New Pattern – selection conditions

- The new items of “bicycle to bicycle”, “single bicycle” and “bicycle to pedestrian” accidents were added and based on the previously mentioned item integrations, the data from 2013 to 2017 was tabulated.
- Patterns for 3 or more fatalities in the 5-year average were selected.

With 202 patterns, the coverage rate for 2017 improved to 80.0%.

- Furthermore, taking the future changes in fatalities into consideration, 8 patterns showing an improving trend from the non-pattern set of the 5-year average fatalities of 2 to less than 3 people, were added.

Finally, with a total of 210 patterns, a coverage rate of 80.7% was achieved for 2017.

3-(2). Creation of New Pattern – Pattern overview

Table: Changes in fatalities and coverage rate for the New SIP210 pattern

				Target no. of persons					Selected sample size					
Type of road	Type of accident	Primary party	Secondary party	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	No. of patterns
Public road	Vehicle to vehicle	Car	Car	636	631	608	587	536	569	555	526	513	481	24
		Car	Motorcycle	283	267	246	262	233	178	181	171	172	162	14
		Car	Bicycle	359	316	313	259	248	268	250	229	211	193	21
		Motorcycle	Car	204	185	186	171	179	145	137	133	119	133	14
		Motorcycle	Motorcycle	13	9	11	10	9						
		Motorcycle	Bicycle	8	9	8	4	6						
		Bicycle	Car	120	110	123	97	89	81	70	93	76	62	4
		Bicycle	Motorcycle	5	9	2	6	6						
		Bicycle	Bicycle	3	2	1	2	1						
	Single vehicle	Car		655	616	578	616	586	588	547	525	544	518	32
		Motorcycle		215	197	188	203	182	178	168	155	172	153	14
		Bicycle		86	78	113	122	109	65	56	80	87	73	9
	Vehicle to pedestrian	Car	Pedestrian	1301	1265	1267	1168	1129	1148	1119	1122	1064	991	46
		Pedestrian	Car	126	112	138	87	94	101	83	114	70	82	9
		Motorcycle	Pedestrian	38	32	36	24	29	26	13	15	13	17	4
		Pedestrian	Motorcycle	6	12	10	6	10						
		Bicycle	Pedestrian	2	2	8	3	3						
		Pedestrian	Bicycle	1	0	0	0	0						
Expressway	Vehicle to vehicle	Car	Car	95	72	75	82	77	72	53	61	58	57	9
		Car	Motorcycle	7	6	6	3	4						
		Motorcycle	Car	7	5	11	7	5						
	Single vehicle	Car		82	83	90	68	58	73	72	74	61	49	7
		Motorcycle		18	16	16	19	16	8	8	11	6	10	2
	Vehicle to pedestrian	Car	Pedestrian	14	18	13	13	7	2	4	4	5	1	1
Total				4284	4052	4047	3819	3616	3502	3316	3313	3171	2982	210
Total fatalities				4388	4113	4117	3904	3694						
Coverage rate				97.6%	98.5%	98.3%	97.8%	97.9%	79.8%	80.6%	80.5%	81.2%	80.7%	

3-(2). Creation of New Pattern – Revising Pattern Names

(1)

Type of Road		
一般道路	P	Public road (exclude expressway)
高速道路	E	Expressway

(2)

Primary party		
四輪車	C	Car
二輪車	M	Motercycle
自転車	B	Bicycle
歩行者	P	Pedestrian

(2)

Secondary party		
四輪車	C	Car
二輪車	M	Motercycle
自転車	B	Bicycle
歩行者	P	Pedestrian
単独事故	S	Single

(3)

Type of Accident (public road)			
Vehicle to vehicle	正面衝突	HD	Head on
	追突	RE	Rear end
	出会い頭	CR	Crossing
	追抜追越	OT	Overtaking
	すれ違い	PE	Passing each other
	左折時	TL	Turning left
	右折時	TR	Turning right
	その他	ZZ	Others
Single vehicle	電柱･標識	PS	Pole or road sign
	工作物*	RS	Road structures
	駐車車両	PV	Parked vehicle
	路外逸脱	RF	Running off
	転倒	FD	Fall down (include car R/O)
	その他	ZZ	Others
Vehicle to pedestrian	対背面	AS	Along street
	横断歩道	PC	Pedestrian crossing
	その他横断	ZC	Other crossing
	路上	RD	On road
	その他	ZZ	Others

Type of Accident (expressway)			
Vehicle to vehicle	追突	RE	Rear end
	対向車に	OV	Oncoming vehicle
	他衝突接触	ZZ	Other collision
Single vehicle	工作物	RS	Road structures
	駐車車両	PV	Parked vehicle
	その他	ZZ	Others
Vehicle to pedestrian		PE	Pedestrian

Road Configuration	
Signalized intersection	11
Non-signalized intersection	12
Near intersection	13
Tunnel, bridge	21
Curve	22
Uninterrupted public road	23
General traffic area	99

Type of Movement		
発進･直進	DS	Driving straight
追越･進路変更	CC	Changing cource
左折	TL	Turning left
右折	TR	Turning right
後退	DB	Driving back
その他	ZZ	Others

Direction of other party	
Same direction	1
Opposite direction	2
From right	3
From left	4
Right side	5
Left side	6
Stopped	7
Other	8
Not applicable (single)	0

(1) 1st digit: Expressway (E), Public road (P) was also clarified.

(2) 2nd and 3rd digits: Abbreviation for primary and secondary party follows. (T was eliminated)

(3) “Type of accident and road configuration” - “type of movement and direction of other party” were encoded using abbreviations and numbers.

3-(2). Creation of New Pattern – Comparison of old/new patterns

Total fatalities for 5 years

Type of accident	Type of road	Primary party	Secondary party	Type of accident	Road configuration		Type of movement	Direction of other party
Vehicle to vehicle	Public road	Car	Car	Head on	Intersection	Signalized	Driving straight	same direction
		Motercycle	Motercycle	Rear end		Non-signalized	Overtaking	Opposite direction
		Bicycle	Bicycle	Crossing	Near intersection		Changing course	From right
				Overtaking	Tunnel, bridge		Turning left	From left
				Passing each other	Curve		Turning right	Stopped
				Turning left	Uninterrupted road		Driving back	
				Turning right	General trafic area		Others	
				Others				

14 people

Vehicle to vehicle	Public road	Car	Car	Head on	Intersection	Signalized	Driving straight	same direction
		Motercycle	Motercycle	Rear end		Non-signalized	Overtaking	Opposite direction
		Bicycle	Bicycle	Crossing	Near intersection		Changing course	From right
				Overtaking	Tunnel, bridge		Turning left	From left
				Passing each other	Curve		Turning right	Stopped
				Turning left	Uninterrupted road		Driving back	
				Turning right	General trafic area		Others	
				Others				

