

Thailand's inhospital trauma statistics

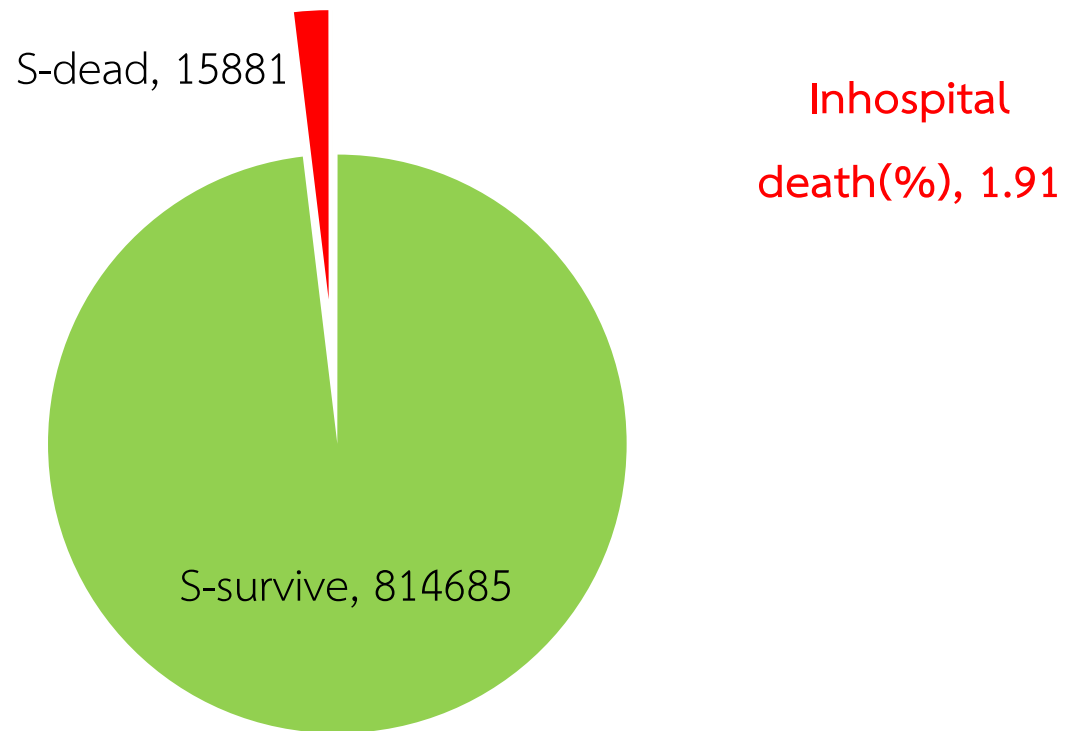
Dr. Somprasong Tongmeese

Secretary General of the Trauma Association of Thailand

12 July 2018

Trauma(S*) inhospital mortality rate [2014-2016]

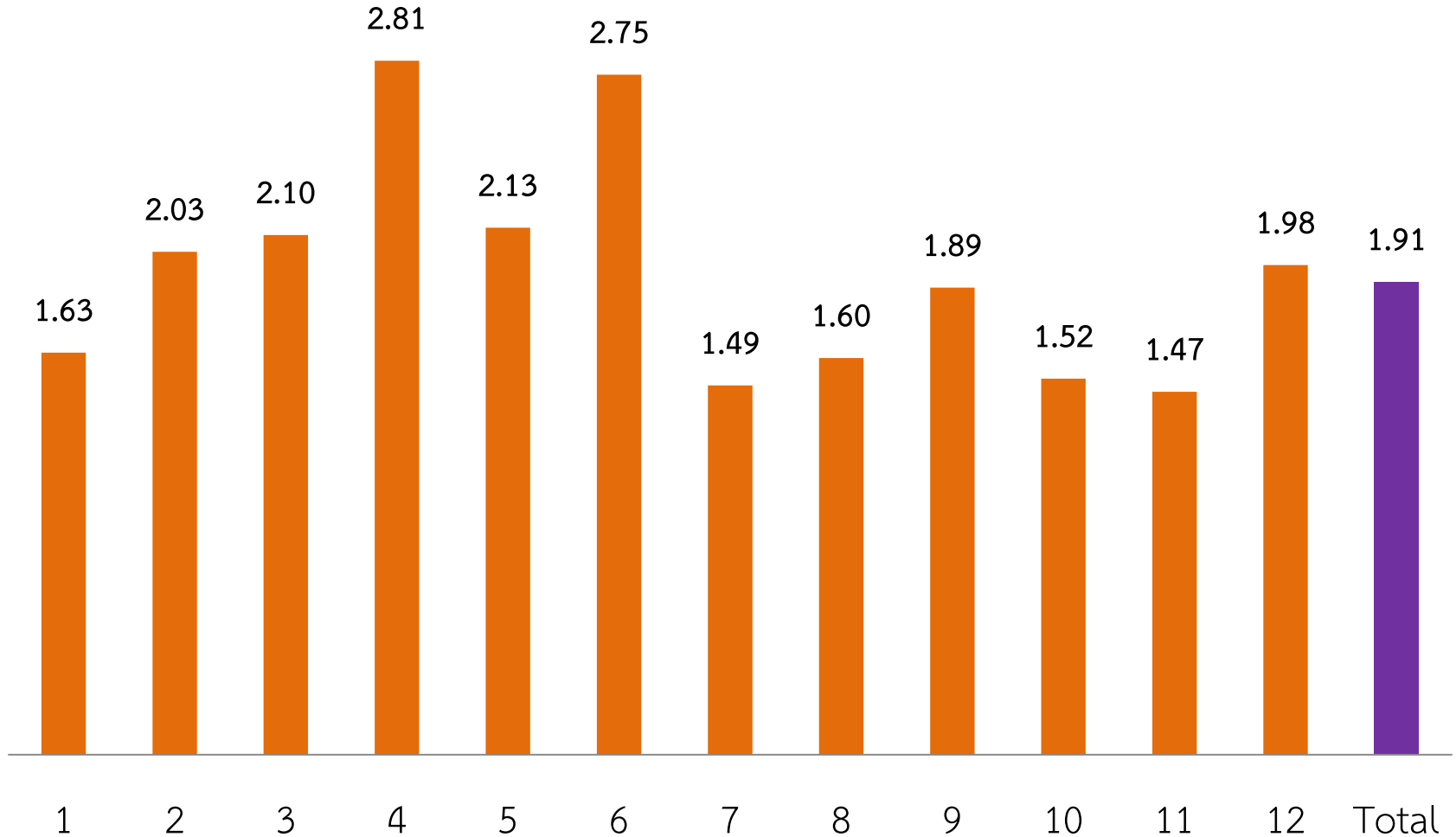
(N = 15,881/830,566)



Thailand trauma mortality(%) [2014-2016]

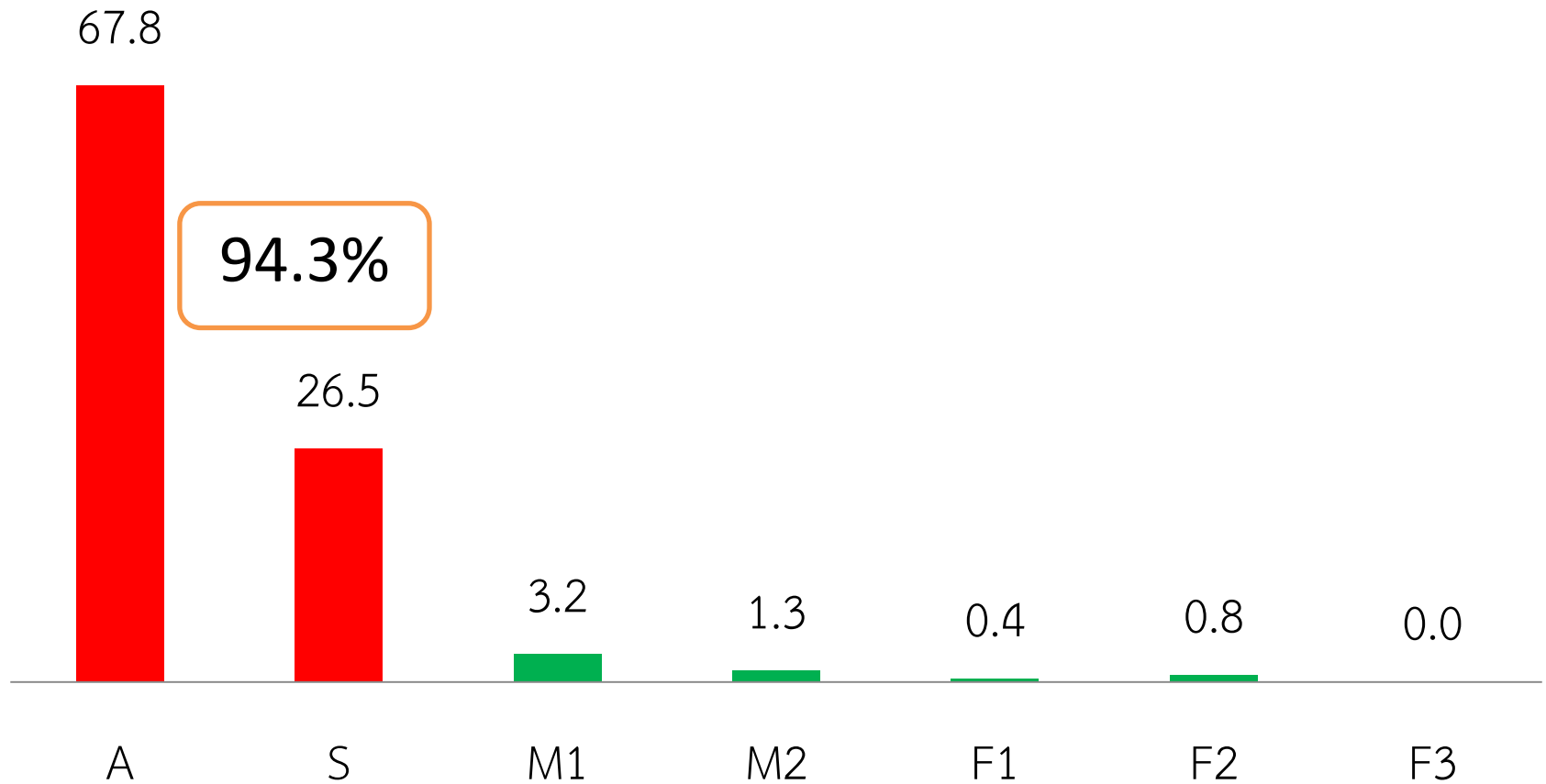
by regions : N = 15,881

(Total inhospital trauma cases (S*) = 830,566)



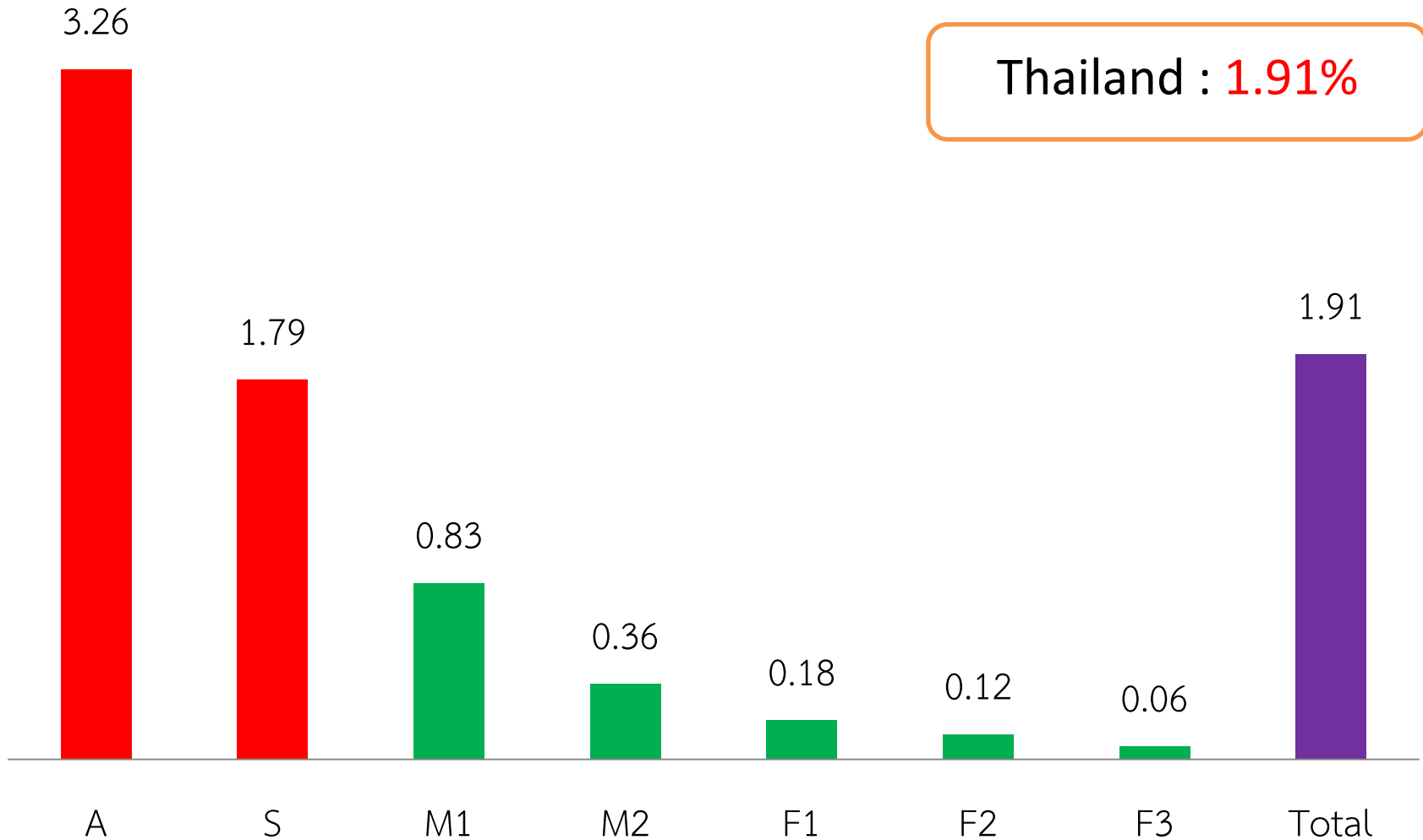
Trauma(S*) dead cases distribution (Proportion)

by hospital level : N=15,881

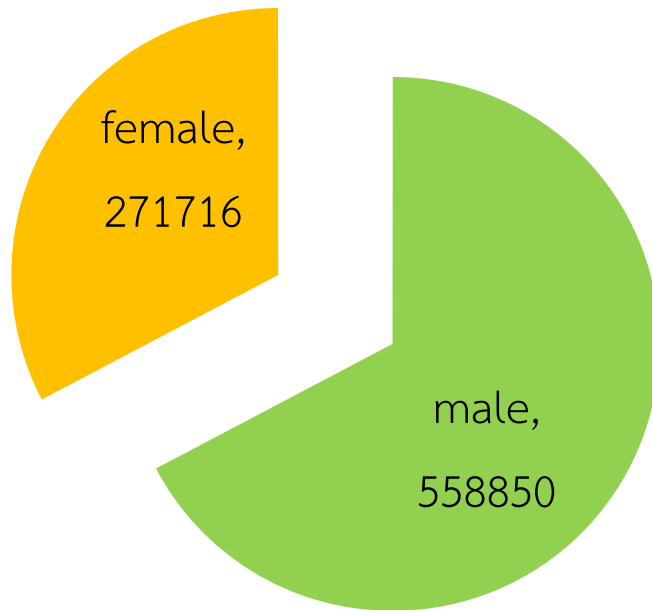


Trauma(S*) inhospital mortality (%)

by hospital level : N=15,881

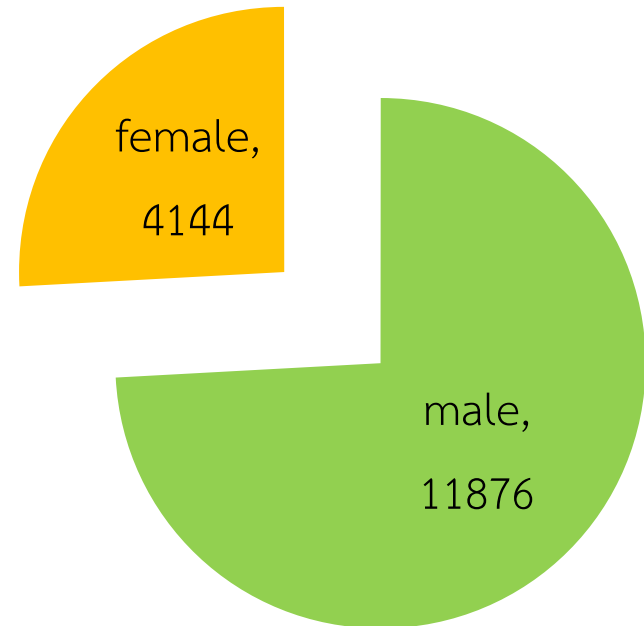


Gender proportion for traumatic
inhospital patient (N= 830,566)



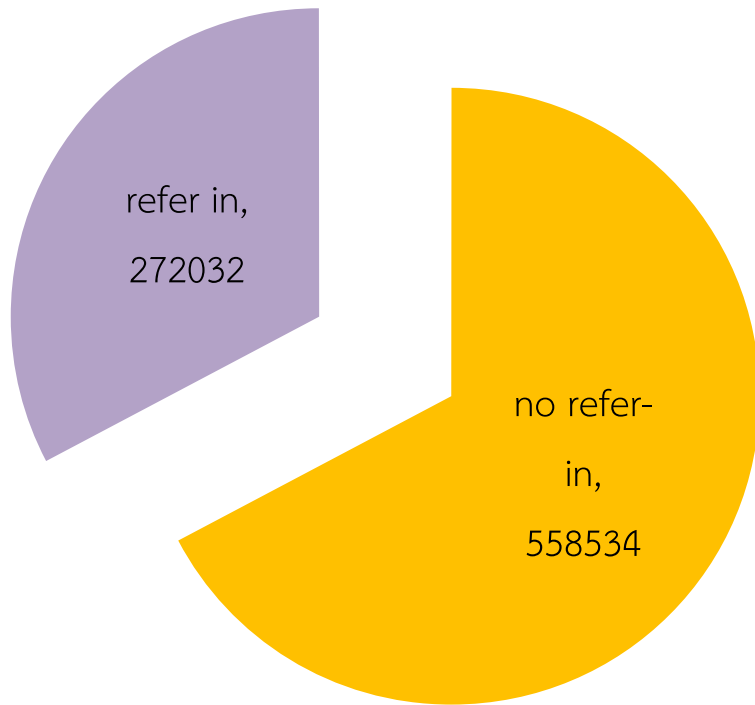
67.0% male

Gender proportion for traumatic
inhospital *dead* patient (N= 15,881)