2 people

PCC-HD13-CC2

Type of accident	Type of road	Primary party	Secondary party	Type of accident	Road configuration		Type of movement	Direction of other party
Vehicle to vehicle	Public road	Car	Car	Head on	Intersection	Signalized	Driving straight	same direction
		Motercycle	Motercycle	Rear end		Non-signalized	Changing course	Opposite direction
		Bicycle	Bicycle	Crossing	Near intersection		Turning left	From right
				Overtaking	Tunnel, bridge		Turning right	From left
				Passing each other	Curve		Driving back	Stopped
				Turning left	Uninterrupted road		Others	
				Turning right	General trafic area			
				Others				

16 people

3-(2). Creation of New Pattern – Comparison of old/new patterns

Total fatalities for 5 years

SCA-04

Type of accident	Type of roa	Primary par	Secondary part	Type of accident	Road configuration		Type of movement
Single vehicle	Public road	Car	–	Pole	Intersection	Signalized	Driving straight
		Motercycle	–	Road sign		Non-signalized	Changing course
				Median strip	Near intersection		Turning left
				Guardrail	Tunnel, bridge		Turning right
				House or fence	Curve		Driving back
				Bridge or pier	Uninterrupted road		Others
				Other structure	General trafic area		その他
				Parked vehicle			
				Running off			
				Fall down			
				Others			

22 people

Single vehicle	Public road	Car	–	Pole	Intersection	Signalized	Driving straight
		Motercycle	–	Road sign		Non-signalized	Changing course
				Median strip	Near intersection		Turning left
				Guardrail	Tunnel, bridge		Turning right
				House or fence	Curve		Driving back
				Bridge or pier	Uninterrupted road		Others
				Other structure	General trafic area		その他
				Parked vehicle			
				Running off			
				Fall down			
				Others			

13 people

PCS-PS12-DS0

Type of accident	Type of roa	Primary par	Secondary part	Type of accident	Road configuration		Type of movement
Single vehicle	Public road	Car	–	Pole or road sign	Intersection	Signalized	Driving straight
		Motercycle	–	Road structure		Non-signalized	Changing course
				Parked vehicle	Near intersection		Turning left
				Running off	Tunnel, bridge		Turning right
				Fall down	Curve		Driving back
				Others	Uninterrupted road		Others
					General trafic area		

35 people

3-(2). Creation of New Pattern – Comparison of old/new patterns

- Total ten patterns from 5 types other than pole and road structures and the 2 types of overtaking and lane change were integrated.

- All other individual patterns showed fatalities of 15 or less in the 5-year total and their integration resulted in their selection as the New Pattern.

Total fatalities for 5 years

PCS-RS22-CC0

Type of accident
Single vehicle

Type of road	Primary party	Secondary party
Public road	Car	–
	Motercycle	–

Type of accident
Pole or road sign
Road structure
Parked vehicle
Running off
Fall down
Others

Road configuration	
Intersection	Signalized
	Non-signalized
Near intersection	
Tunnel, bridge	
Curve	
Uninterrupted road	
General trafic area	

Type of movement
Driving straight
Changing course
Turning left
Turning right
Driving back
Others

35 people

3-(3). Tabulation of the 2017 data

パターンコード	道路	1当	2当	事故類型	道路形状	車行動類型	相手位置
PCC-HD11-DS2	一般道	四輪車	四輪車	正面衝突	信号交差点	発進・直進	対向
PCC-HD13-DS2	一般道	四輪車	四輪車	正面衝突	交差点付近	発進・直進	対向
PCC-HD13-CC2	一般道	四輪車	四輪車	正面衝突	交差		
PCC-HD21-DS2	一般道	四輪車	四輪車	正面衝突	トン		
PCC-HD22-DS2	一般道	四輪車	四輪車	正面衝突	カー		
PCC-HD22-CC2	一般道	四輪車	四輪車	正面衝突	カー		
PCC-HD23-DS2	一般道	四輪車	四輪車	正面衝突	一般		
PCC-HD23							
PCC-RE13							
PCC-RE13							
PCC-RE23							
PCC-RE23							
PCC-CR11							
PCC-CR11							
PCC-CR12							
PCC-CR12							
PCC-CR12							
PCC-OT23							
PCC-PE22							
PCC-PE23							
PCC-TR11							
PCC-TR11							
PCC-TR12							
PCC-ZZ22							

パターンコード	道路	1当	2当	事故類型	道路形状	車行動類型	相手位置
PCP-AS13-DS6	一般道	四輪車	歩行者	対・背面	交差点付近	発進・直進	左側
PCP-AS22-DS6	一般道	四輪車	歩行者	対・背面	カーブ・屈折	発進・直進	左側
PCP-AS23-DS5							
PCP-AS23-DS6							
PCP-PC11-DS3							
PCP-PC11-DS4							
PCP-PC11-TL3							
PCP-PC11-TL4							
PCP-PC11-TR3							
PCP-PC11-TR4							
PCP-PC12-DS3							
PCP-PC12-DS4							
PCP-PC12-TR4							
PCP-PC13-DS3							
PCP-PC23-DS3							
PCP-PC23-DS4							
PCP-ZC11-DS3							
PCP-ZC							
PCP-ZC							
PCP-ZC							
PCP-ZC							

パターンコード	道路	1当	2当	事故類型	道路形状	車行動類型
PCS-PS11-DS0	一般道	四輪車		電柱・標識	信号交差点	発進・直進
PCS-PS12-DS0	一般道	四輪車		電柱・標識	無信号交差点	発進・直進
PCS-PS13-DS0	一般道	四輪車		電柱・標識	交差点付近	発進・直進
PCS-PS22-DS0	一般道	四輪車		電柱・標識	カーブ・屈折	発進・直進
PCS-PS23-DS0	一般道	四輪車		電柱・標識	一般単路	発進・直進
PCS-PS23-CC0	一般道	四輪車		電柱・標識	一般単路	追越・進路変更
PCS-RS11-DS0	一般道	四輪車		他工作物	信号交差点	発進・直進
PCS-RS12-DS0	一般道	四輪車		他工作物	無信号交差点	発進・直進
PCS-RS13-DS0	一般道	四輪車		他工作物	交差点付近	発進・直進
PCS-RS13-CC0	一般道	四輪車		他工作物	交差点付近	追越・進路変更
PCS-RS21-DS0	一般道	四輪車		他工作物	トンネル・橋	発進・直進
PCS-RS22-DS0	一般道	四輪車		他工作物	カーブ・屈折	発進・直進
PCS-RS22-CC0	一般道	四輪車		他工作物	カーブ・屈折	追越・進路変更

パターンコード	道路	1当	2当	事故類型	道路形状	車行動類型
PCM-HD22-DS2	一般道	四輪車	二輪車	正面		
PCM-HD23-DS2	一般道	四輪車	二輪車	正面		
PCM-RE13-DS1	一般道	四輪車	二輪車	追突		
PCM-RE23-DS1	一般道	四輪車	二輪車	追突		
PCM-CR11-DS3	一般道	四輪車	二輪車	出会		
PCM-CR11-DS4	一般道	四輪車	二輪車	出会		
PCM-CR1						
PCM-CR1						
PCM-OT2						
PCM-TR1						
PCM-TR1						
PCM-TR1						
PCM-TR2						
PMC-HD2						
PMC-HD2						
PMC-HD2						

パターンコード	道路	1当	2当	事故類型	道路形状	車行動類型
PCB-RE13-DS1	一般道	四輪車		自		
PCB-RE21-DS1	一般道	四輪車		自		
PCB-RE22-DS1	一般道	四輪車		自		
PCB-RE23-DS1	一般道	四輪車		自		
PCB-CR11-DS3	一般道	四輪車		自		
PCB-CR11-DS4	一般道	四輪車		自		
PCB-CR12-DS3	一般道	四輪車		自		
PCB-CR12-DS4	一般道	四輪車		自		
PCB-CR13-DS3	一般道	四輪車		自		
PCB-CR13-DS4	一般道	四輪車		自転車		
PCB-CR23-DS3	一般道	四輪車		自転車	出	
PCB-CR23-DS4	一般道	四輪車		自転車	出	
PCB-OT23-DS1	一般道	四輪車		自転車	追	
PCB-TL11-TL1	一般道	四輪車		自転車	左	
PCB-TL11-TL2	一般道	四輪車		自転車	左	
PCB-TL12-TL1	一般道	四輪車		自転車	左	
PCB-TR11-TR1	一般道	四輪車		自転車	右	
PCB-TR11-TR2	一般道	四輪車		自転車	右	

パターンコード	1当	2当	事故類型	道路形状	車行動類型	相手位置
ECC-RE21-DS7	四輪車	四輪車	追突	トンネル・橋	発進・直進	停止
ECC-RE21-DS1	四輪車	四輪車	追突	トンネル・橋	発進・直進	同方向
ECC-RE23-DS7	四輪車	四輪車	追突	一般単路	発進・直進	停止
ECC-RE23-DS1	四輪車	四輪車	追突	一般単路	発進・直進	同方向
ECC-OV21-DS2	四輪車	四輪車	対向車に衝突	トンネル・橋	発進・直進	対向
ECC-OV22-DS2	四輪車	四輪車	対向車に衝突	カーブ・屈折	発進・直進	対向
ECC-OV23-DS2	四輪車	四輪車	対向車に衝突	一般単路	発進・直進	対向
ECC-ZZ23-DS7	四輪車	四輪車	その他衝突	一般単路	発進・直進	停止
ECC-ZZ23-CC1	四輪車	四輪車	その他衝突	一般単路	追越・進路変更	同方向
ECS-RS21-DS0	四輪車	-	工作物	トンネル・橋	発進・直進	-
ECS-RS22-DS0	四輪車	-	工作物	カーブ・屈折	発進・直進	-
ECS-RS23-DS0	四輪車	-	工作物	一般単路	発進・直進	-

3-(3). Tabulation of the 2017 data – Format of Pattern sheet

事故概要

パターンナンバー	GBC-CR12-ST4
路線	一般道路
当事車種別（1当）	四輪車　二輪車　自転車
当事車種別（2当）	四輪車　二輪車　自転車
事故類型 車両相互	正面衝突 すれ違い その他
道路形状	交差点内（信 カーブ
行動類型（1当）	発進・直進 後退
進行方向（2当）	同方向　対向

集計結果

	死亡	
事故件数 / %		0.0
死傷者数 / %		0.0

	死亡
全事故件数	
全死傷者数	

事故概要

パターンナンバー	HCC-RE23-ST7
路線	高速道路
当事車種別（1当）	四輪車
当事車種別（2当）	四輪車
事故類型 車両相互	追突　対向車に　他衝突接触
道路形状	トンネル・橋
行動類型（1当）	発進・直進
進行方向（2当）	同方向

集計結果

	死亡
事故件数 / %	
死傷者数 / %	

	死亡
全事故件数	
全死傷者数	

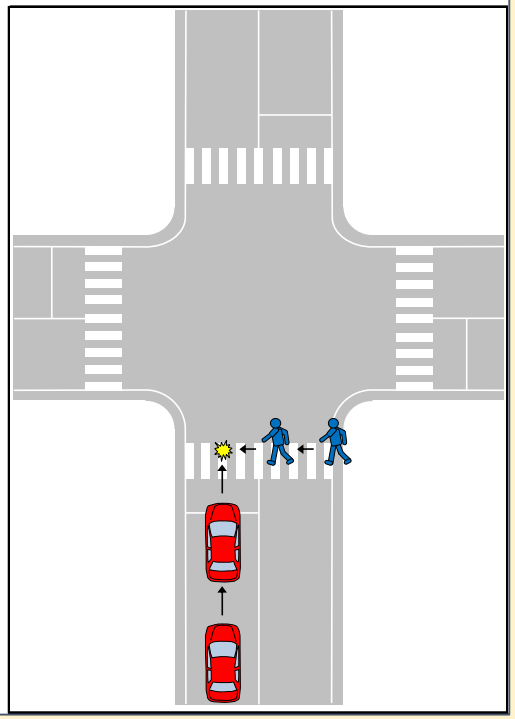
事故概要

パターンナンバー	GCP-PC12-ST3			
路線	一般道路			
当事車種別（1当）	四輪車	二輪車	歩行者	
当事車種別（2当）	四輪車	二輪車	歩行者	
事故類型 人対車両	対背面	横断歩道	その他横断	路上
	その他			
道路形状	交差点内（信号有	信号無）	交差点付近	トンネル・橋
	カーブ	一般単路	一般交通の場所	
行動類型（1当）	発進・直進	追越・進路変更	左折	右折
	後退	その他		
進行方向（2当）	左側　右側	右から	左から　停止　その他	

集計結果

	死亡		重傷		軽傷		死傷	
事故件数 / %		0.0%		0.0%		0.0%		0.0%
死傷者数 / %		0.0%		0.0%		0.0%		0.0%

	死亡	重傷	軽傷	死傷
全事故件数				
全死傷者数				



3-(3). Tabulation of the 2017 data – Format of Analysis sheet

法令違反（自転車）		件数	構成率
信号無視			#DIV/0!
通行区分			#DIV/0!
横断・転回違反			#DIV/0!
優先通行妨害等			#DIV/0!
交差点安全進行	交差道路通行車両		#DIV/0!
	その他		#DIV/0!
徐行場所違反			#DIV/0!
指定場所一時不停止等			#DIV/0!
自転車の通行方法違反			#DIV/0!
安全運転義務違反	操作不適		#DIV/0!
	前方不注意		#DIV/0!
	動静不注視		#DIV/0!
	安全不確認		#DIV/0!
	その他		#DIV/0!
その他の違反			#DIV/0!
調査不能・違反なし			#DIV/0!