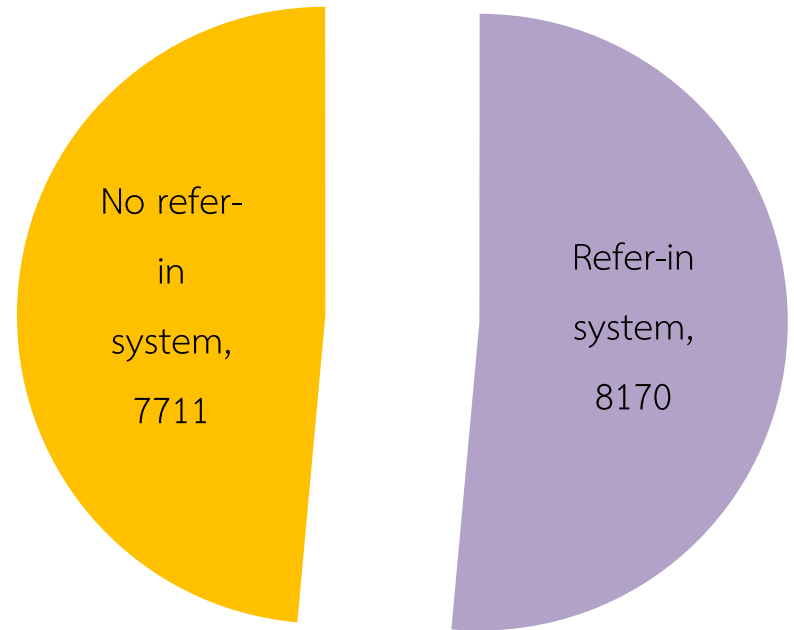
74.0% male

Refer-in system involvement for traumatic in-hospital patient



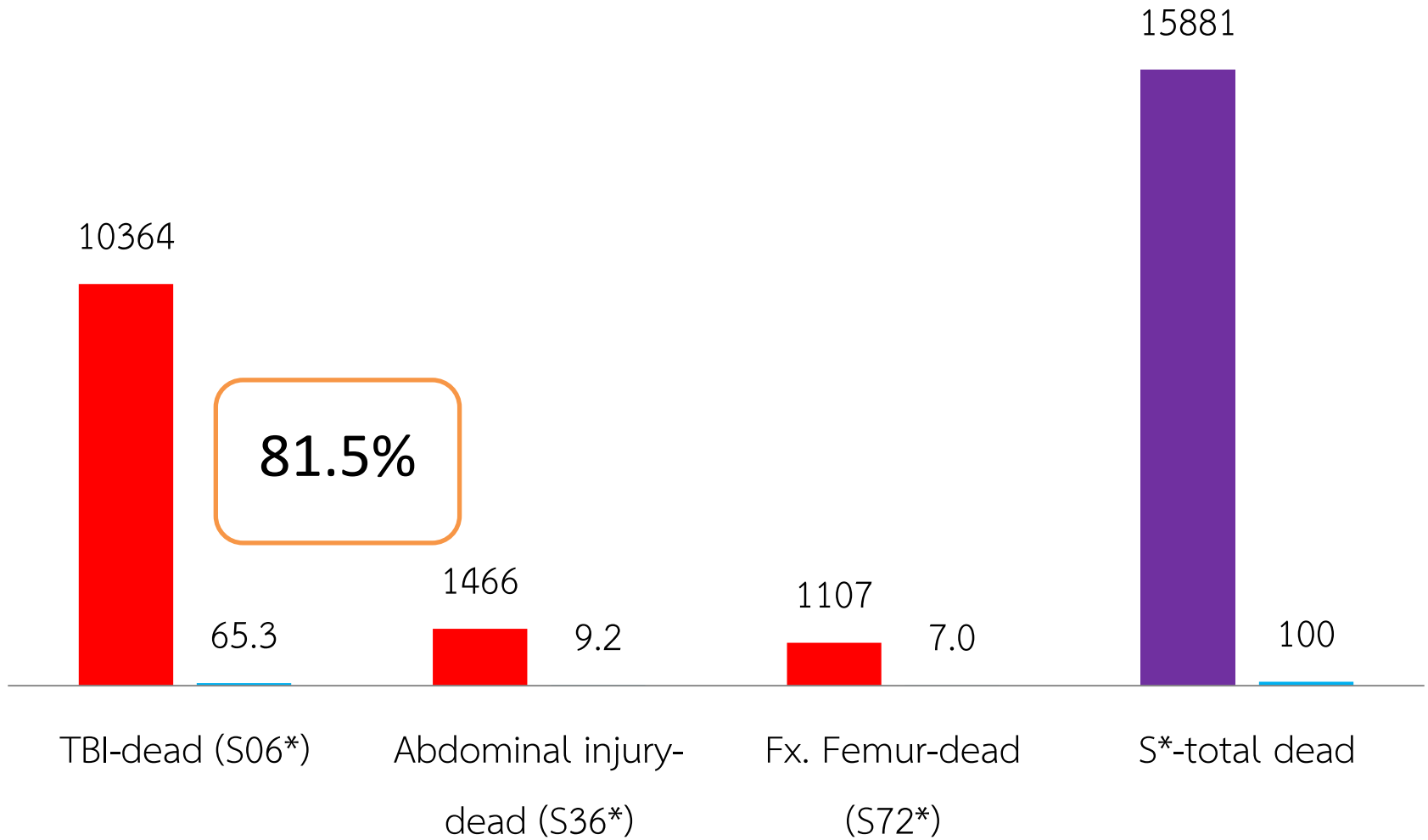
33 %
(Refer-in)

Refer-in system involvement for traumatic in-hospital *dead* patient

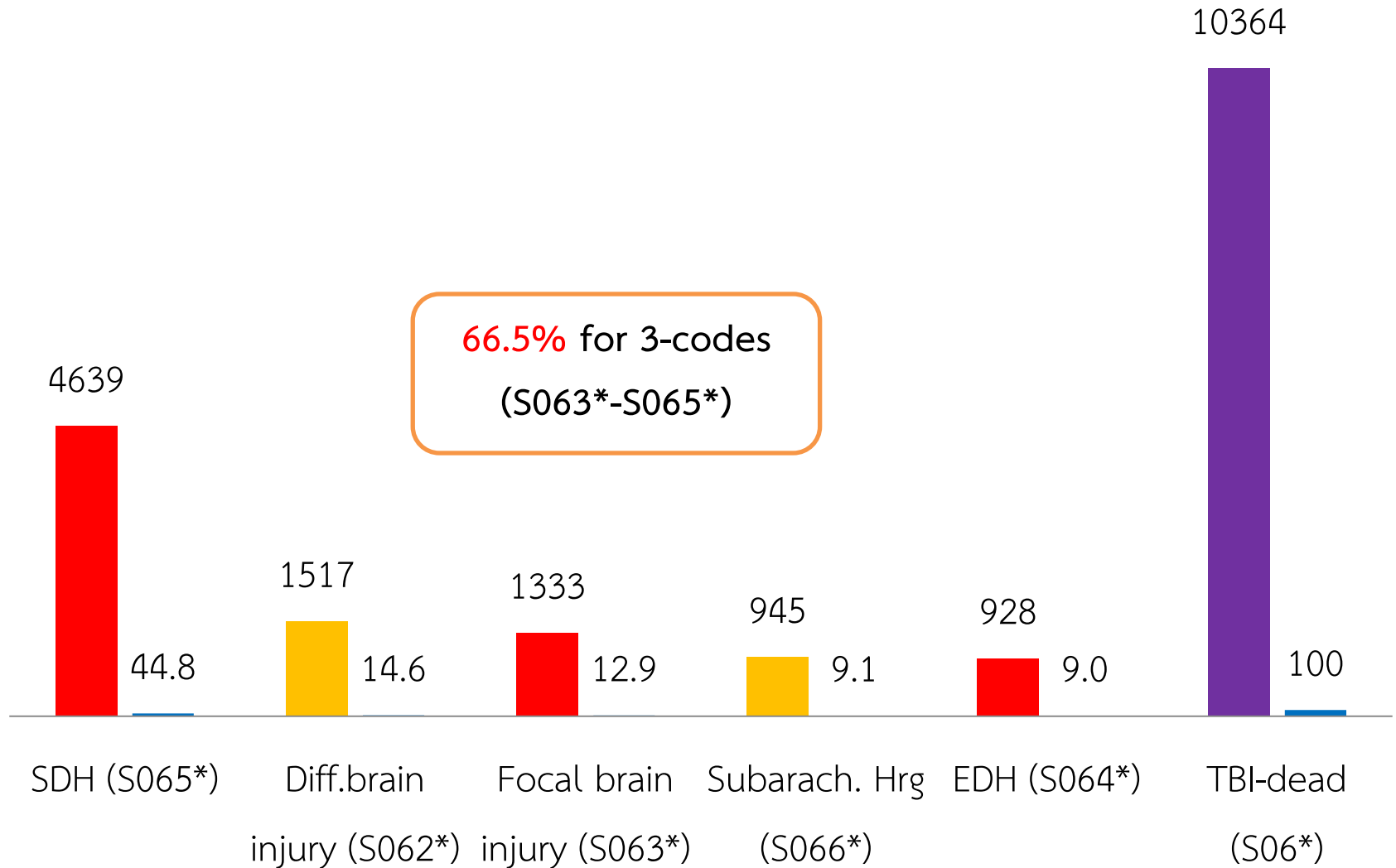


51.4%
(Refer-in)

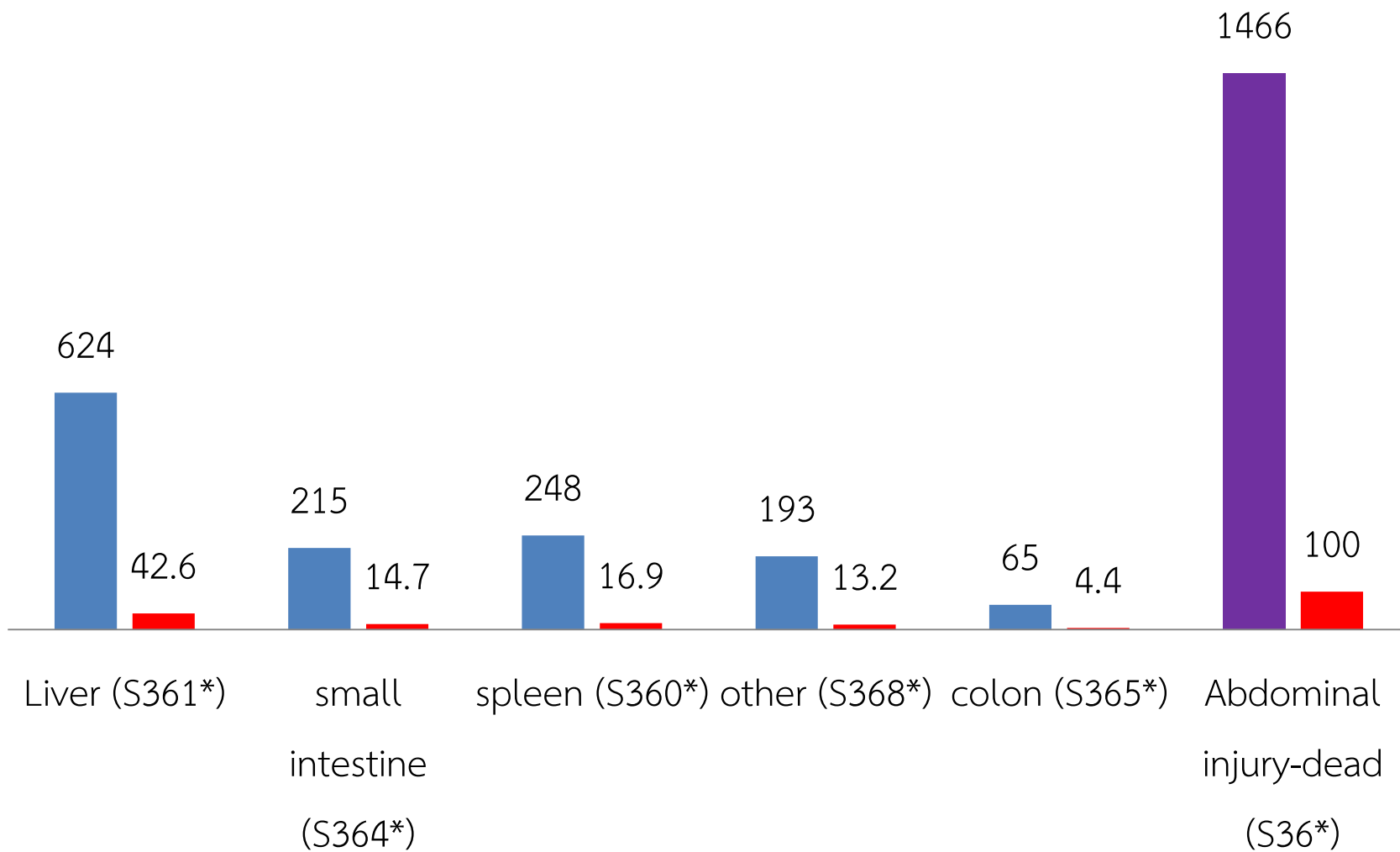
■ proportion of total trauma death



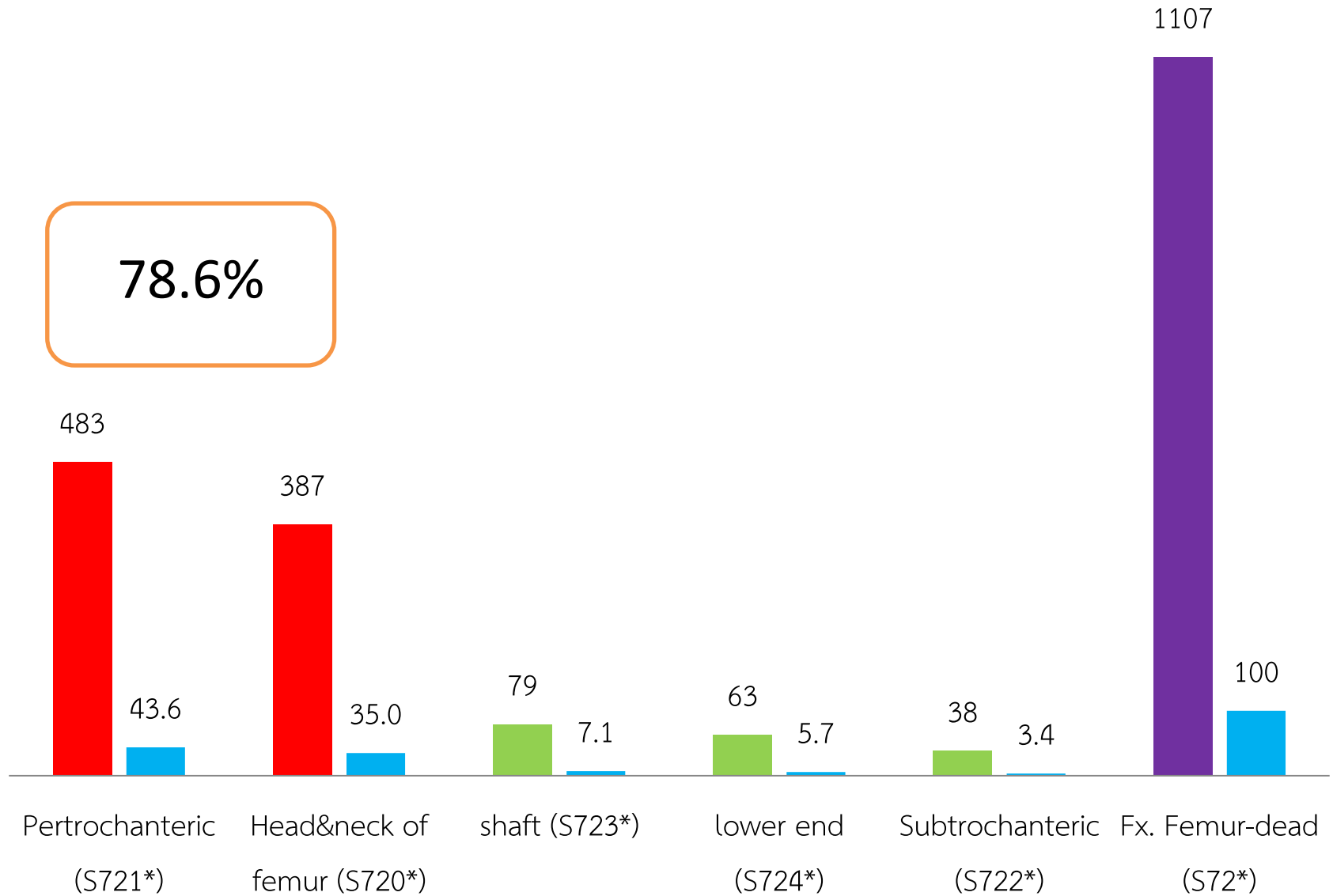
■ Proportion of TBI death



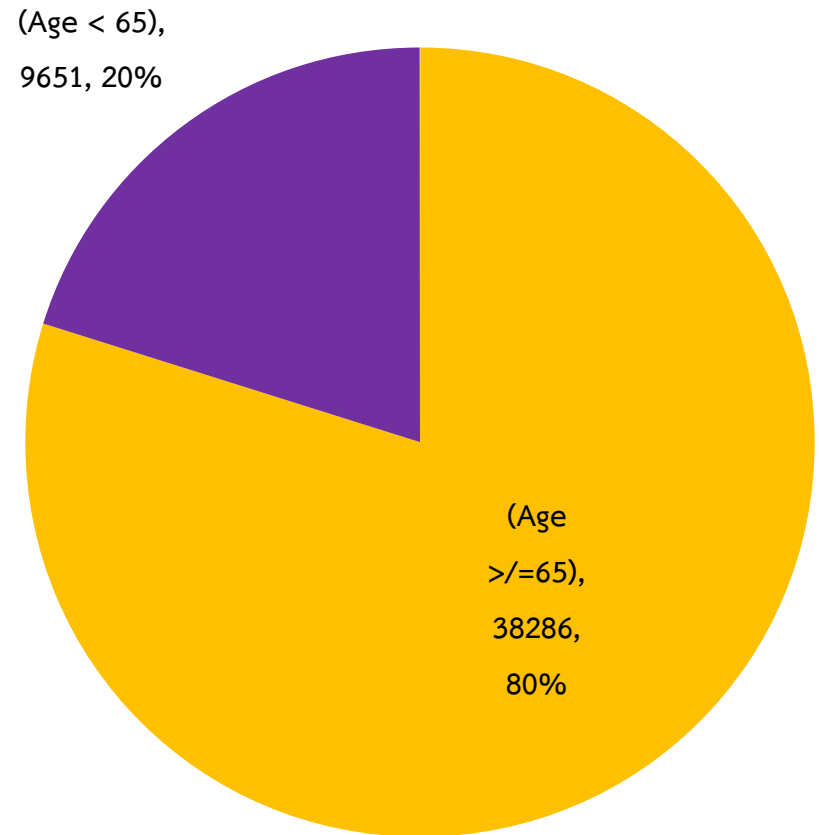
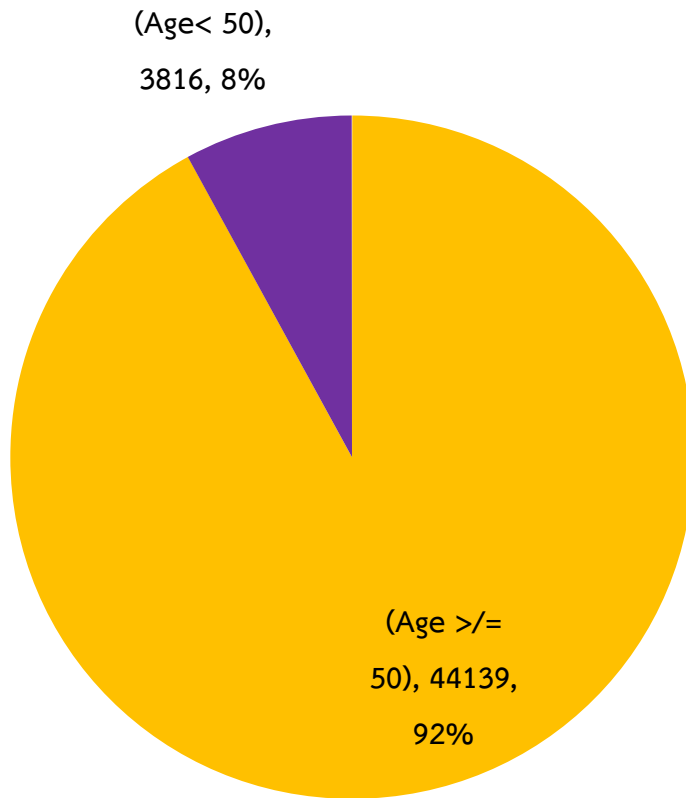
■ Proportion of abdominal injury death