人的要因（自転車）			件数	構成率
発見の遅れ	前方不注意			#DIV/0!
	安全不確認	安全確認をしなかった		#DIV/0!
		安全確認が不十分だった		#DIV/0!
判断の誤り等	動静不注視	相手が譲ってくれると思って注視を怠った		#DIV/0!
		その他の動静不注視		#DIV/0!
	予測不適	相手がルールを守る・譲ってくれると思った		#DIV/0!
		その他の予測不適		#DIV/0!
	交通環境			#DIV/0!
操作上の誤り等	操作不適	ブレーキ操作の誤り		#DIV/0!
		ハンドル操作の誤り		#DIV/0!
		その他の操作不適		#DIV/0!
保護者等の不注意等				#DIV/0!
調査不能・人的要因なし				#DIV/0!

昼夜別	件数	構成率
明		#DIV/0!
昼		#DIV/0!
暮		#DIV/0!
夜		#DIV/0!

天候	件数	構成率
晴		#DIV/0!
曇		#DIV/0!
雨		#DIV/0!
霧		#DIV/0!
雪		#DIV/0!

路面状態	件数	構成率
乾燥		#DIV/0!
湿潤		#DIV/0!
凍結・積雪		#DIV/0!
非舗装		#DIV/0!

中央分離帯施設等	件数	構成率
中央分離帯		#DIV/0!
中央線		#DIV/0!
中央分離なし		#DIV/0!
一般交通の場所		#DIV/0!

道路種別	件数	構成率
国道		#DIV/0!
主要地方道		#DIV/0!
一般地方道		#DIV/0!
その他		#DIV/0!

地形		件数	構成率
市街地	人口集中		#DIV/0!
	その他		#DIV/0!
非市街地			#DIV/0!

法令違反（自転車）		件数	構成率
信号無視			#DIV/0!
通行区分			#DIV/0!
横断・転回違反			#DIV/0!
優先通行妨害等			#DIV/0!
交差点安全進行	交差道路通行車両		#DIV/0!
	その他		#DIV/0!
徐行場所違反			#DIV/0!
指定場所一時不停止等			#DIV/0!
自転車の通行方法違反			#DIV/0!
安全運転義務違反	操作不適		#DIV/0!
	前方不注意		#DIV/0!
	動静不注視		#DIV/0!
	安全不確認		#DIV/0!
	その他		#DIV/0!
その他の違反			#DIV/0!
調査不能・違反なし			#DIV/0!

年齢層（１当）	件数	構成率
6歳以下		#DIV/0!
7-15歳		#DIV/0!
16-24歳		#DIV/0!
25-49歳		#DIV/0!
50-54歳		#DIV/0!
55-64歳		#DIV/0!
65-74歳		#DIV/0!
75歳以上		#DIV/0!

人的要因（自転車）			件数	構成率
発見の遅れ	前方不注意			#DIV/0!
	安全不確認	安全確認をしなかった		#DIV/0!
		安全確認が不十分だった		#DIV/0!
判断の誤り等	動静不注視	相手が譲ってくれると思って注視を怠った		#DIV/0!
		その他の動静不注視		#DIV/0!
	予測不適	相手がルールを守る・譲ってくれると思った		#DIV/0!
		その他の予測不適		#DIV/0!
	交通環境			#DIV/0!
操作上の誤り等	操作不適	ブレーキ操作の誤り		#DIV/0!
		ハンドル操作の誤り		#DIV/0!
		その他の操作不適		#DIV/0!
保護者等の不注意等				#DIV/0!
調査不能・人的要因なし				#DIV/0!

3-(5) Analysis of Bicycle Accidents

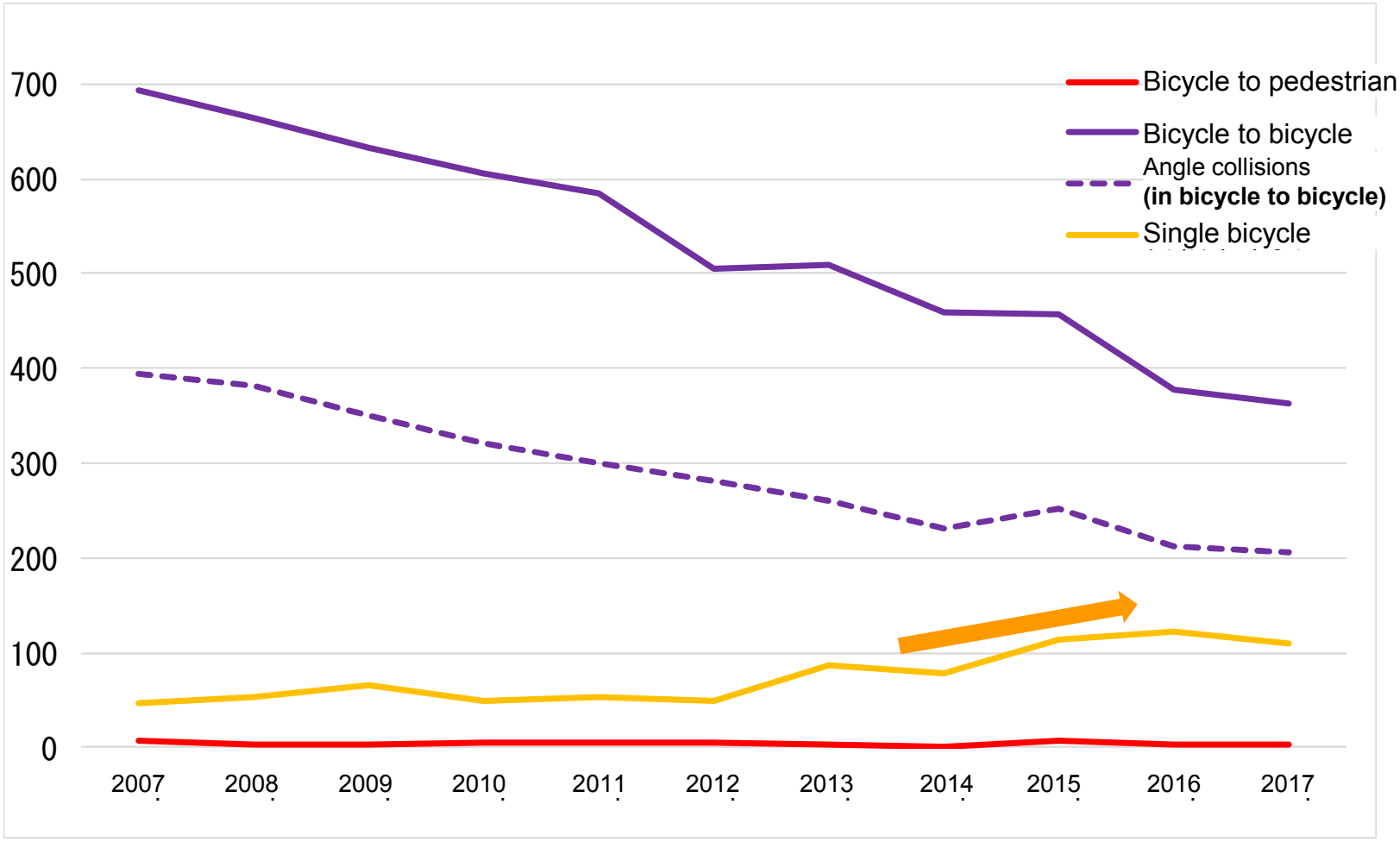


Figure: Changes in fatality accident cases for bicycles (2007 to 2017)

Recently, fatalities from single bicycle accidents are on a rising trend

3-(5) Analysis of Bicycle Accidents

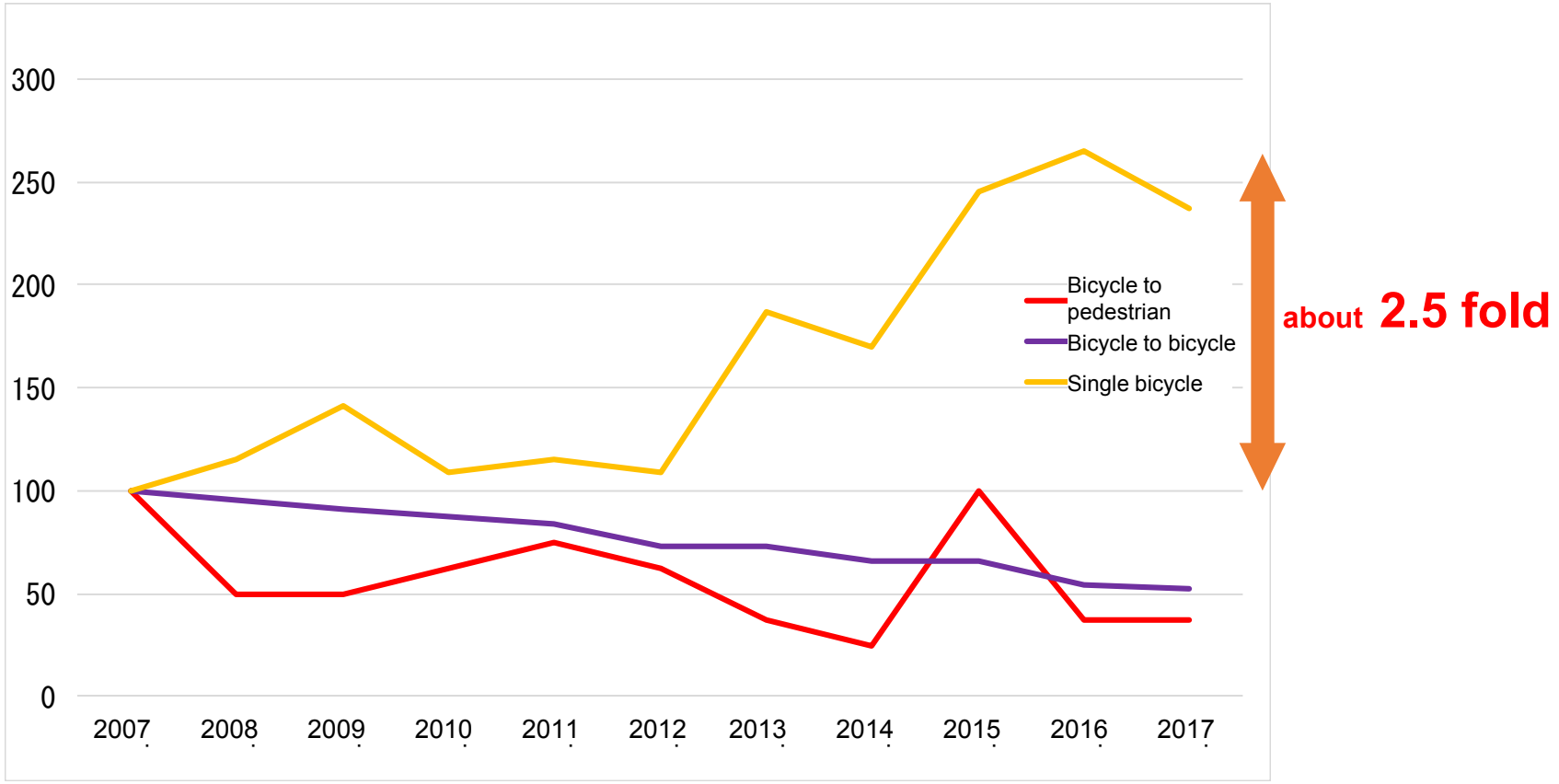


Figure: Changes in fatality accident case indices* for bicycles (2007 to 2017)

* The value for 2007 is taken as 100.