■ Proportion of fracture of femur death



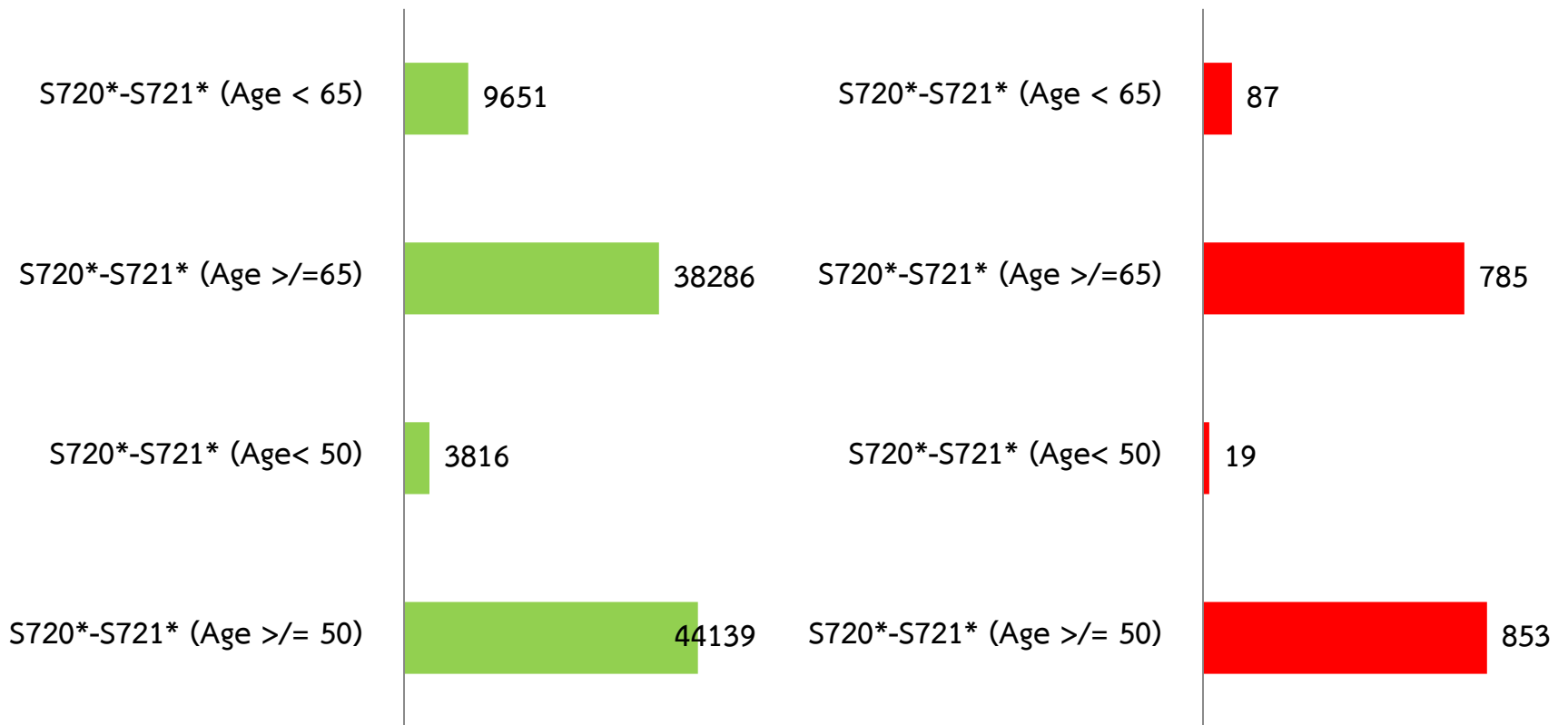
Fracture of femur
(pertrochanteric,head&neck : S720*-S721*)
by age-grouping



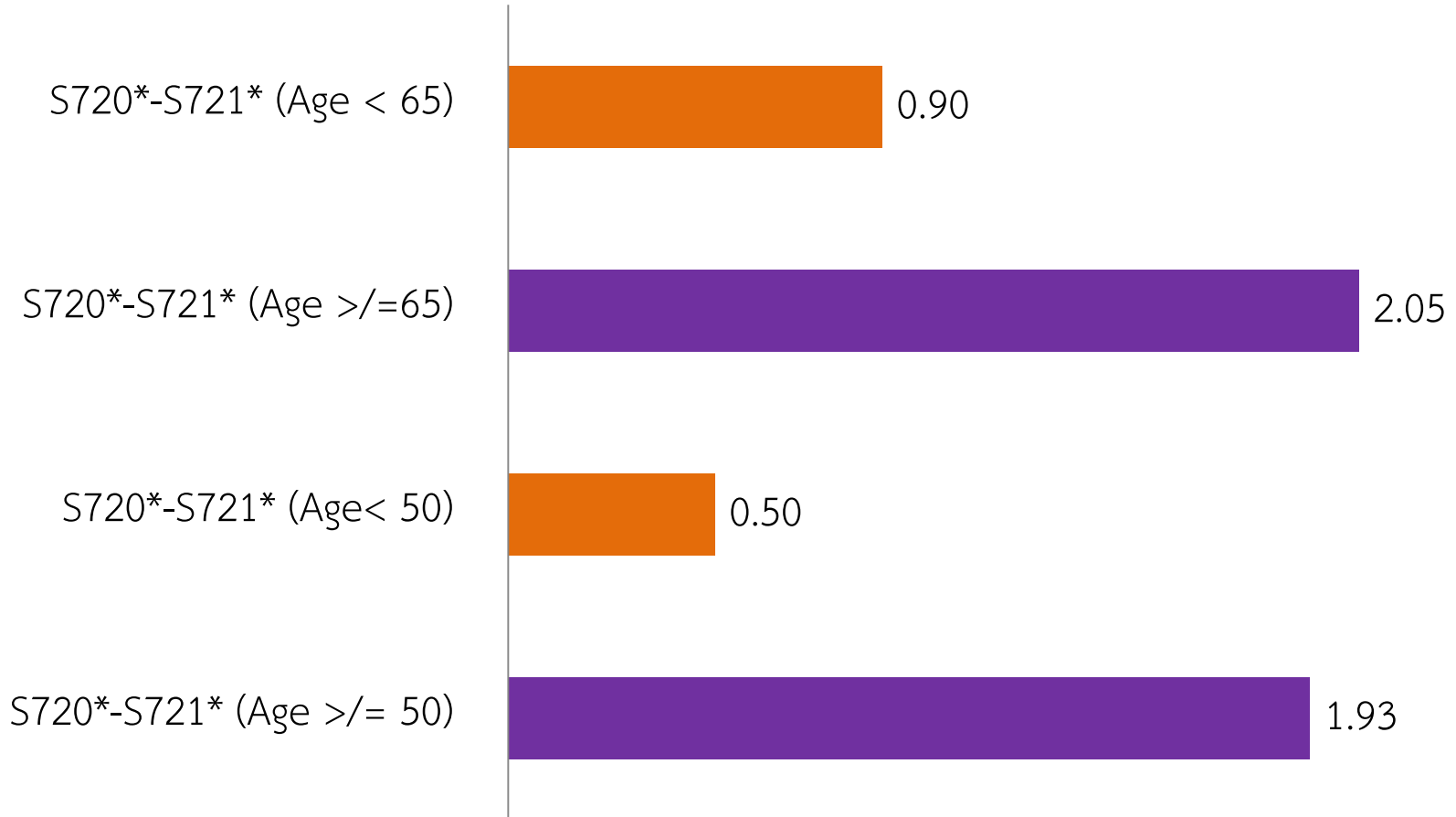
Fracture of femur (perthrochanteric,head&neck : S720*-S721*)

N(2014-2016)

dead(2014-16)

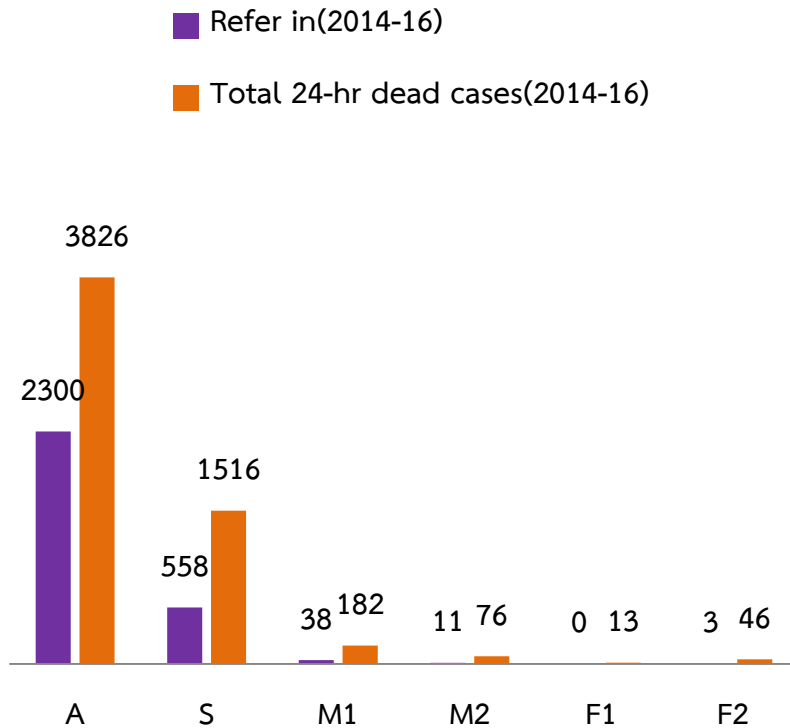


Mortality of fracture of femur
(perthrochanteric,head&neck : S720*-S721*)
by age-grouping (N=47,955)

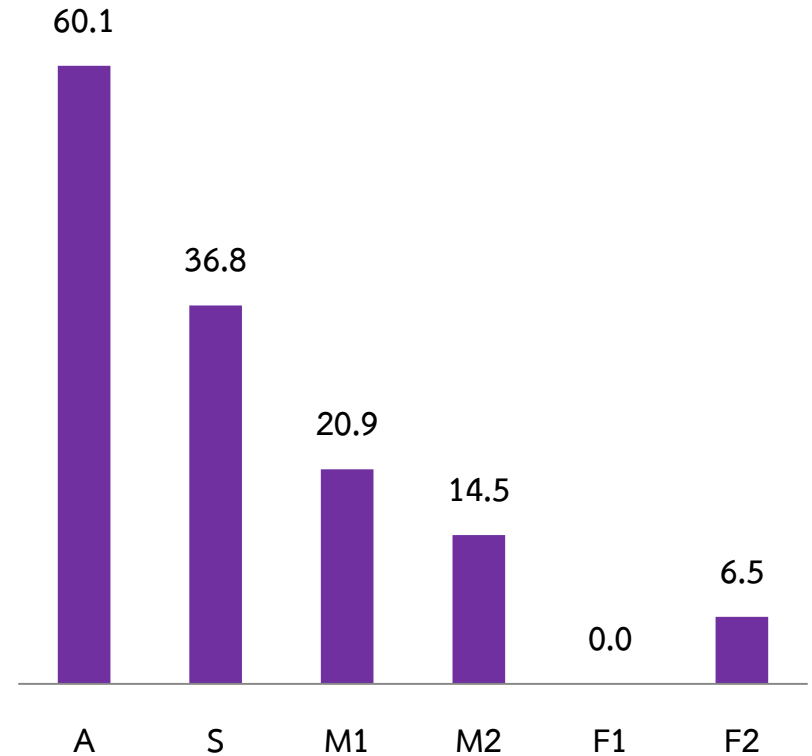


Inhospital traumatic(S*) 24-hr dead patients(2014-2016)

Proportion of refer-in patients
by hospital level

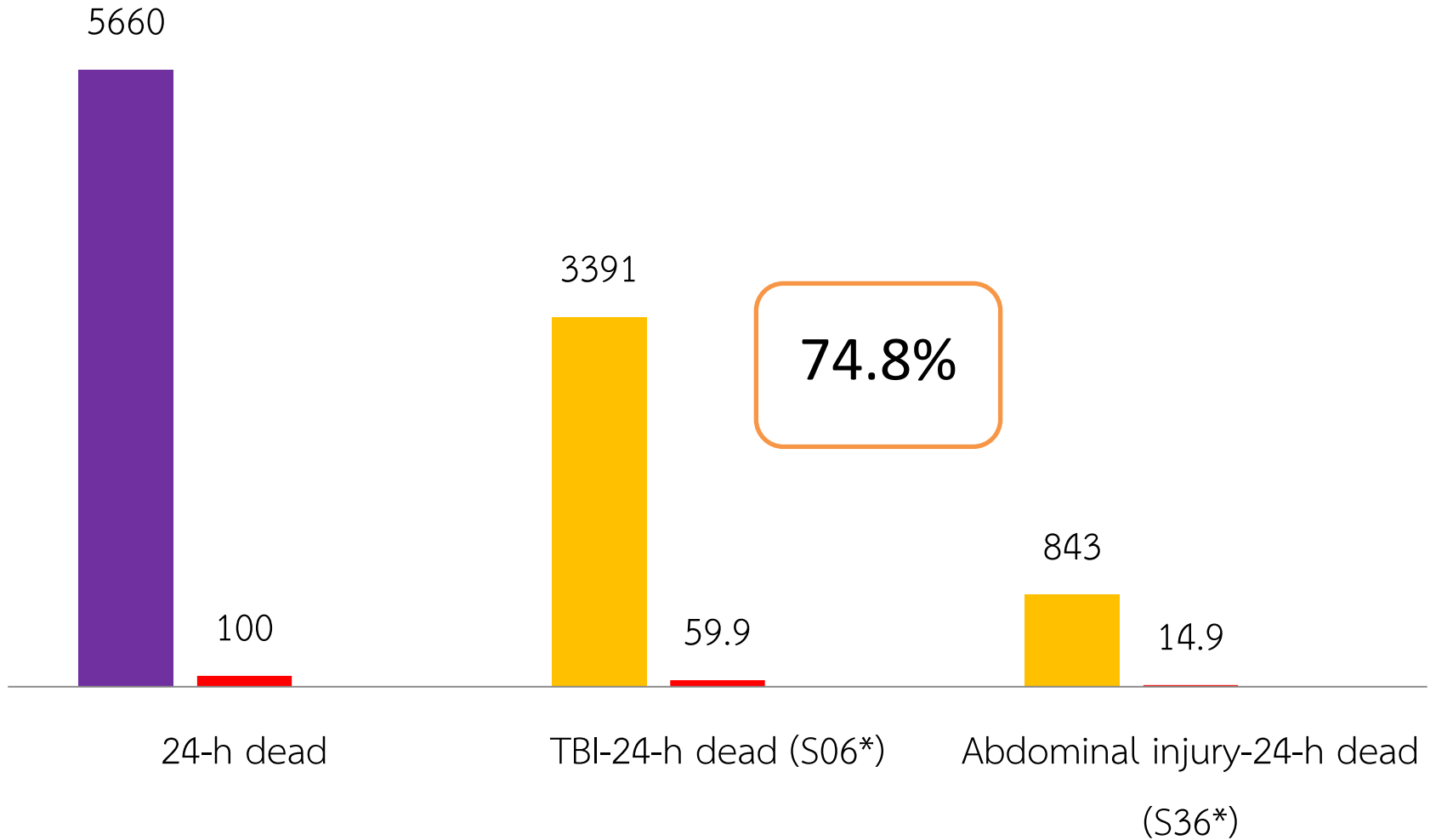


%refer-in patients by hospital level

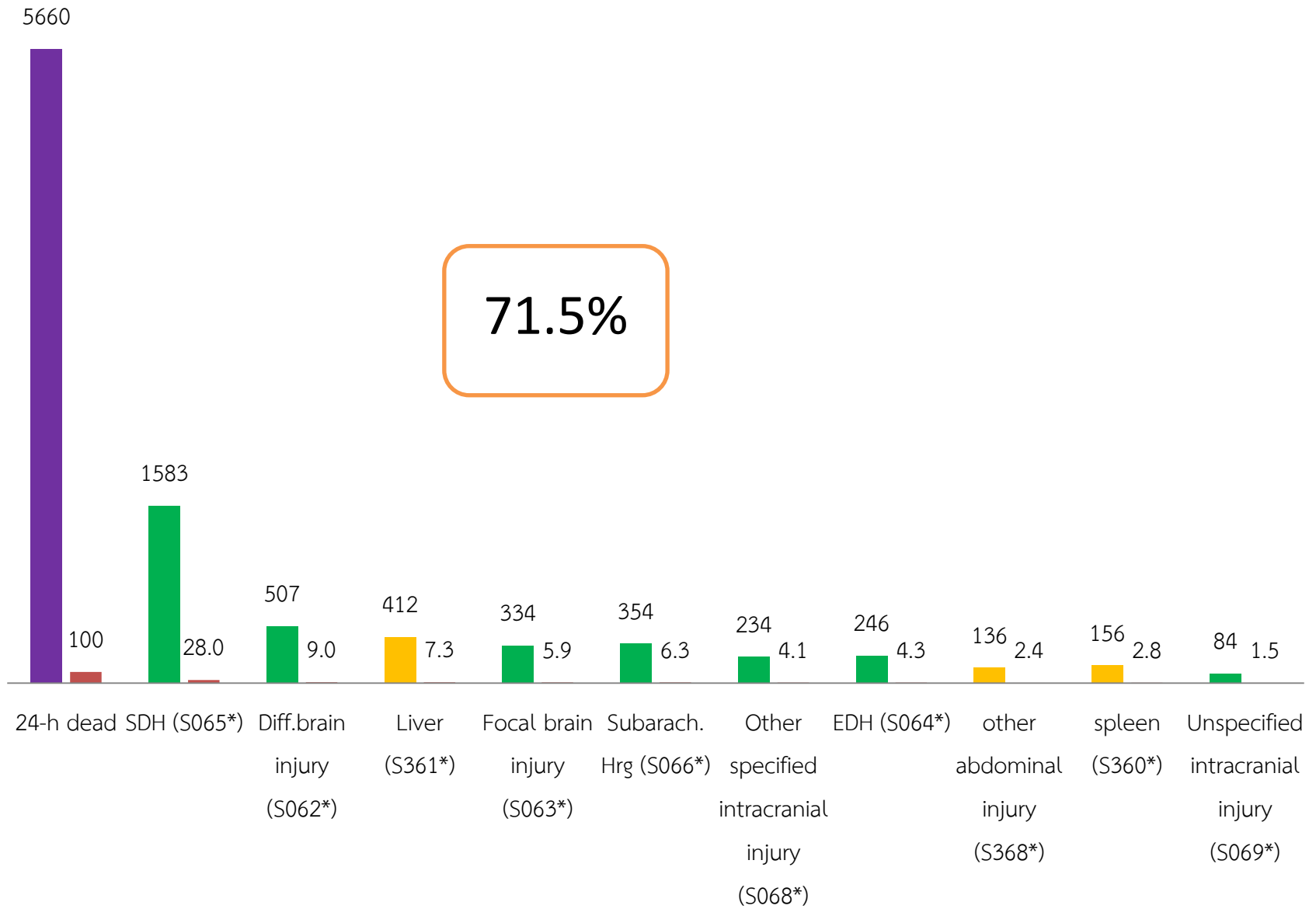


Inhospital traumatic(S*)

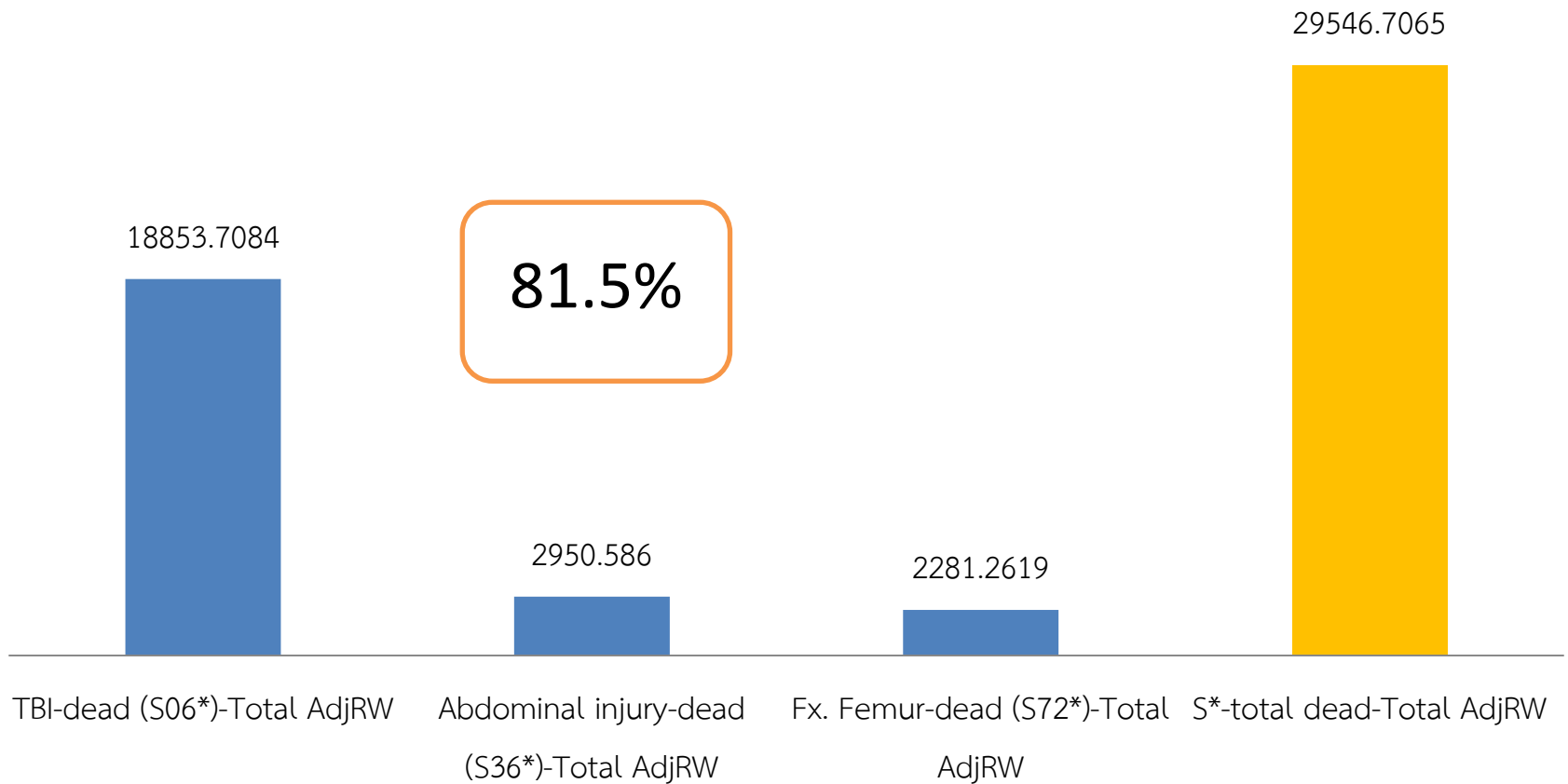
24-hr dead patients(2014-2016) by diagnosis



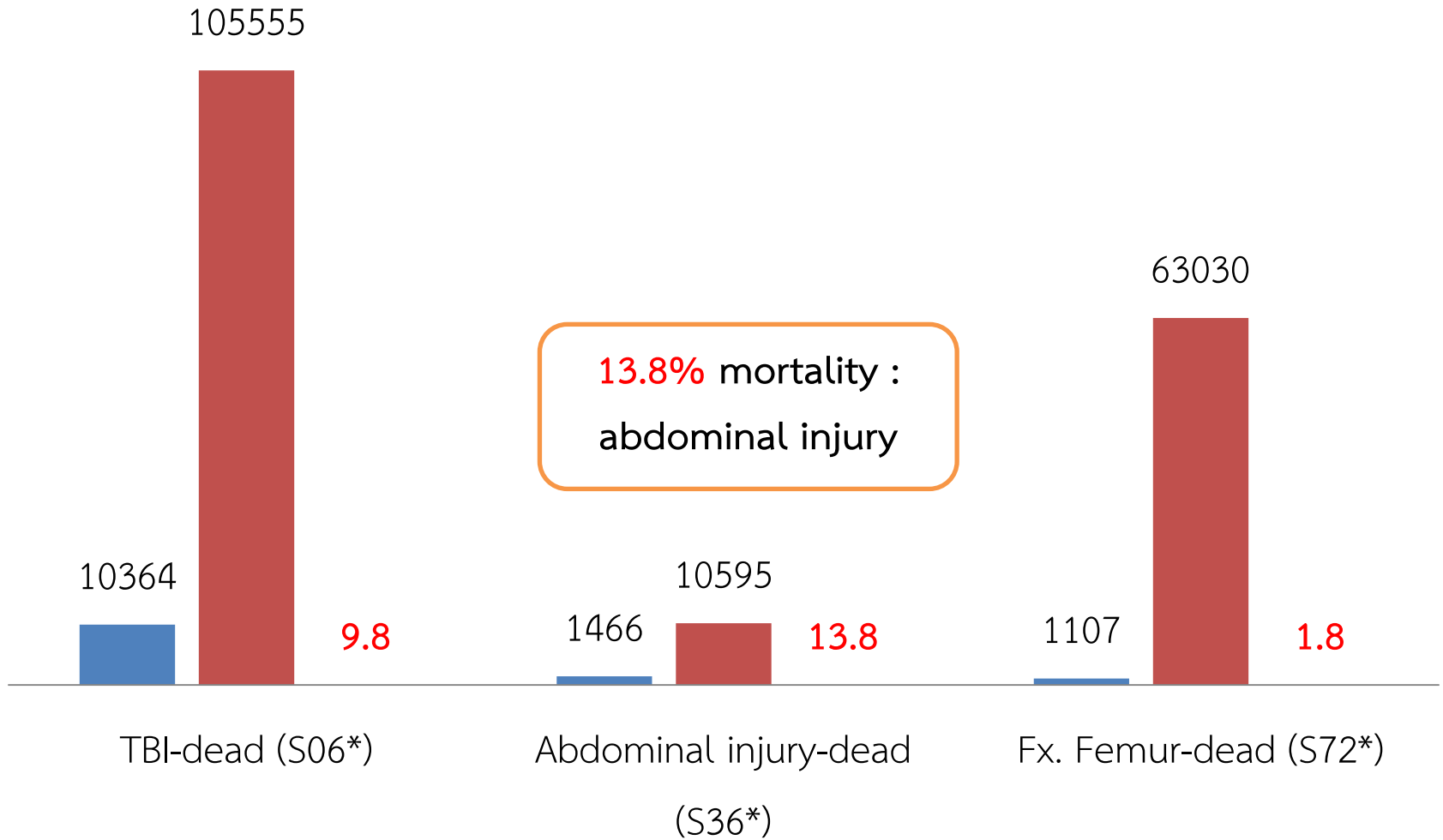
■ Proportion of 24-hr trauma death diagnosis



Total AdjRW per year for traumatic dead patients



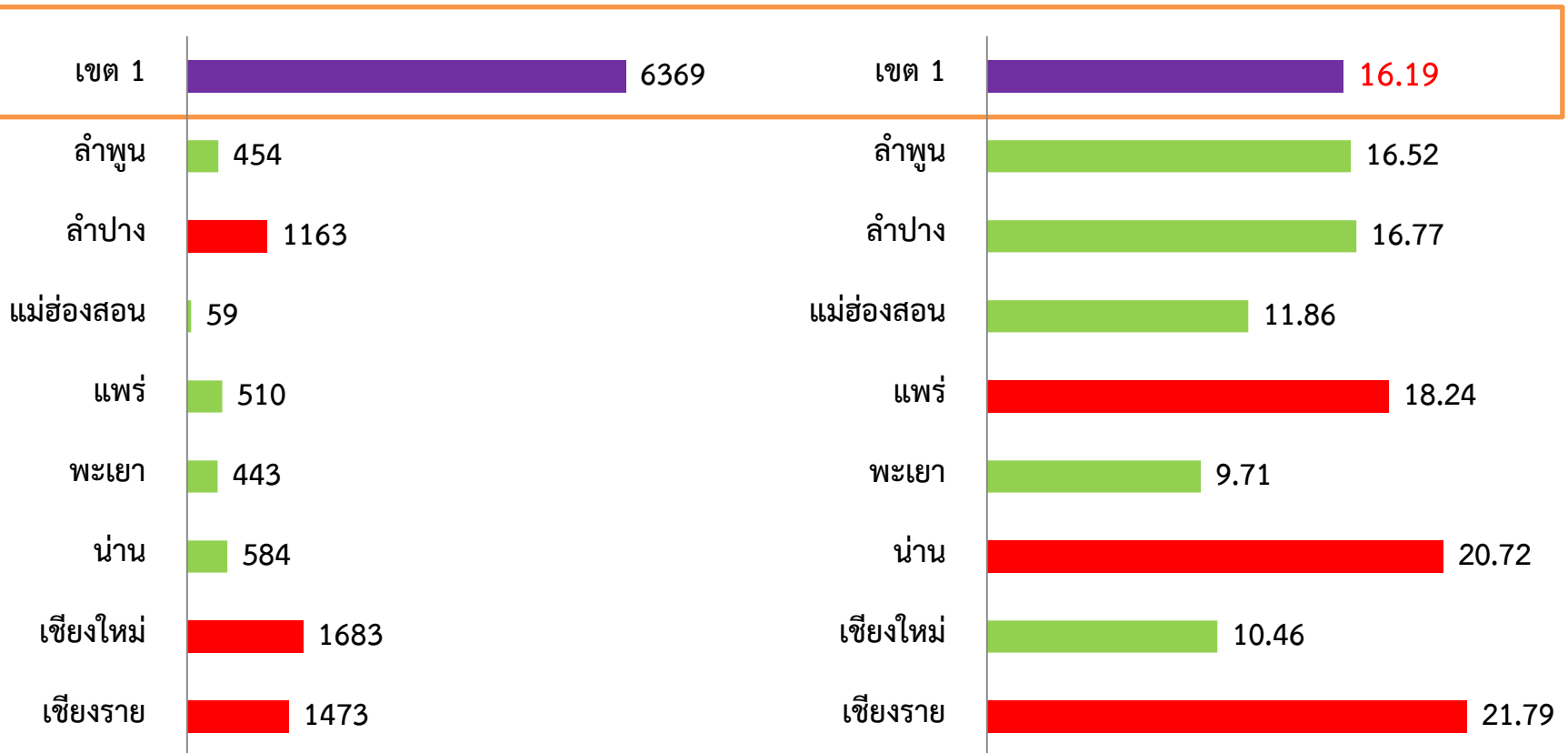
Specific mortality by diagnosis



Traumatic brain injury (TBI exclude cerebral concussion) : Region 1

Total(2014-16)

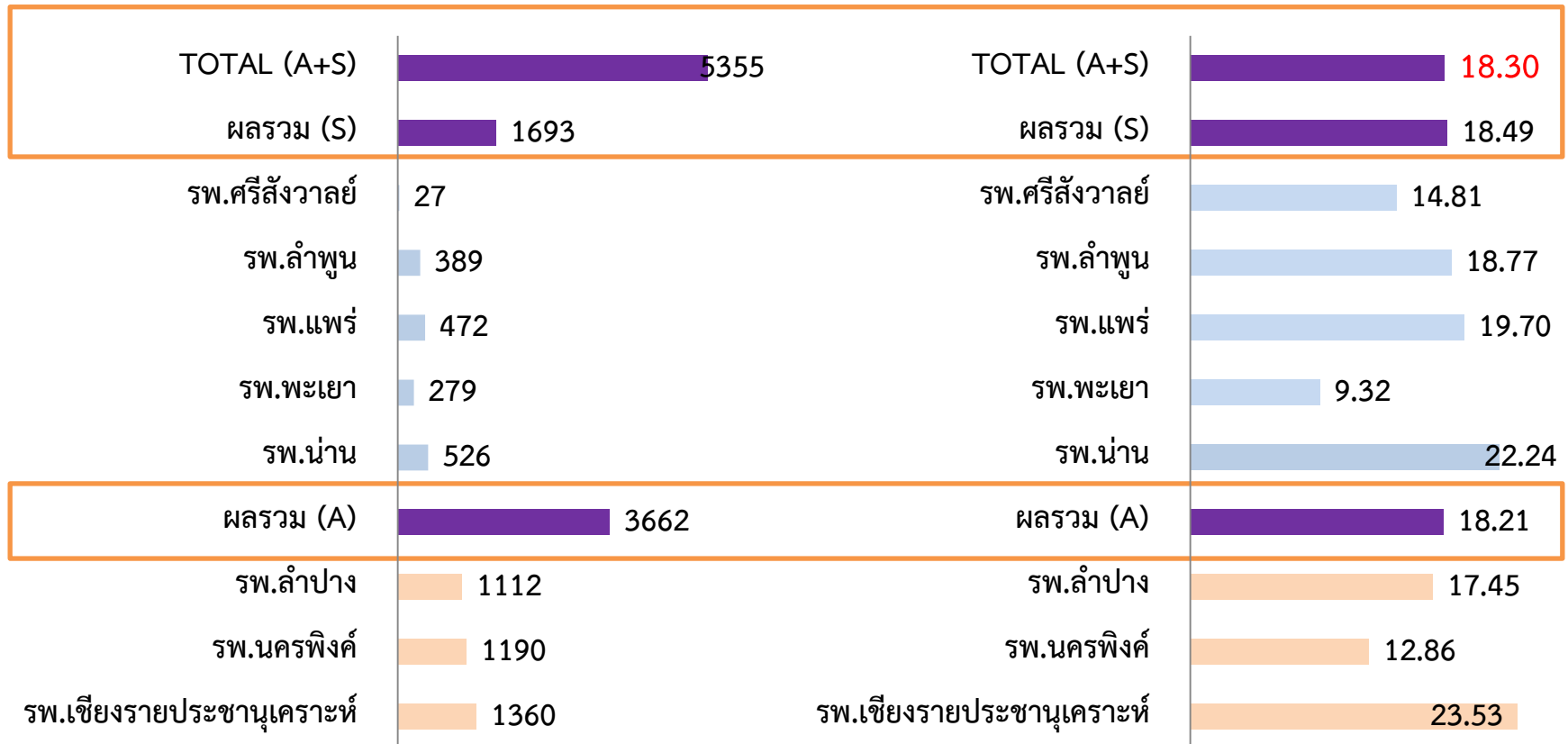
Mortality (N=1031/6369)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 1 (A,S-hospital level)

Total(2014-16)

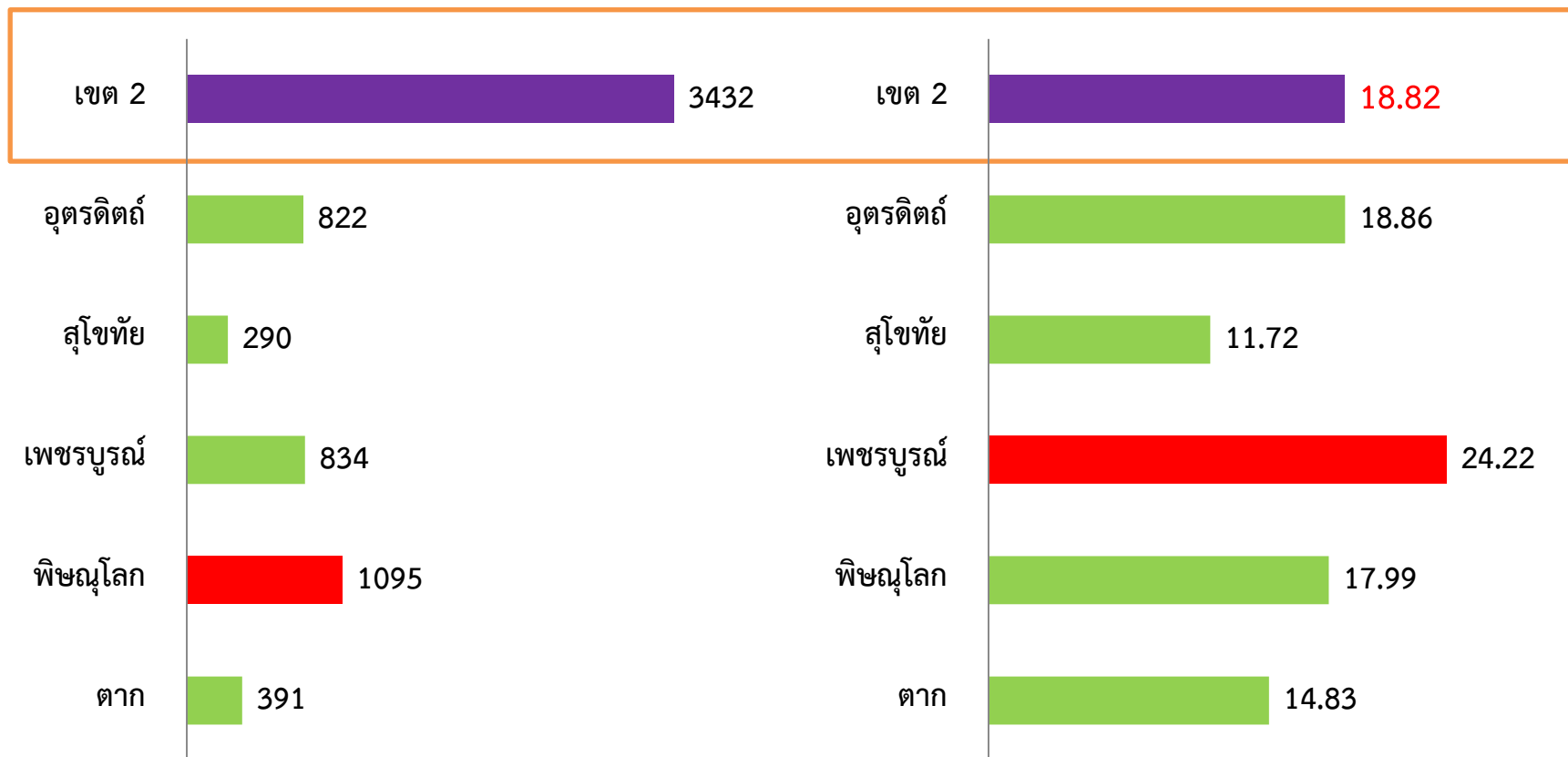
Mortality(N=980/5355)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 2