Single bicycle accidents have increased 2.5 folds from 2007

3-(5) Analysis of Single Bicycle Accidents

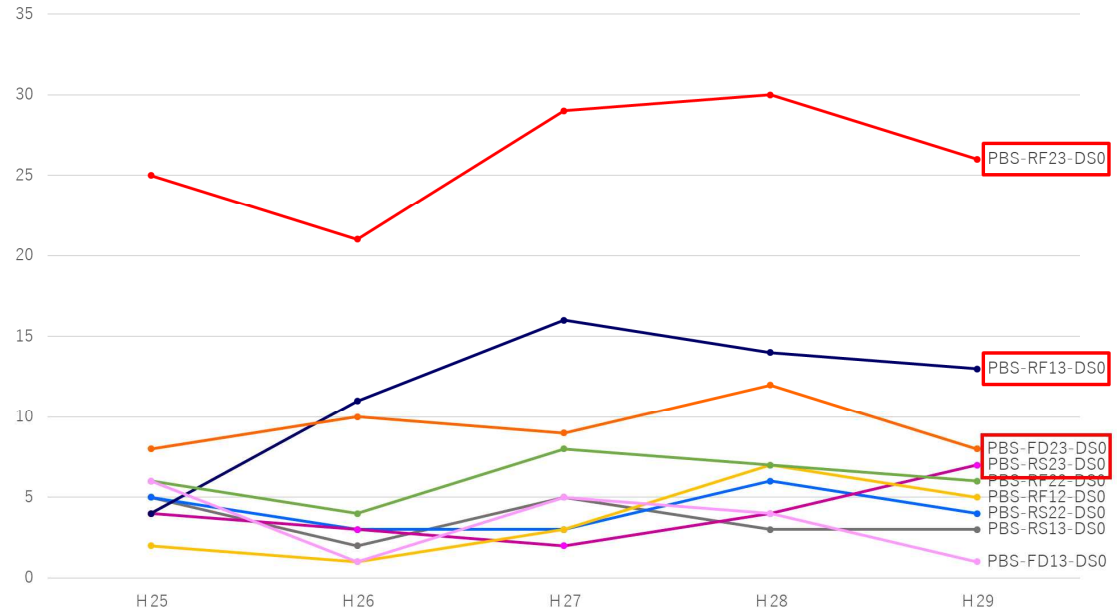
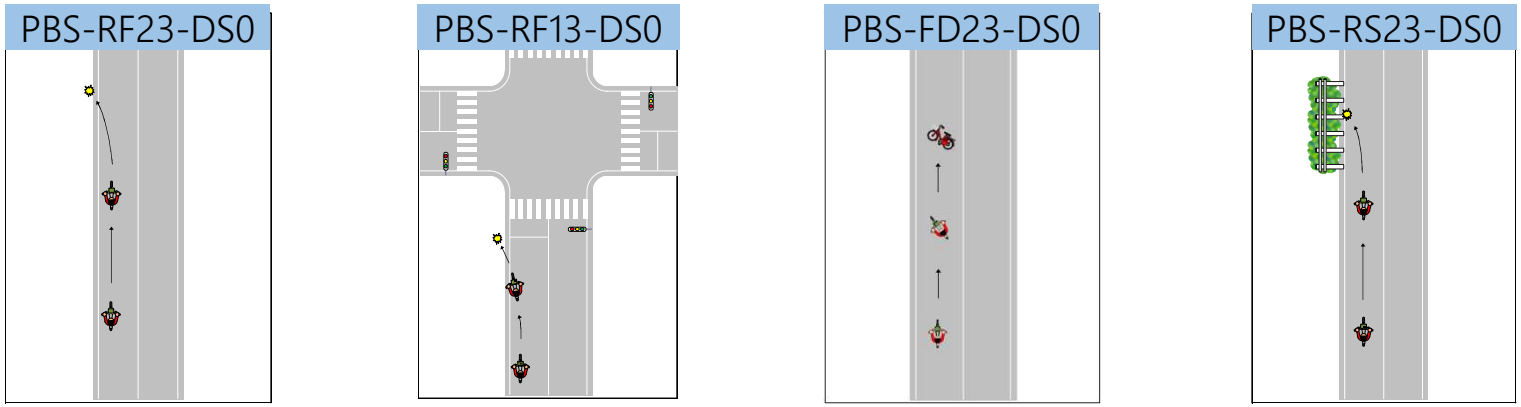
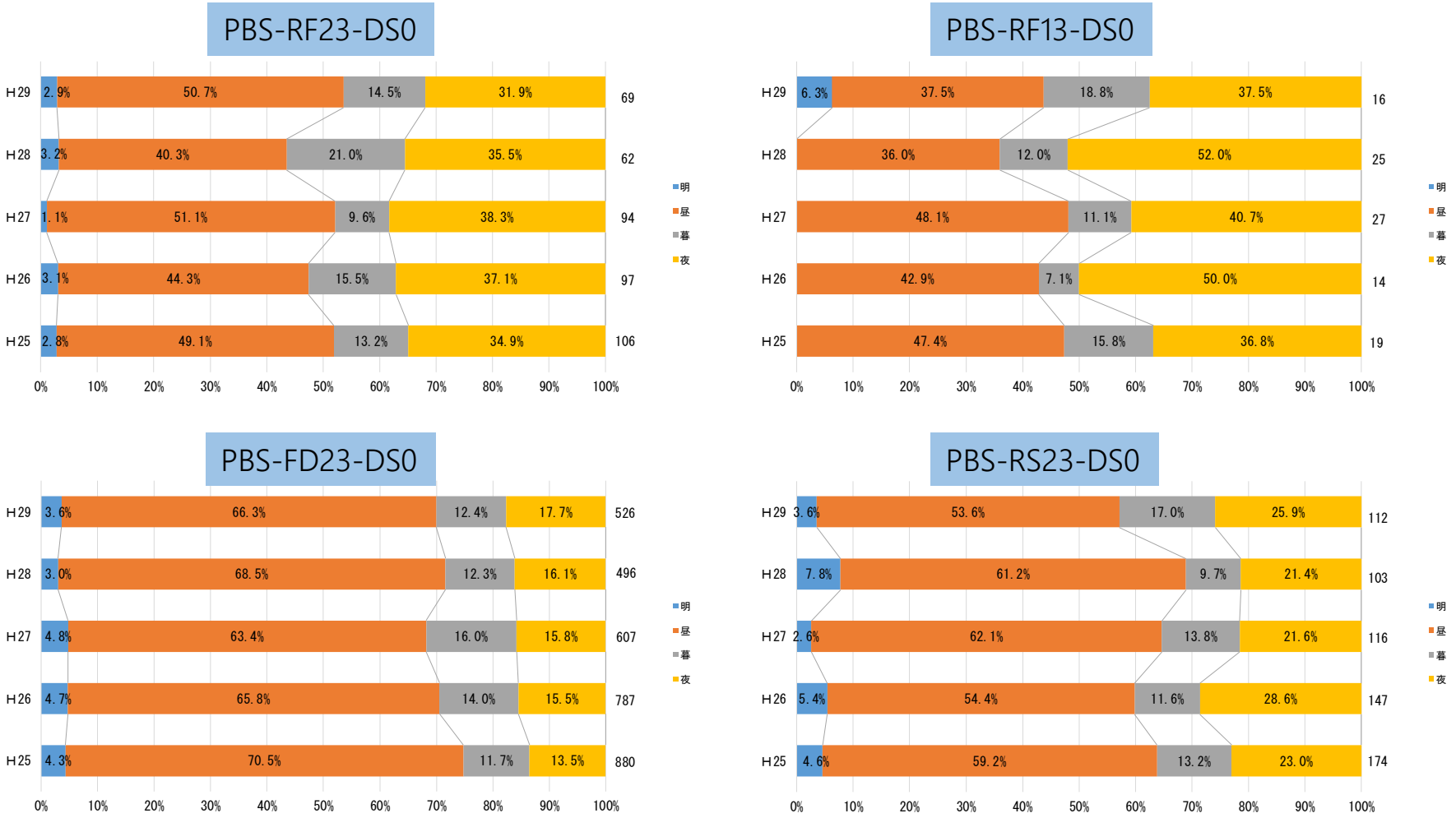


Figure: Changes in fatalities for the 9 patterns of single bicycle accidents (2013 to 2017)