Total(2014-16)

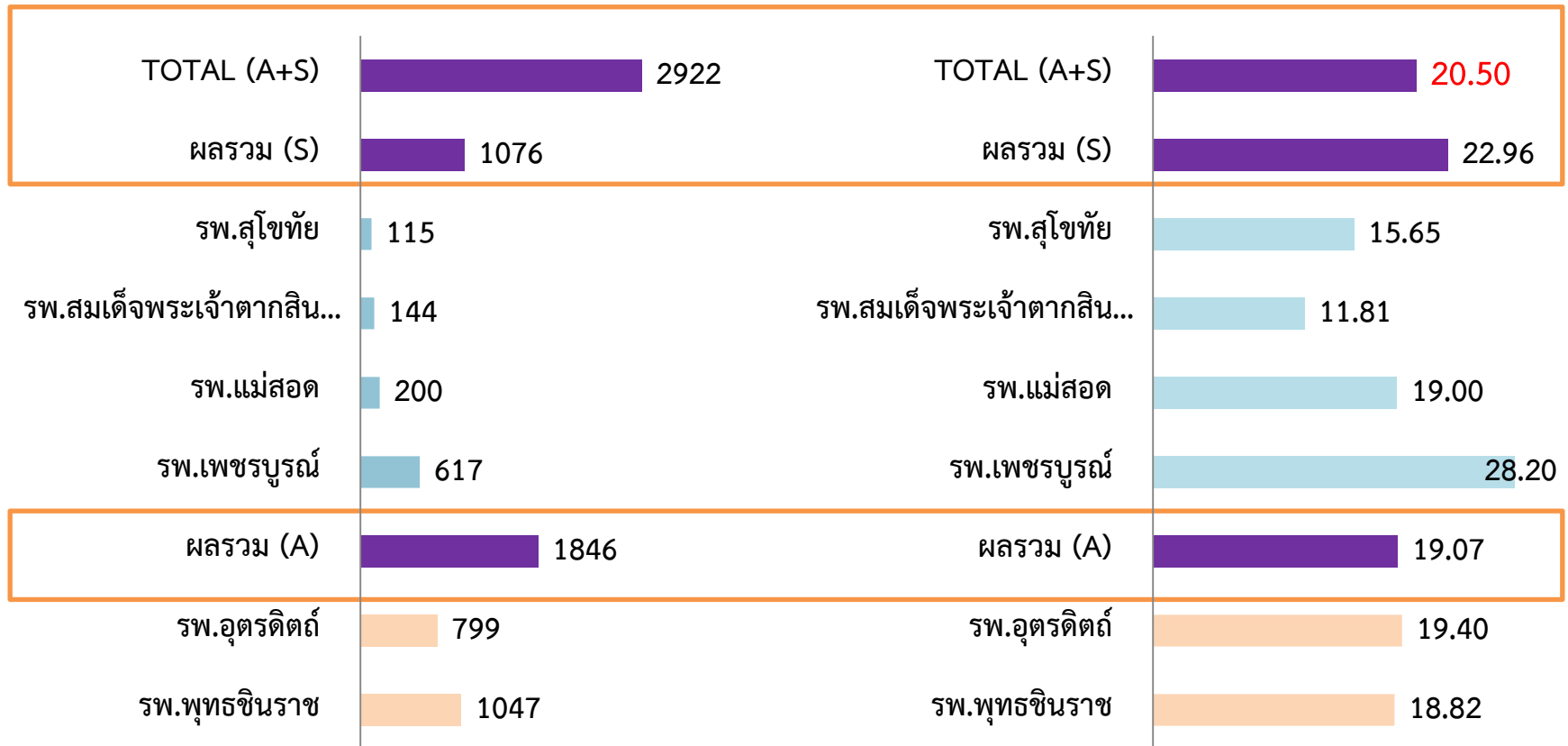
Mortality(N=646/3432)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 2 (A,S-hospital level)

Total(2014-16)

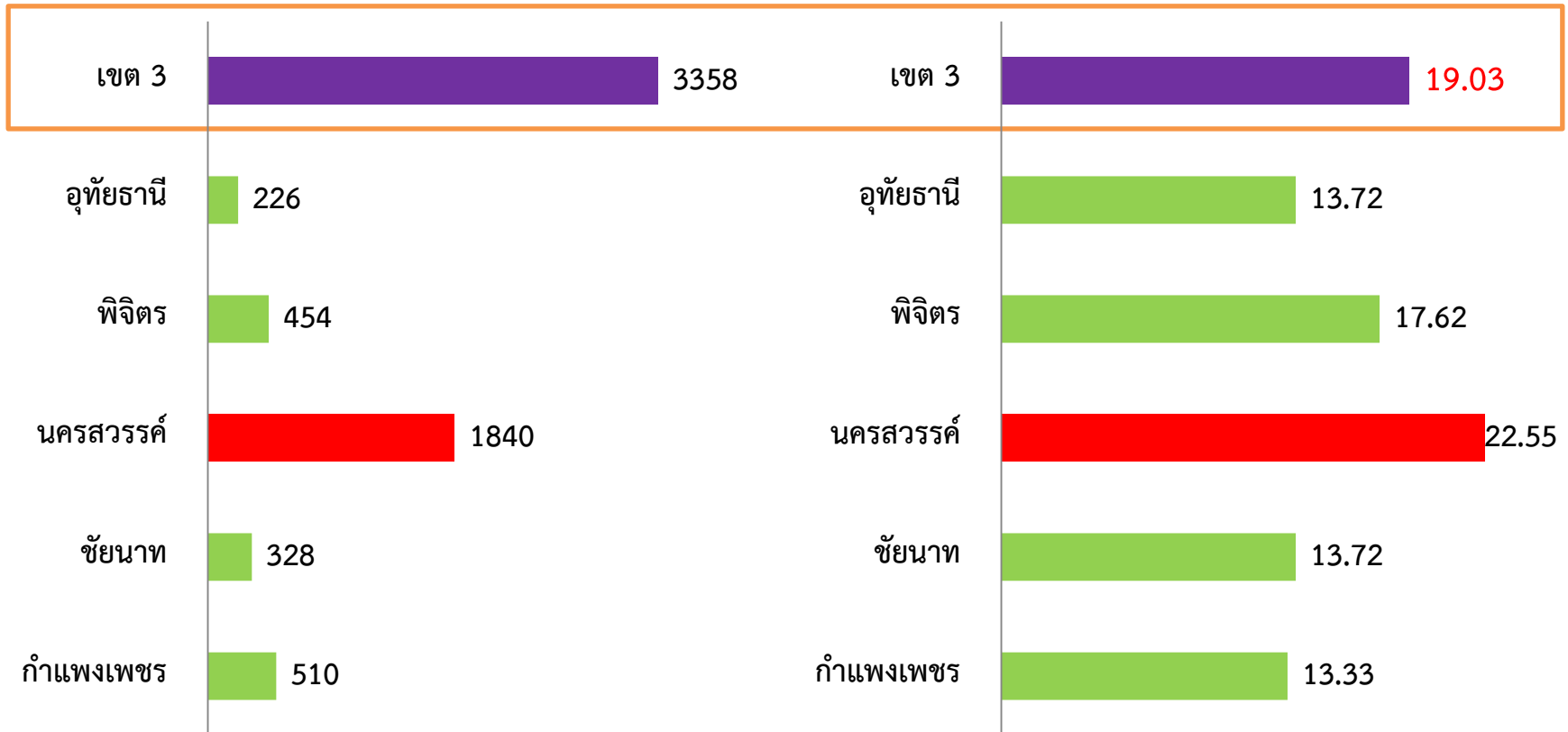
Mortality(N=599/2922)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 3

Total(2014-16)

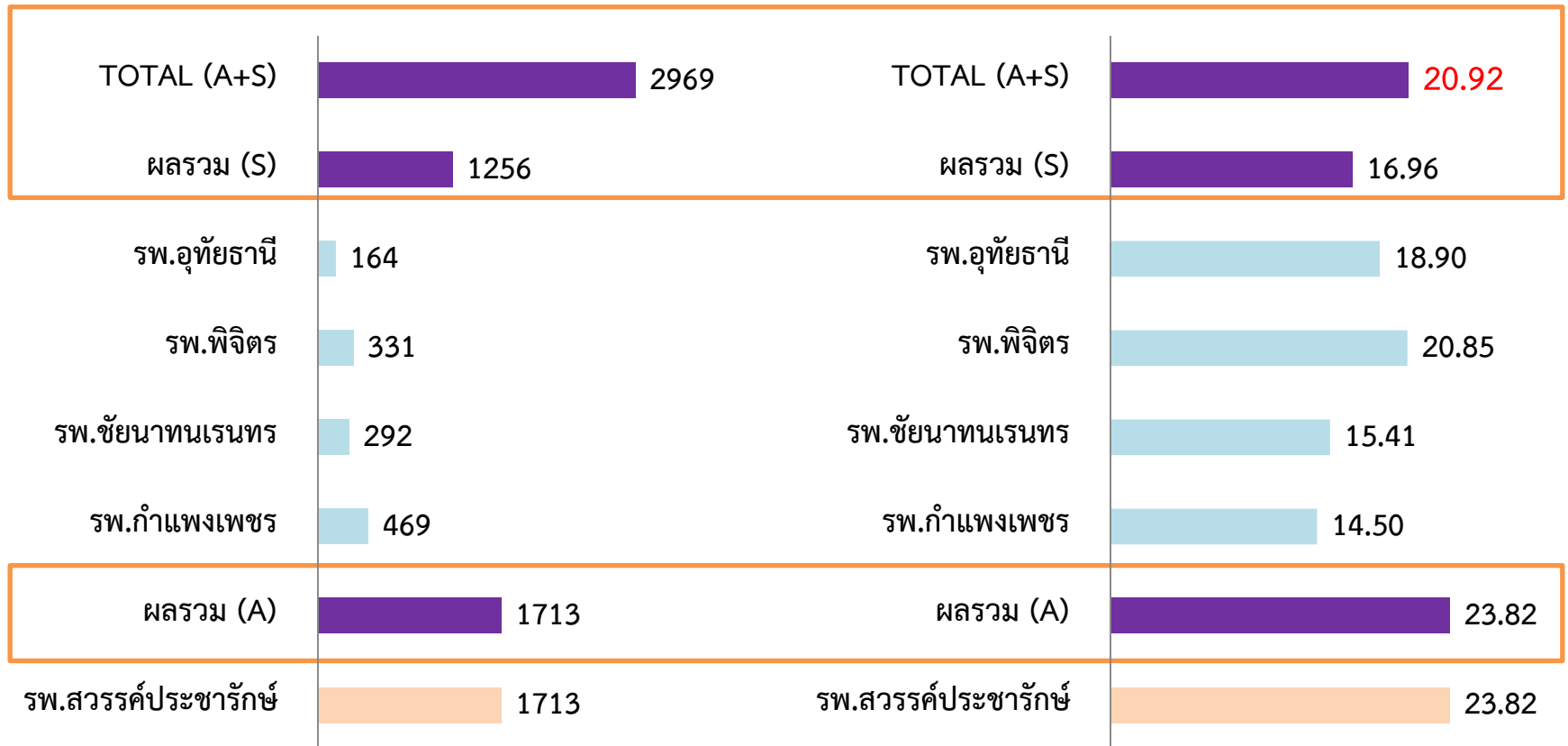
Mortality(N=639/3358)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 3 (A,S-hospital level)

Total(2014-16)

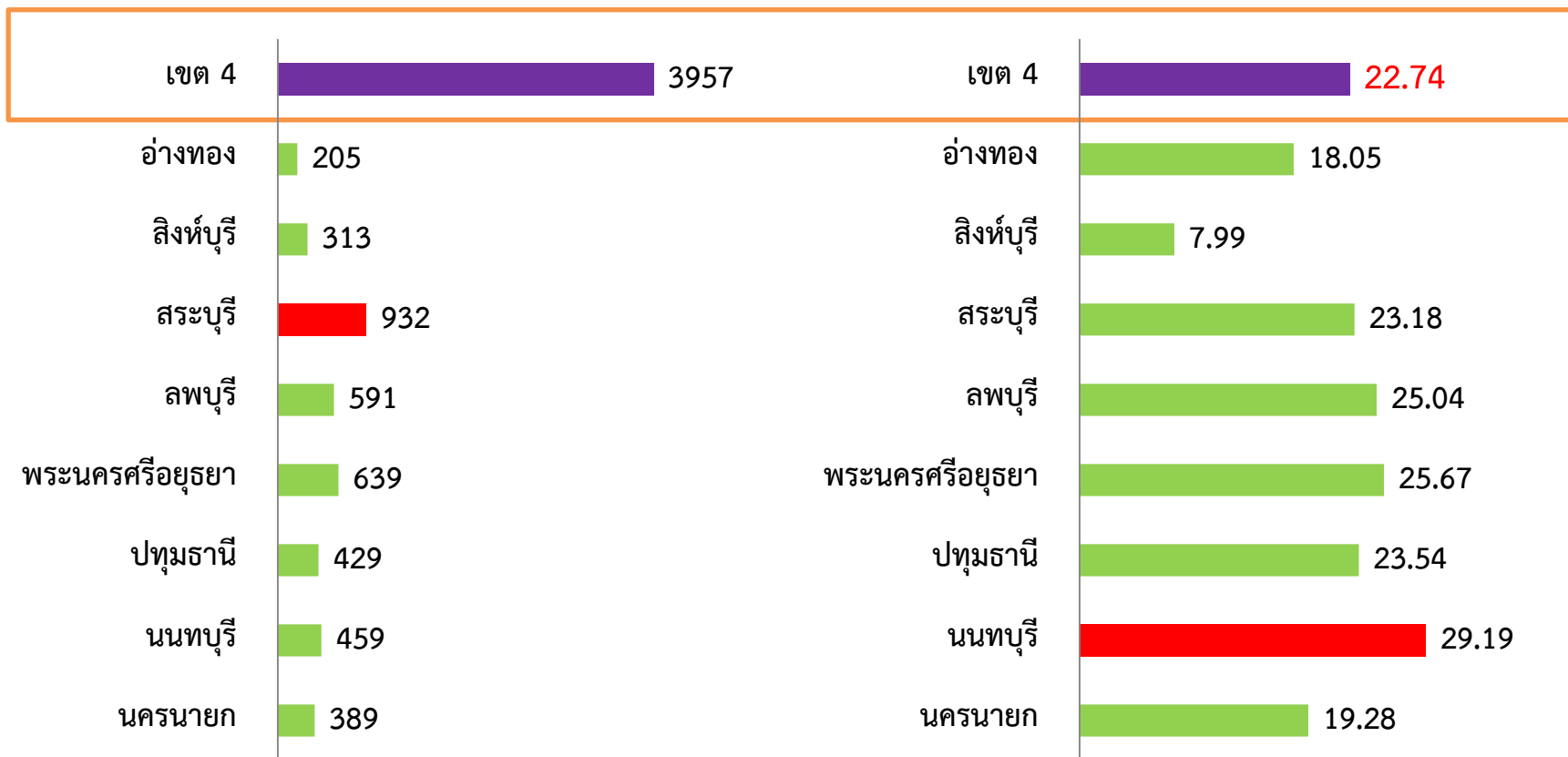
Mortality(N=621/2969)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 4

Total(2014-16)

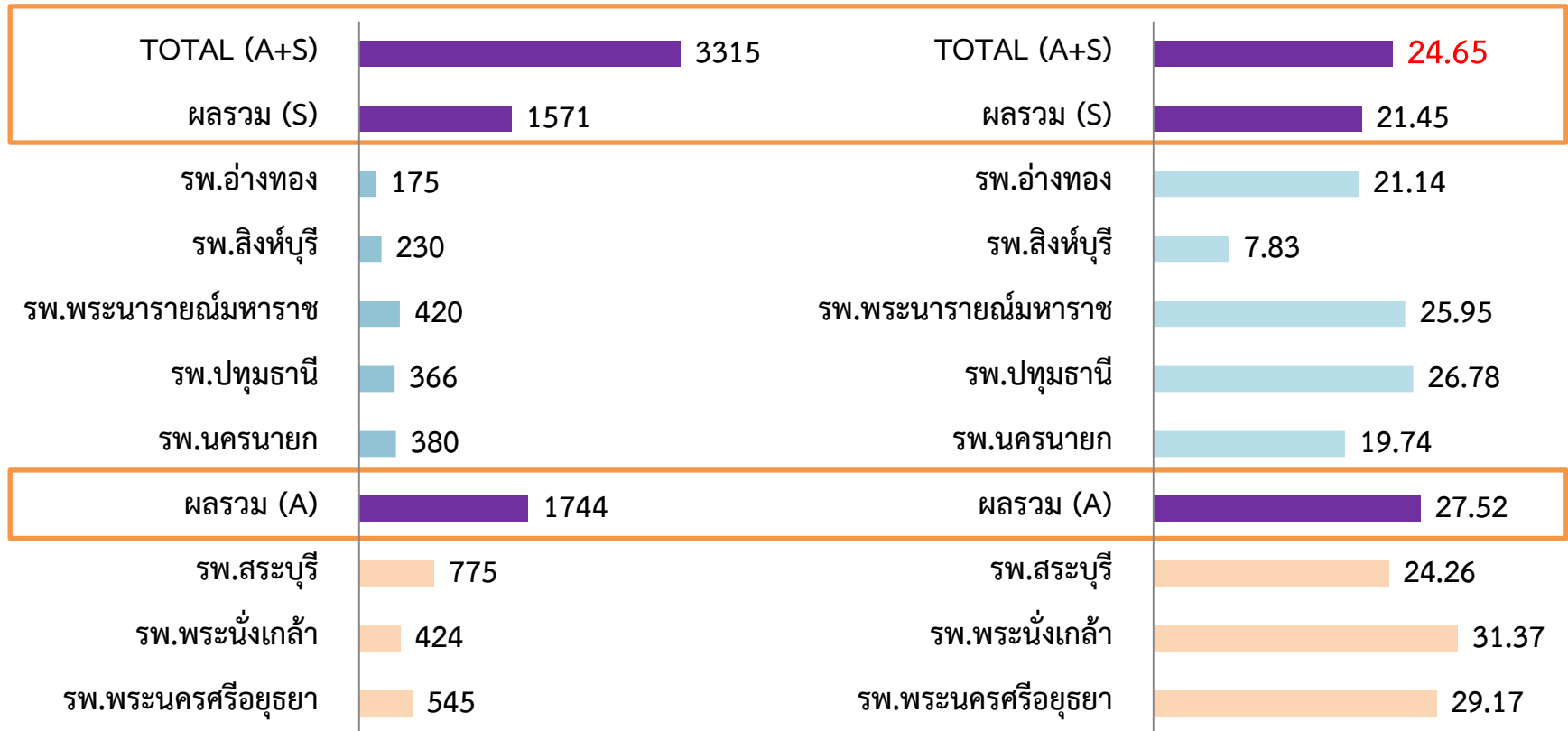
Mortality(N=900/3957)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 4 (A,S-hospital level)

Total(2014-16)

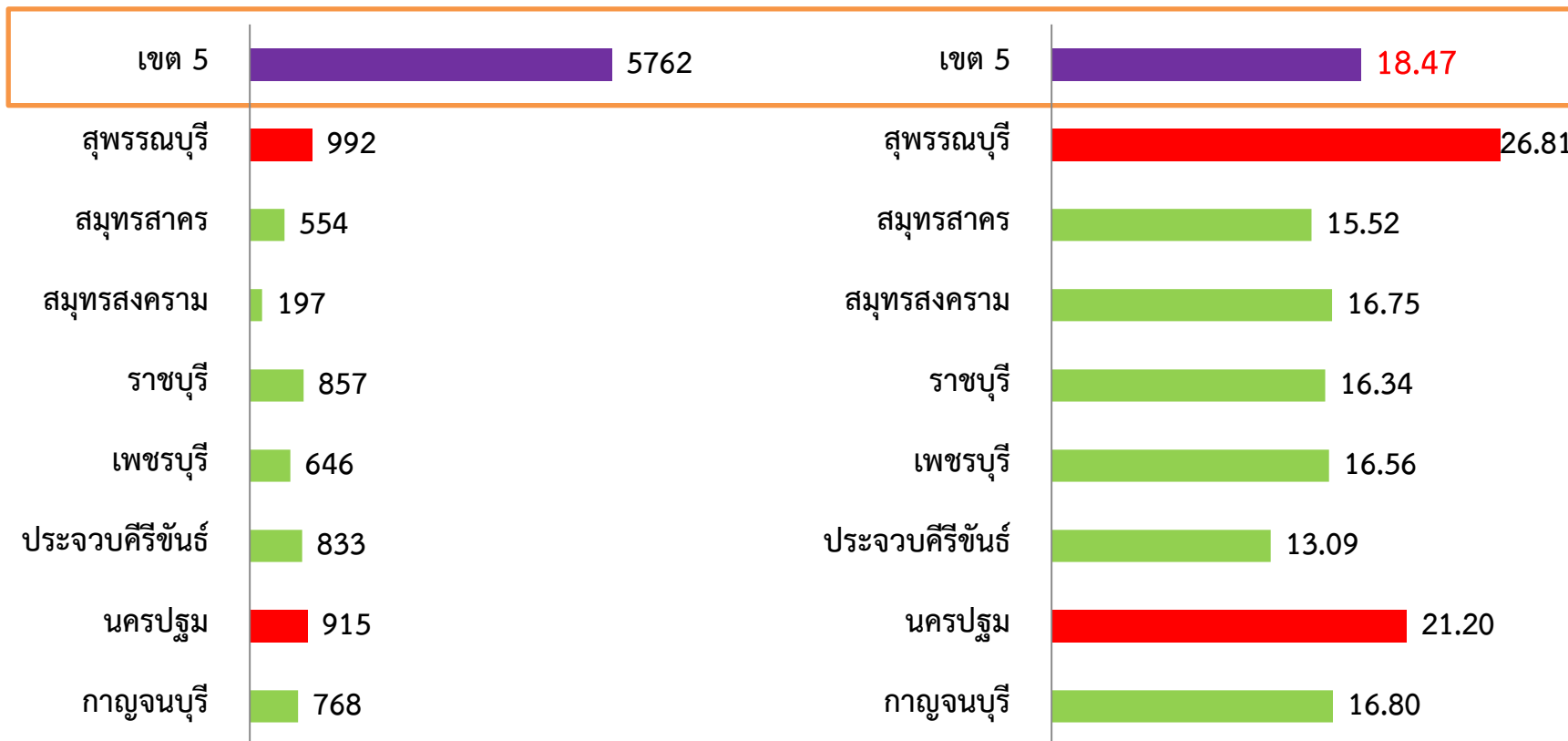
Mortality(N=817/3315)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 5

Total(2014-16)

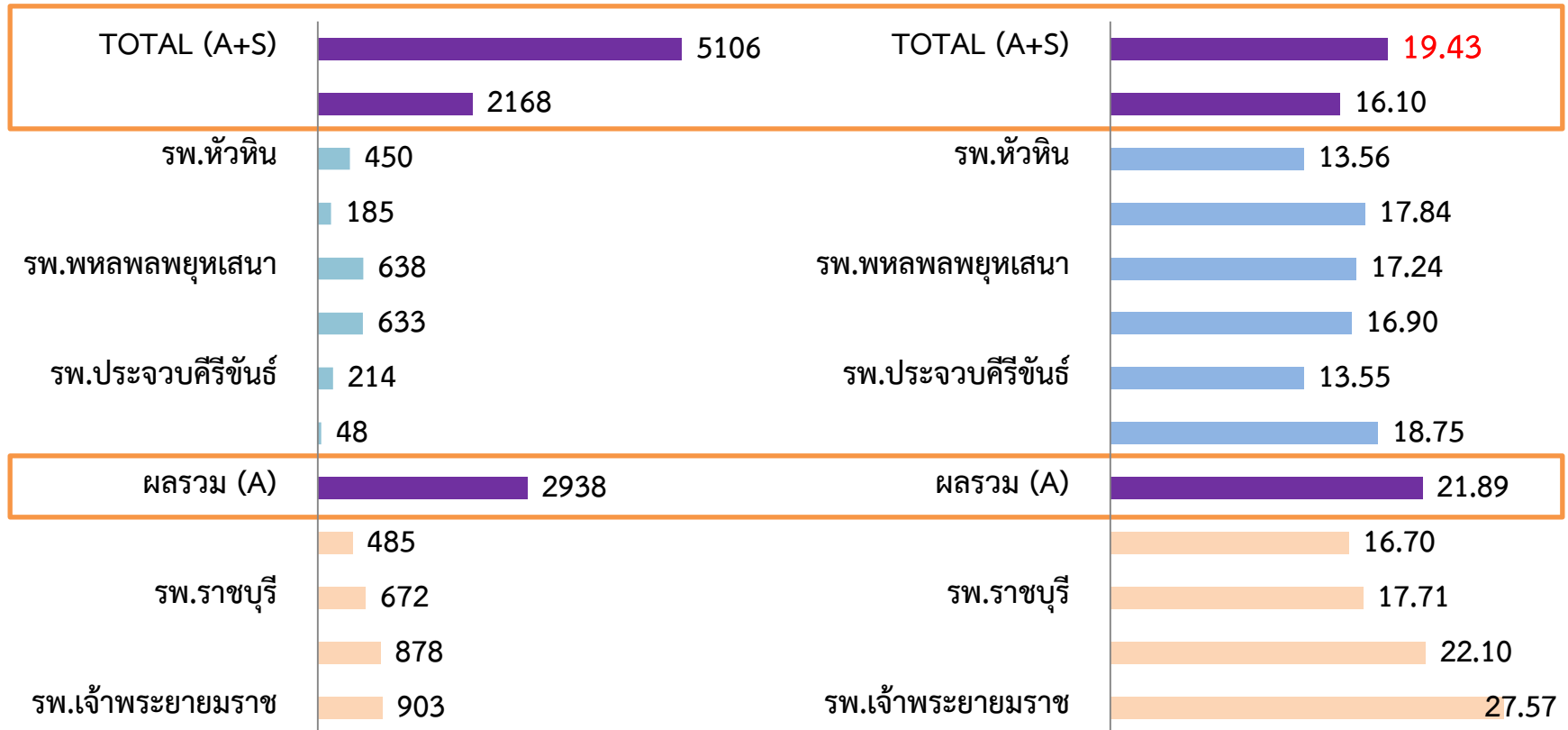
Mortality(1064/5762)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 5 (A,S-hospital level)

Total(2014-16)

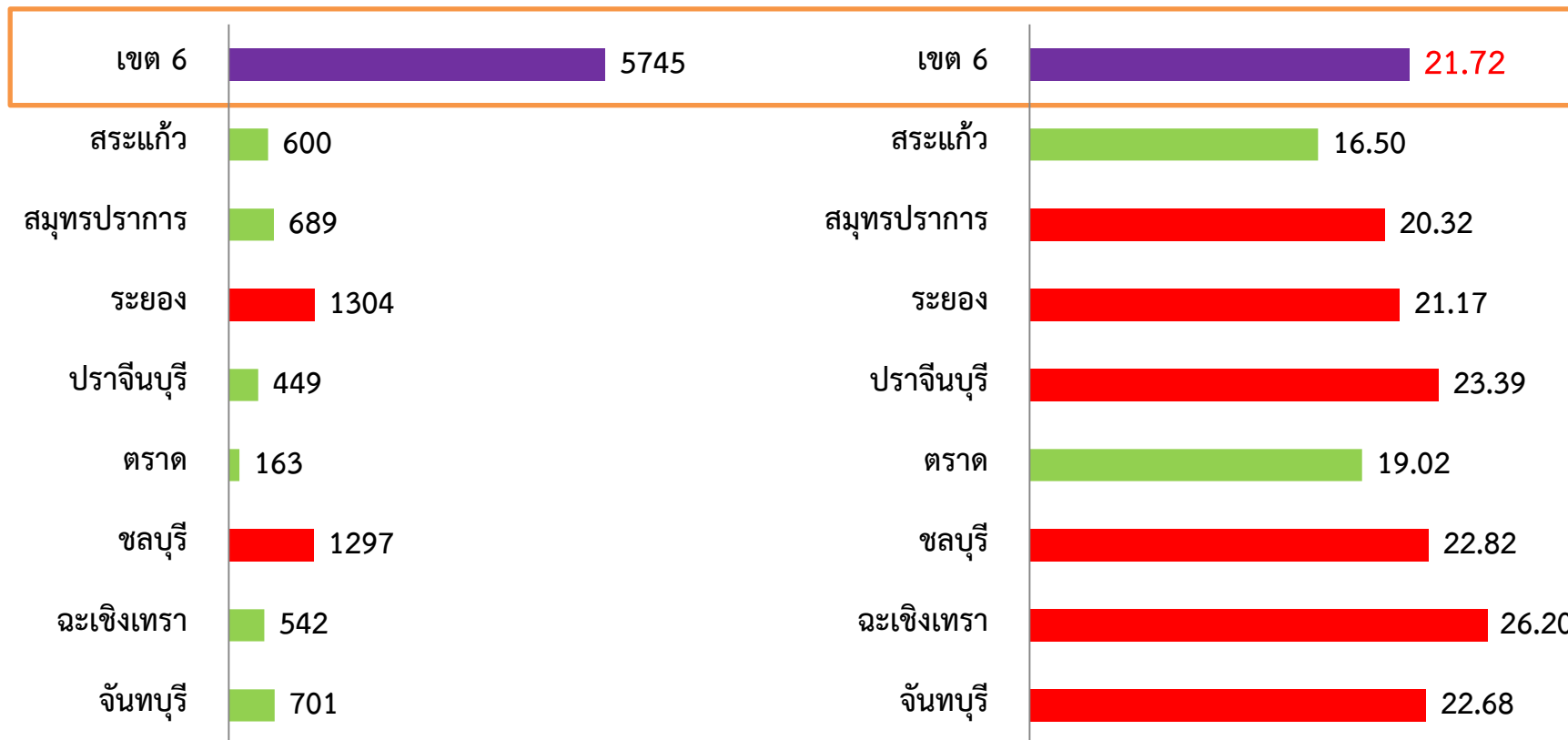
Mortality(N=992/5106)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 6

Total(2014-16)

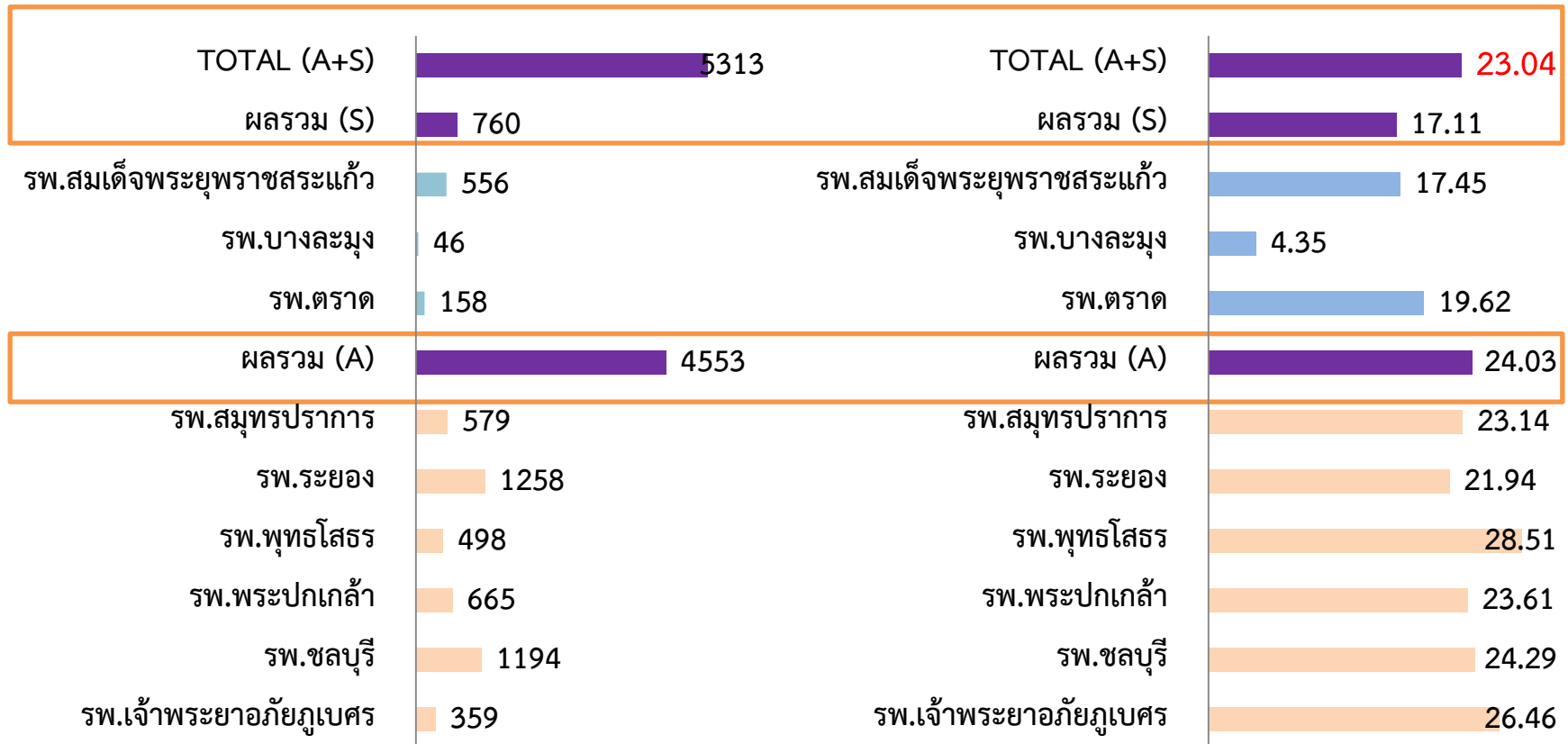
Mortality(1248/5745)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 6 (A,S-hospital level)

Total(2014-16)

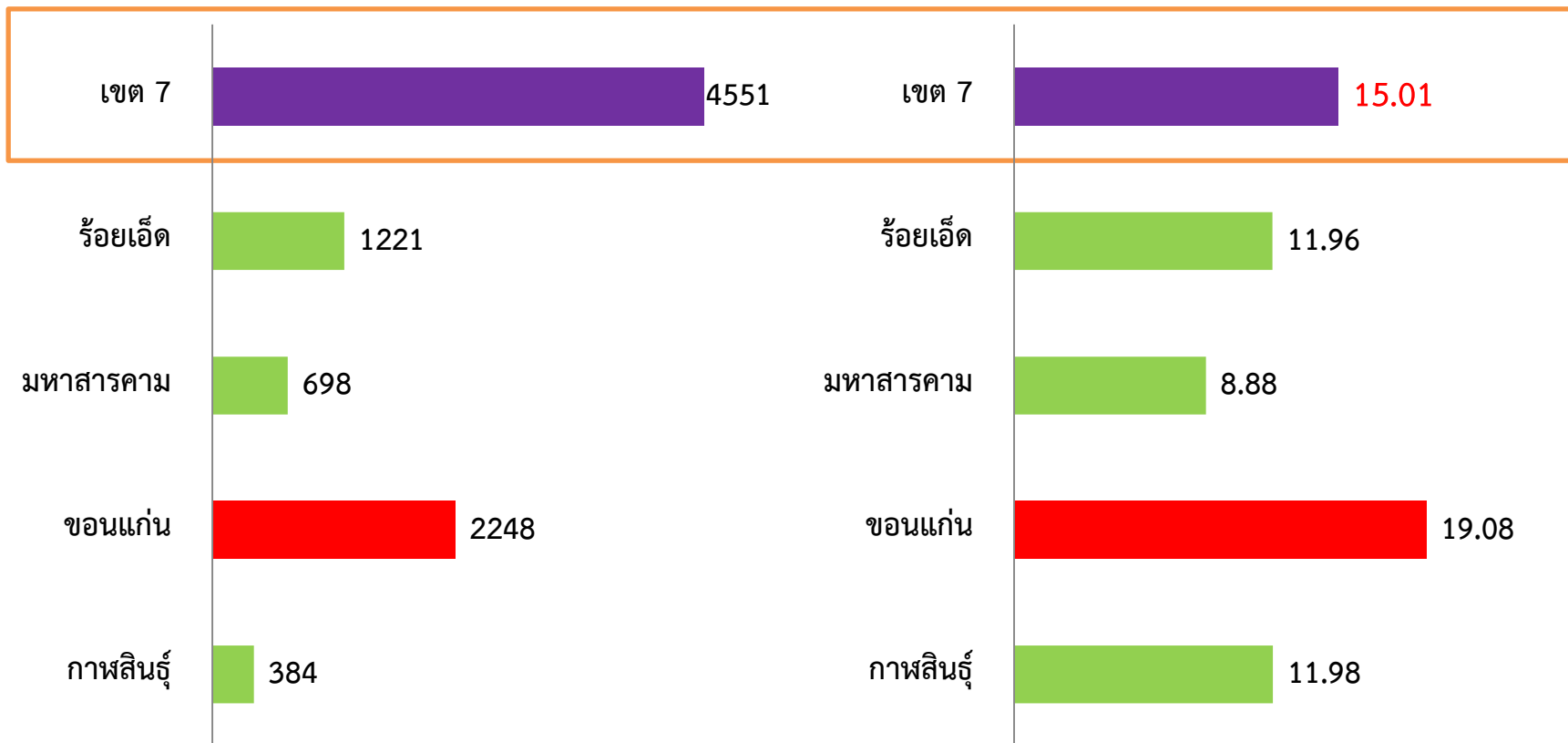
Mortality(1224/5313)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 7