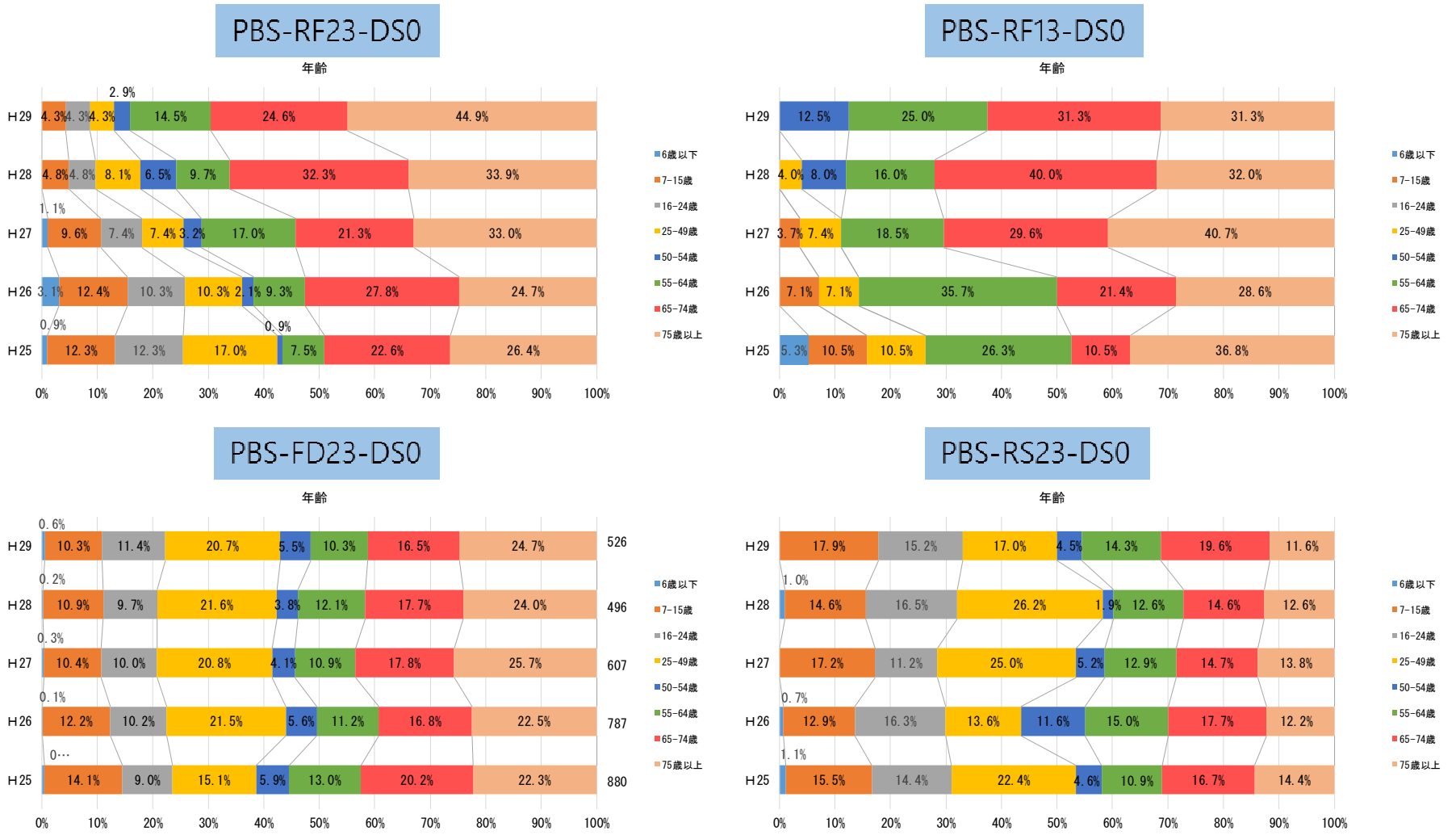
The worst 4 patterns from the 9 patterns

3-(5) Analysis of Single Bicycle Accidents –by day/night–



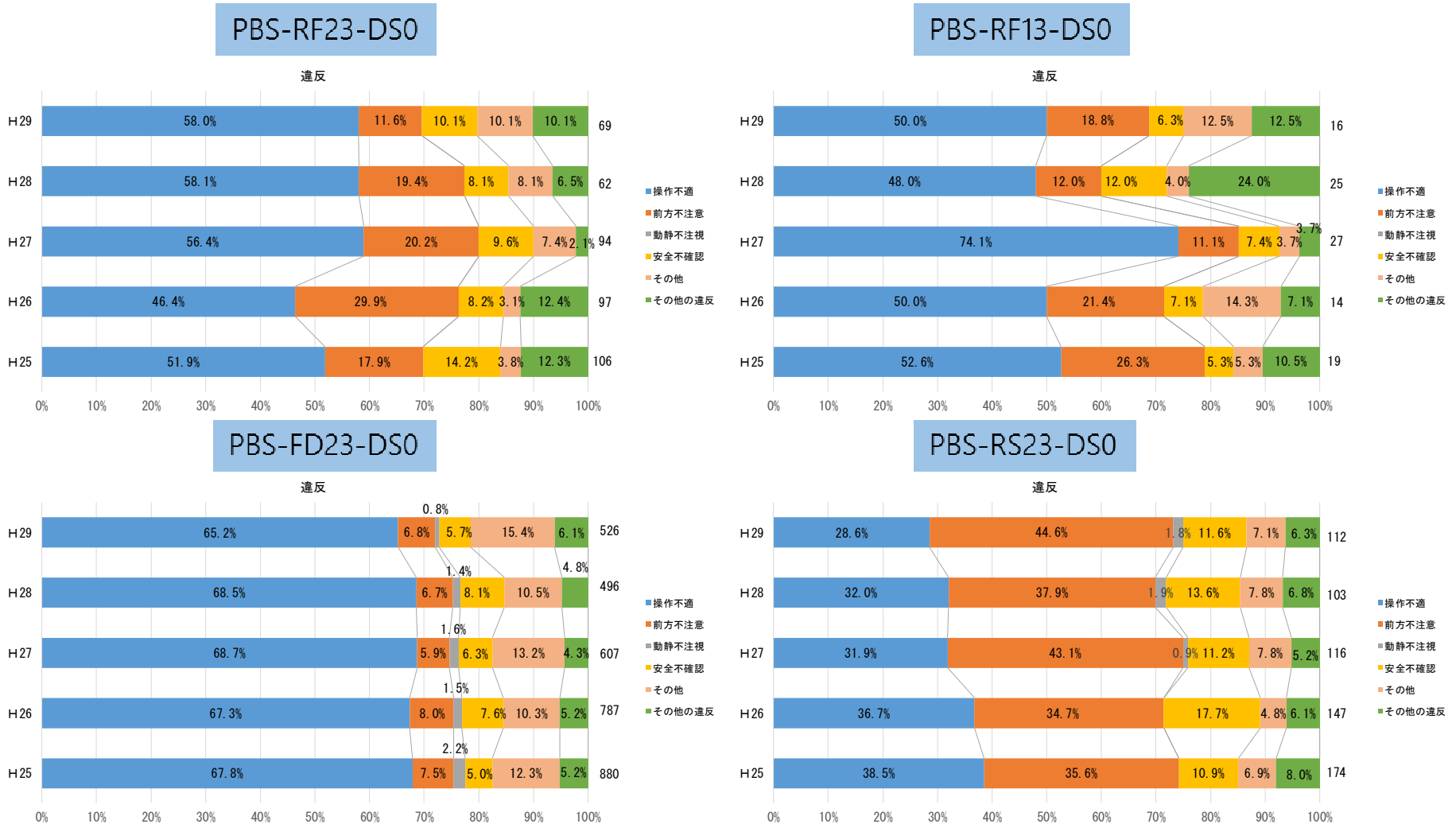
Running off lane are more frequent during the night,
Falling down/collision with road structures are more during the day