Total(2014-16)

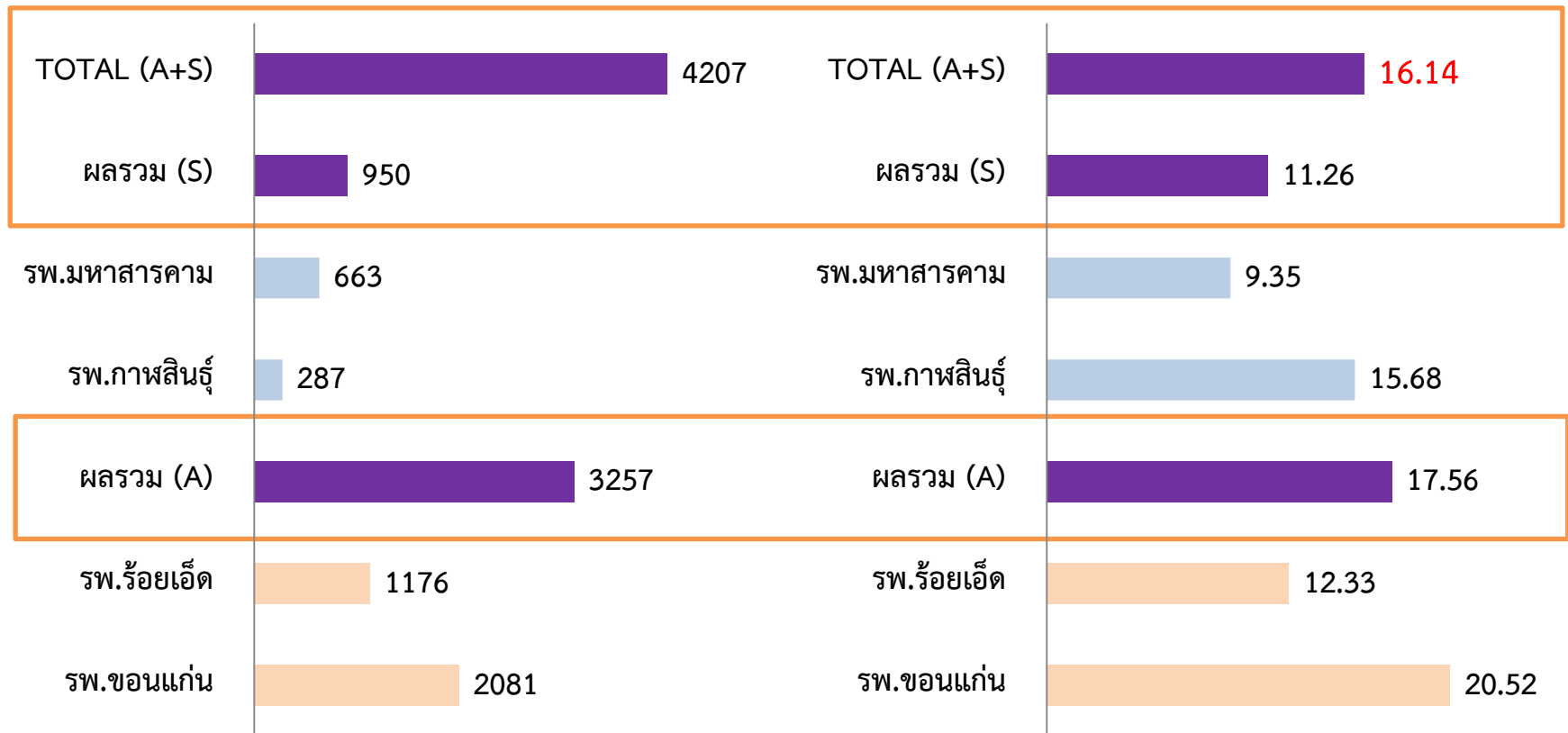
Mortality(683/4551)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 7 (A,S-hospital level)

Total(2014-16)

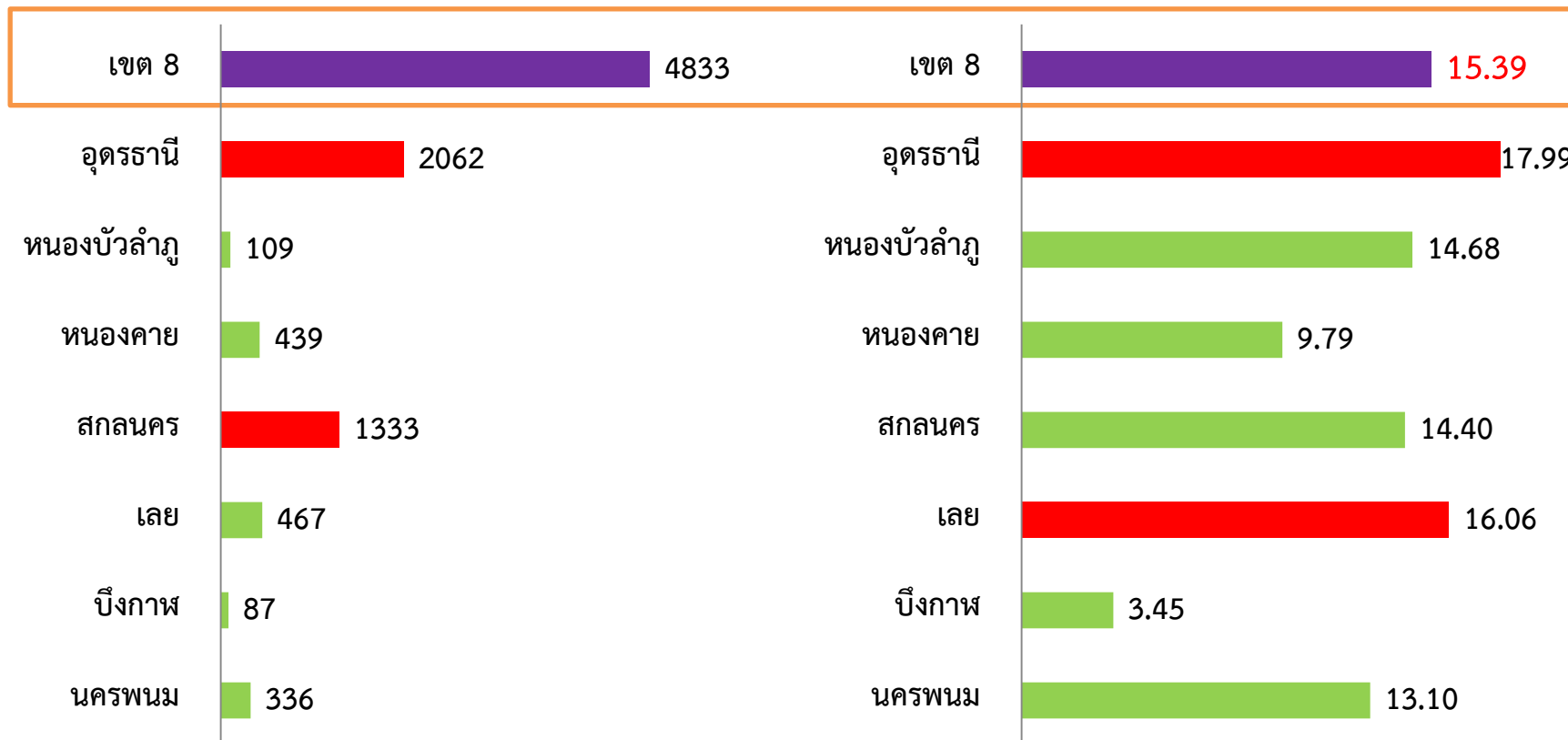
Mortality(679/4207)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 8

Total(2014-16)

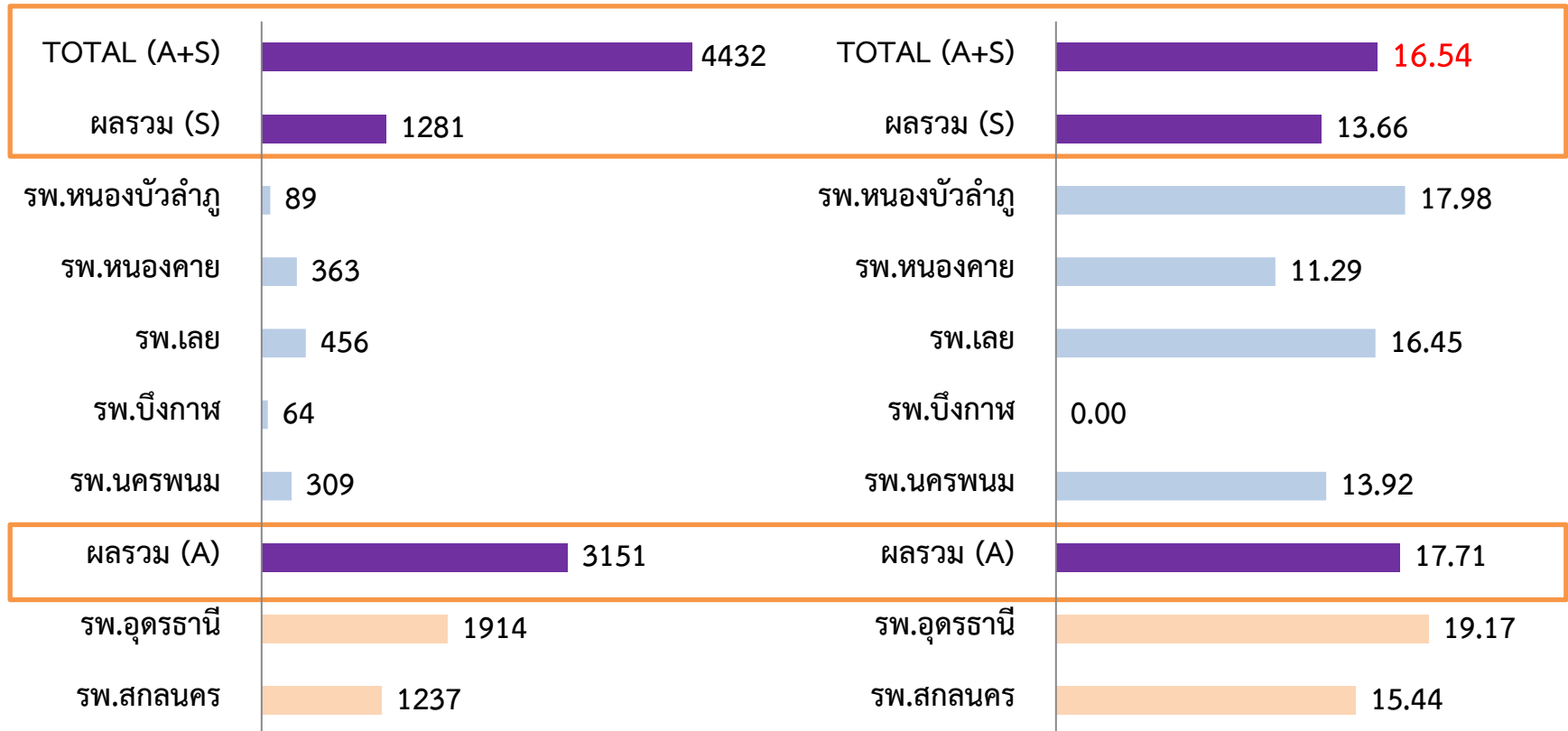
Mortality(744/4833)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 8 (A,S-hospital level)

Total(2014-16)

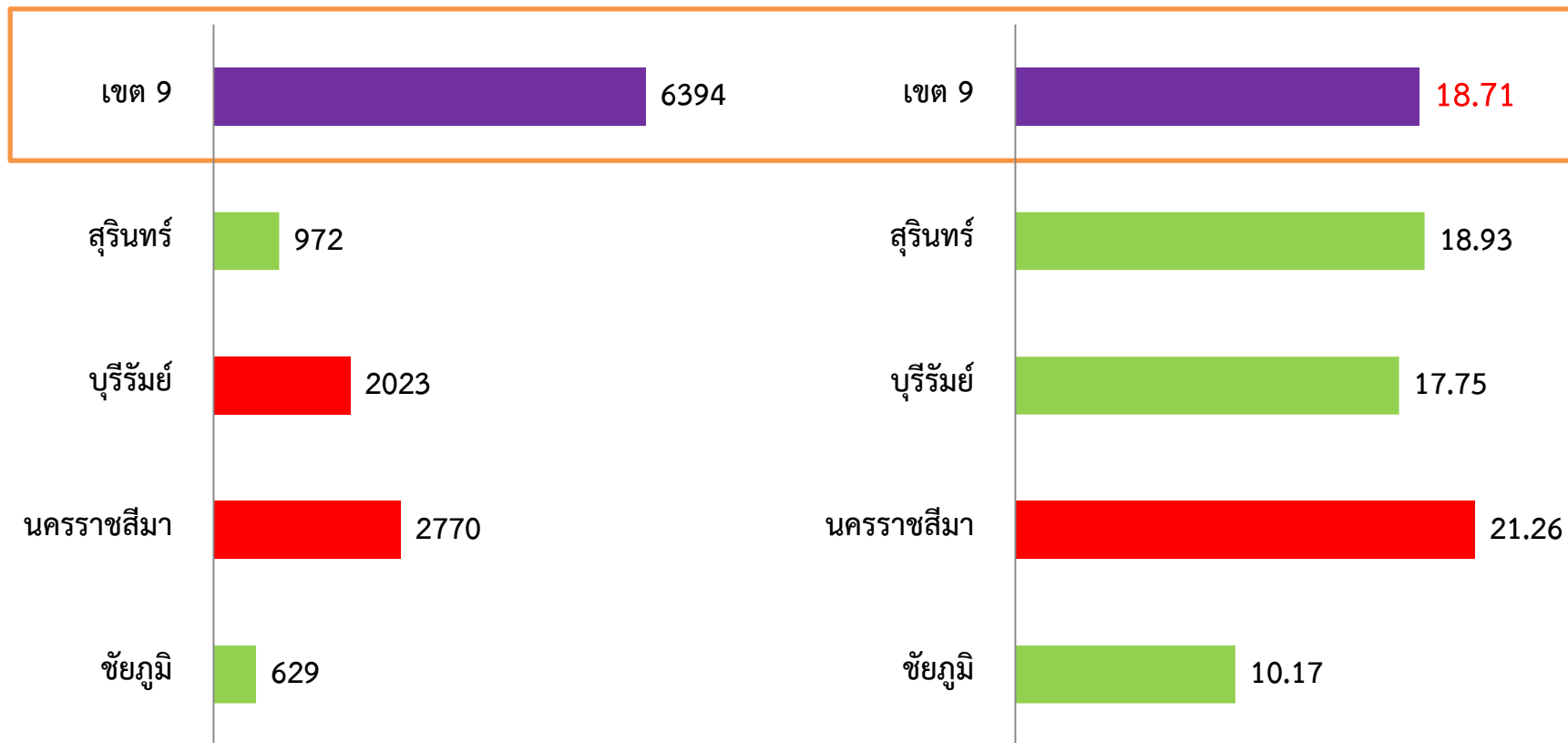
Mortality(733/4432)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 9

Total(2014-16)

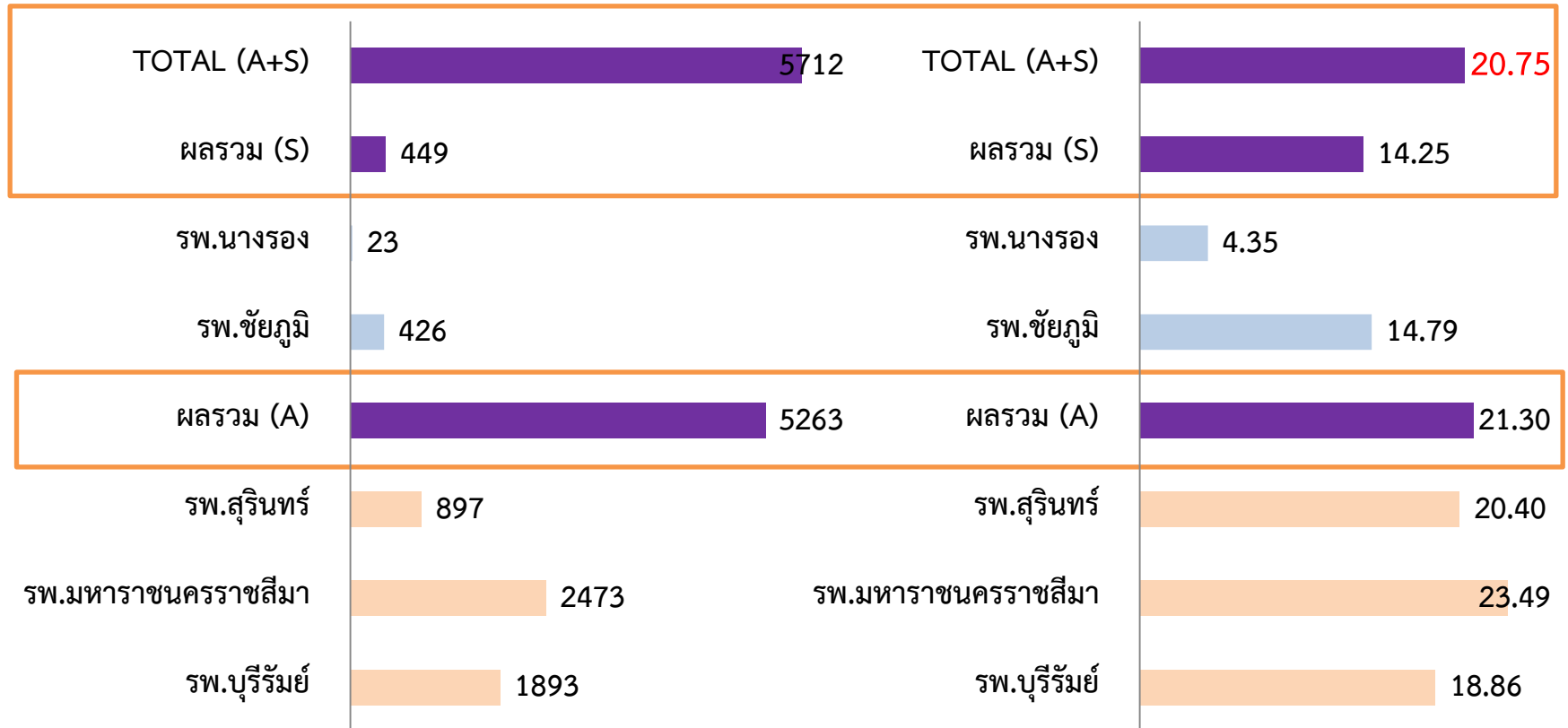
Mortality(1196/6394)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 9 (A,S-hospital level)