3-(5) Analysis of Single Bicycle Accidents –by age group–



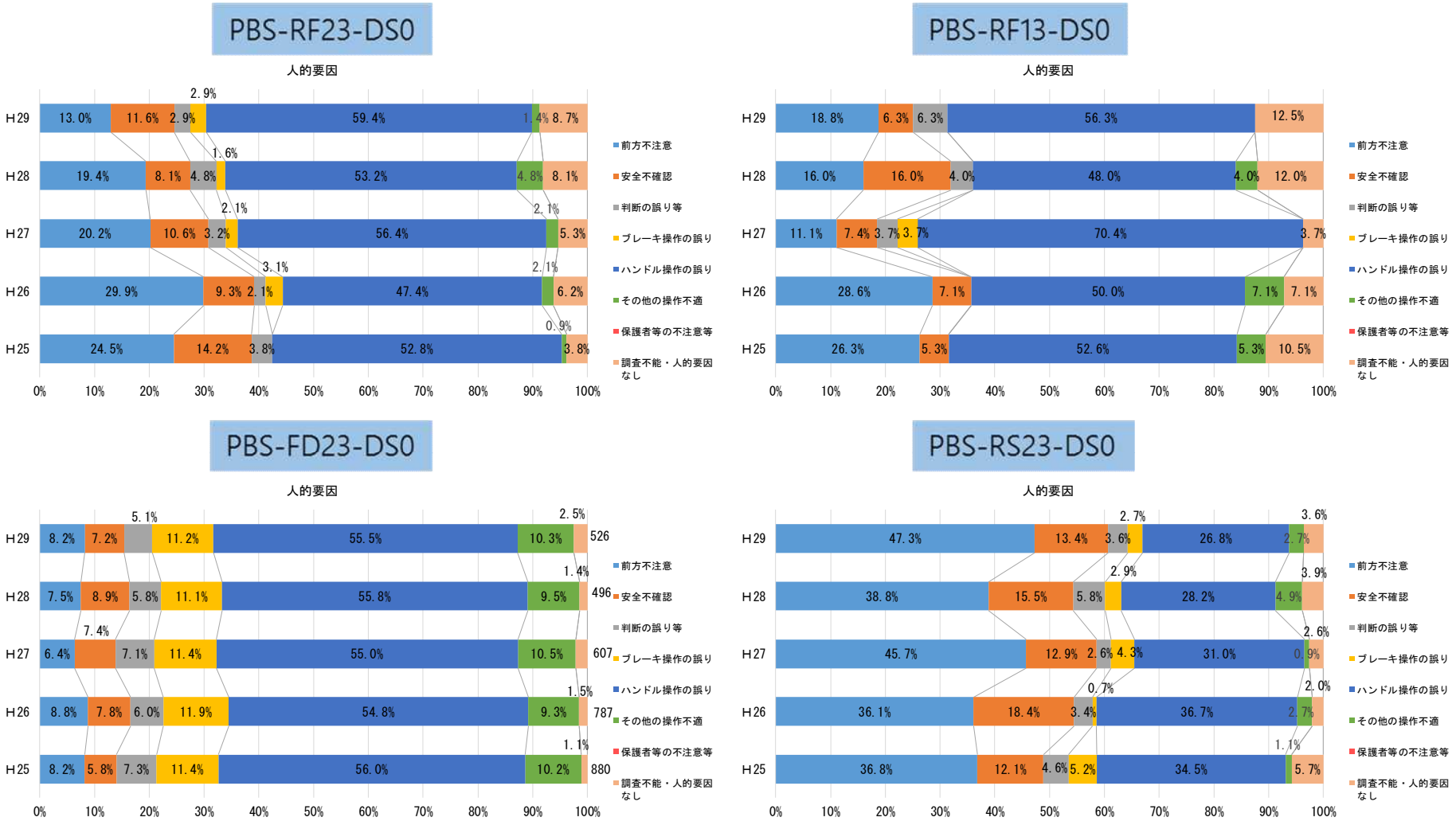
Running off lane are more frequent for elderly cyclists;
Falling down/collision with road structures are more for young cyclists

3-(5) Analysis of Single Bicycle Accidents –by violations–



Running off lane and falling down are more due to improper steering;
Collisions with road structures are more due to failure to pay attention forward

3-(5) Analysis of Single Bicycle Accidents –by human factors–



The cause for running off lane and falling down was incorrect steering;
Causes for collisions with road structures were failure to pay attention forward and incorrect steering

4. Conclusion

- Old patterns were closely investigated and New Patterns (N=210) were created to secure a coverage rate of 80%.
- Pattern names for readily grasping the overview of the accident were introduced.
- Together with the 2017 data for the New Patterns, a 5-year total from 2013 to 2016 was tabulated.
- A 5-year summary was analyzed for the newly added single bicycle accidents.

Reference) SIP-adus Workshop Activities

SIP-adus Workshop 2018

SIP Cabinet Office NEDO

Efforts to reduce pedestrian traffic accidents

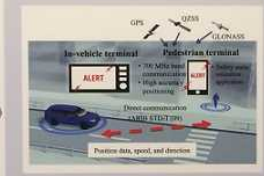
Overview

National database for traffic accident patterns

✓ Classified traffic accidents into 255 patterns

✓ Published as national database

Vehicle to Pedestrian(V2P) Communication Technology



Realization of a safety support system for pedestrians to reduce traffic fatalities

Simulation to predict the impact of ADS*

*ADS : Automated Driving Systems

Verification of effectiveness at FOT

National database for traffic accident patterns

Patterning of J-TAD

To estimate ADAS effectiveness, J-TAD* was classified by 255 patterns to cover 80% of fatalities in 2013, using classifications below. And they have been kept for fixed point observation. However, because of decreased rate(75% in 2016), patterns will be modified and finalized to improve this rate to more than 80% as the national accident database.

*Japan Traffic Accident Database

Table1 Item and classification for patterning

Item	Classification
Type of Collision	Head on, Rear end, Crossing, Single, Vehicle to pedestrian, Vehicle to bicycle, etc.
Primary Party	Car, Motorcycle, Bicycle, Pedestrian
Secondary Party	Car, Motorcycle, Bicycle, Pedestrian
Type of Road	General road, Highway
Location	Intersection, Near intersection, Curve, Straight, Bridge, Tunnel, Others
Traffic Control	Signal, Stop sign, No control
Traveling Maneuver of Primary Party	Go straight, Turn left, Turn right, etc.
Relative position of Secondary Party	Same direction, Opposite direction, Right side, Left side, Others

Sample of Accident Pattern

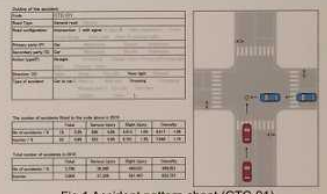


Fig.1 Accident pattern sheet (CTC-01)

Fig.2 In-depth analyzed sheet (CTC-01)

This database was also used by another organization for SIP-adus study.

ITARDA