Total(2014-16)

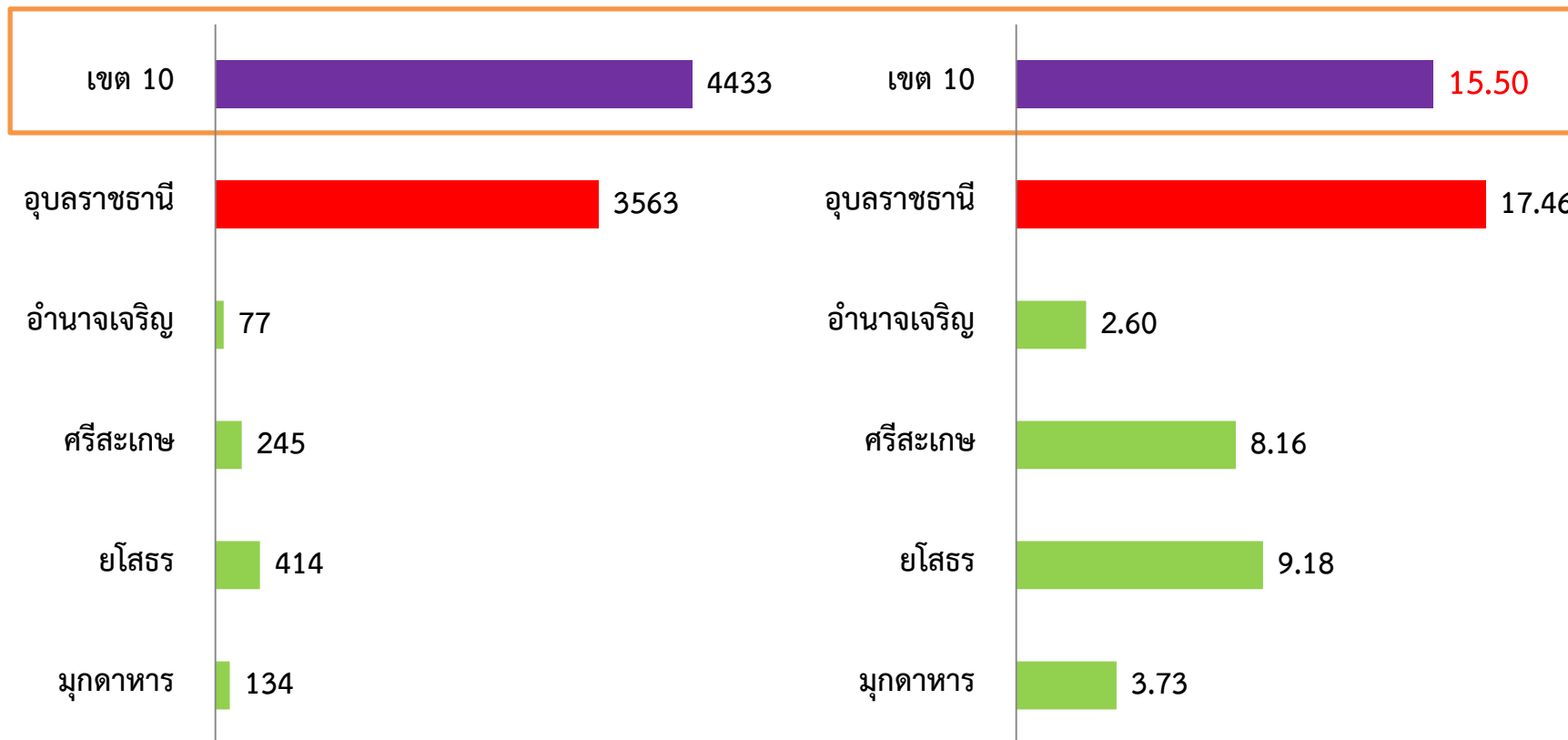
Mortality(1185/5712)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 10

Total(2014-16)

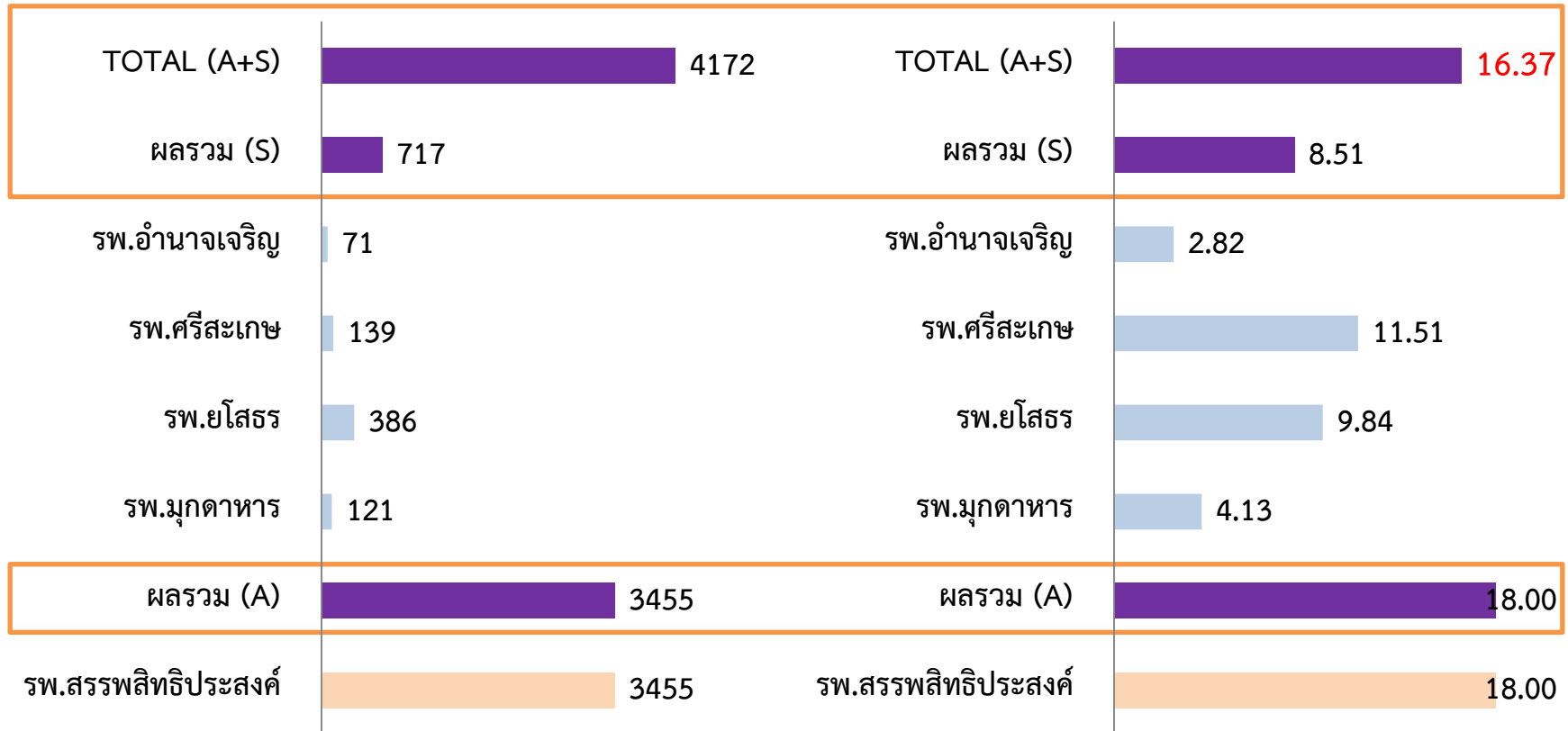
Mortality(687/4433)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 10 (A,S-hospital level)

Total(2014-16)

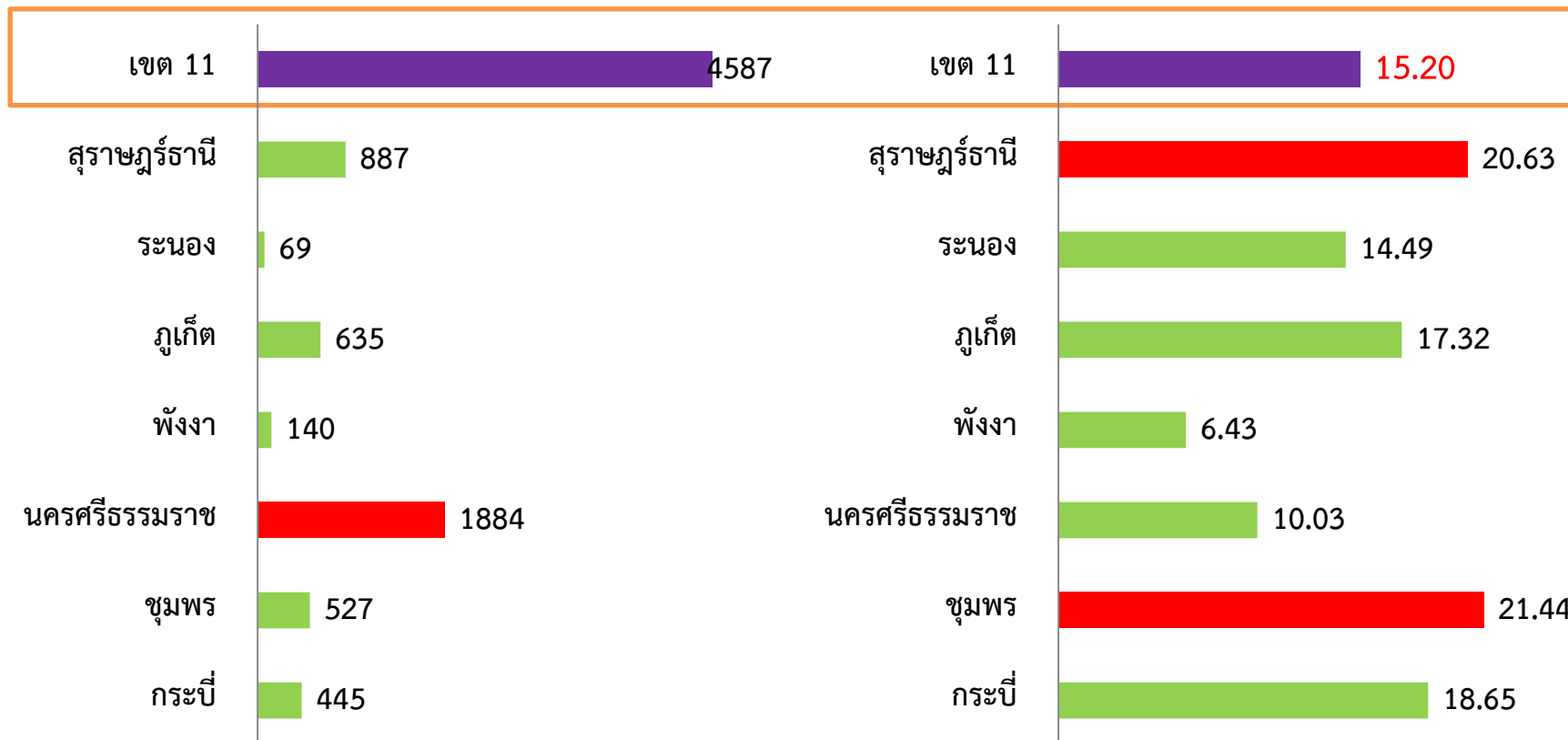
Mortality(683/4172)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 11

Total(2014-16)

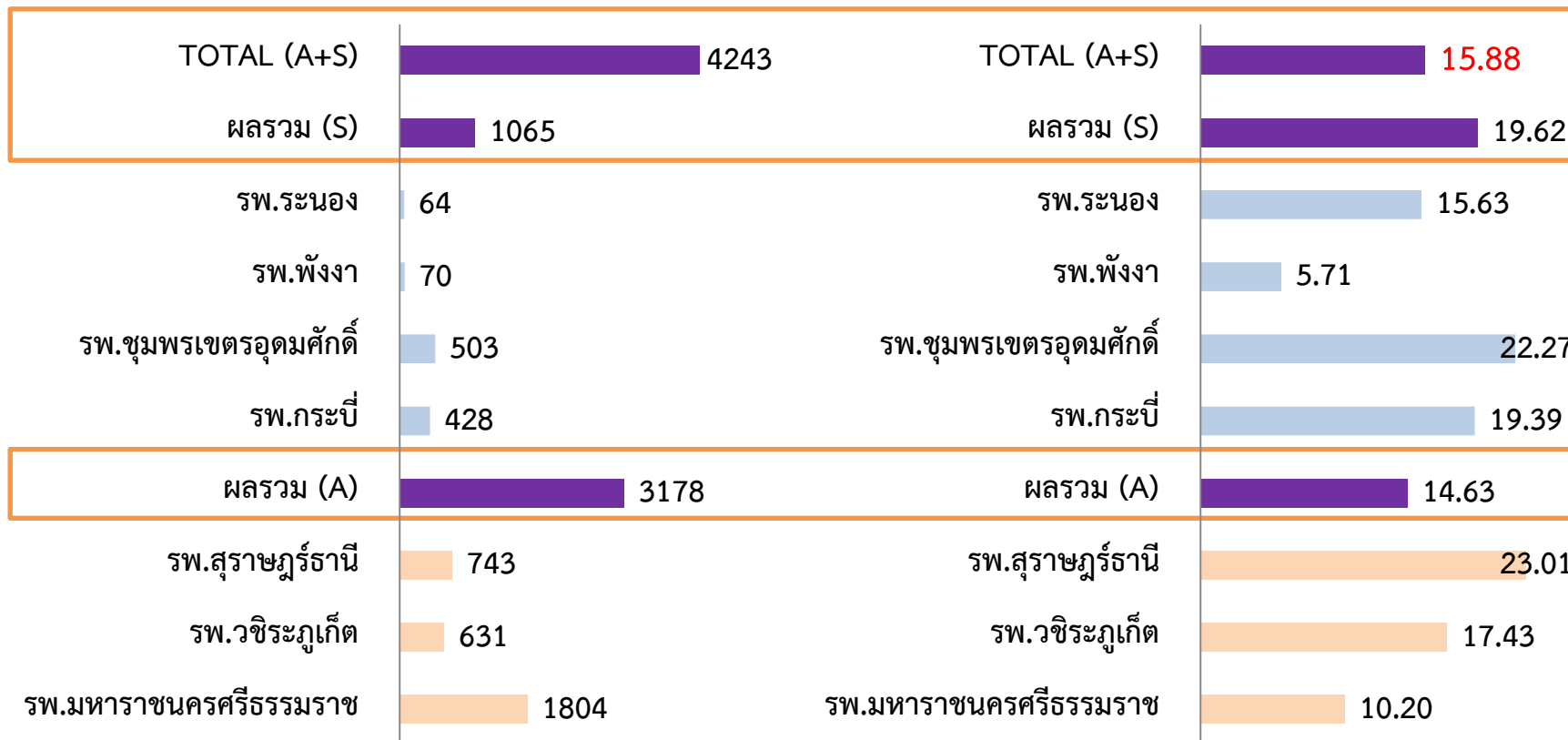
Mortality(697/4587)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 11 (A,S-hospital level)

Total(2014-16)

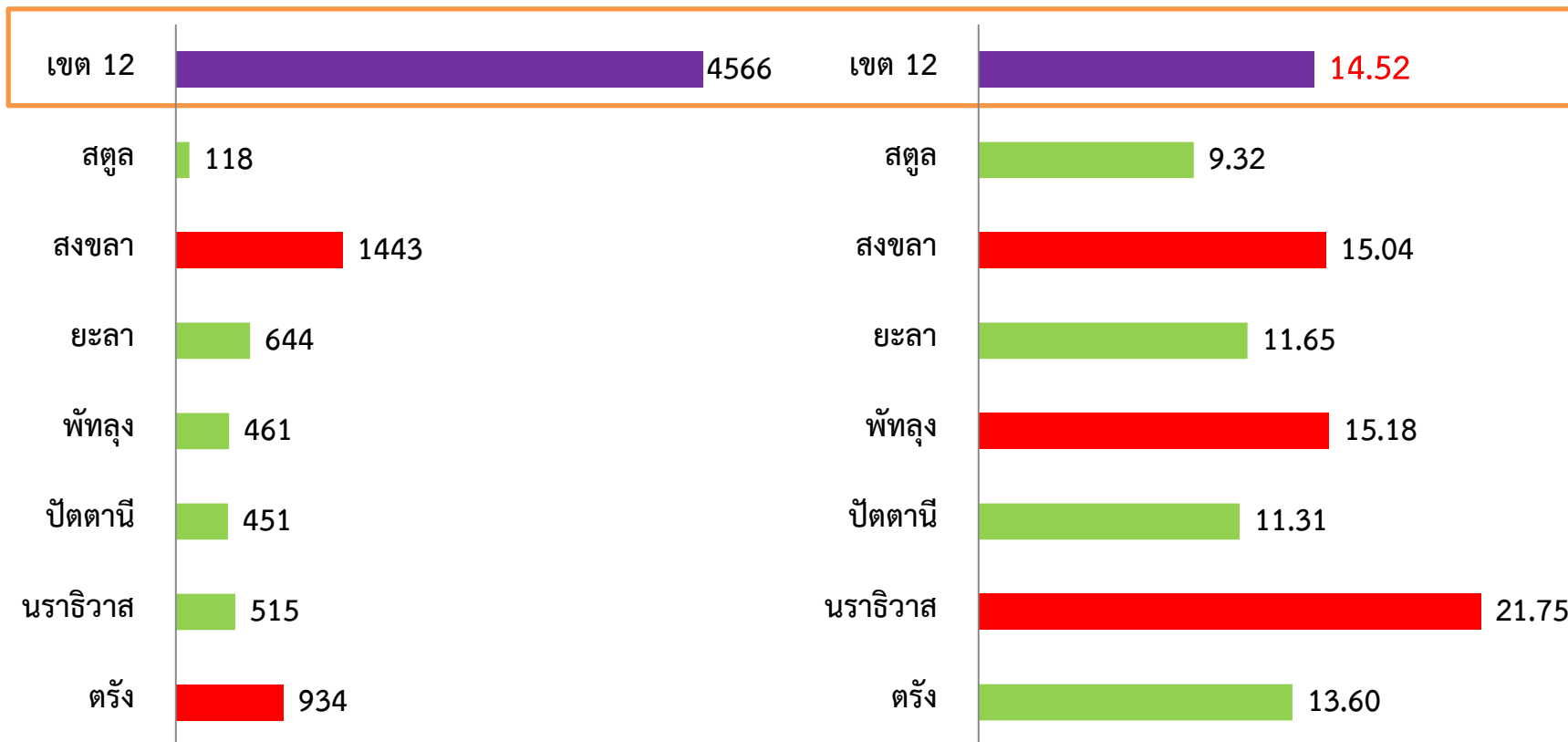
Mortality(674/4243)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 12

Total(2014-16)

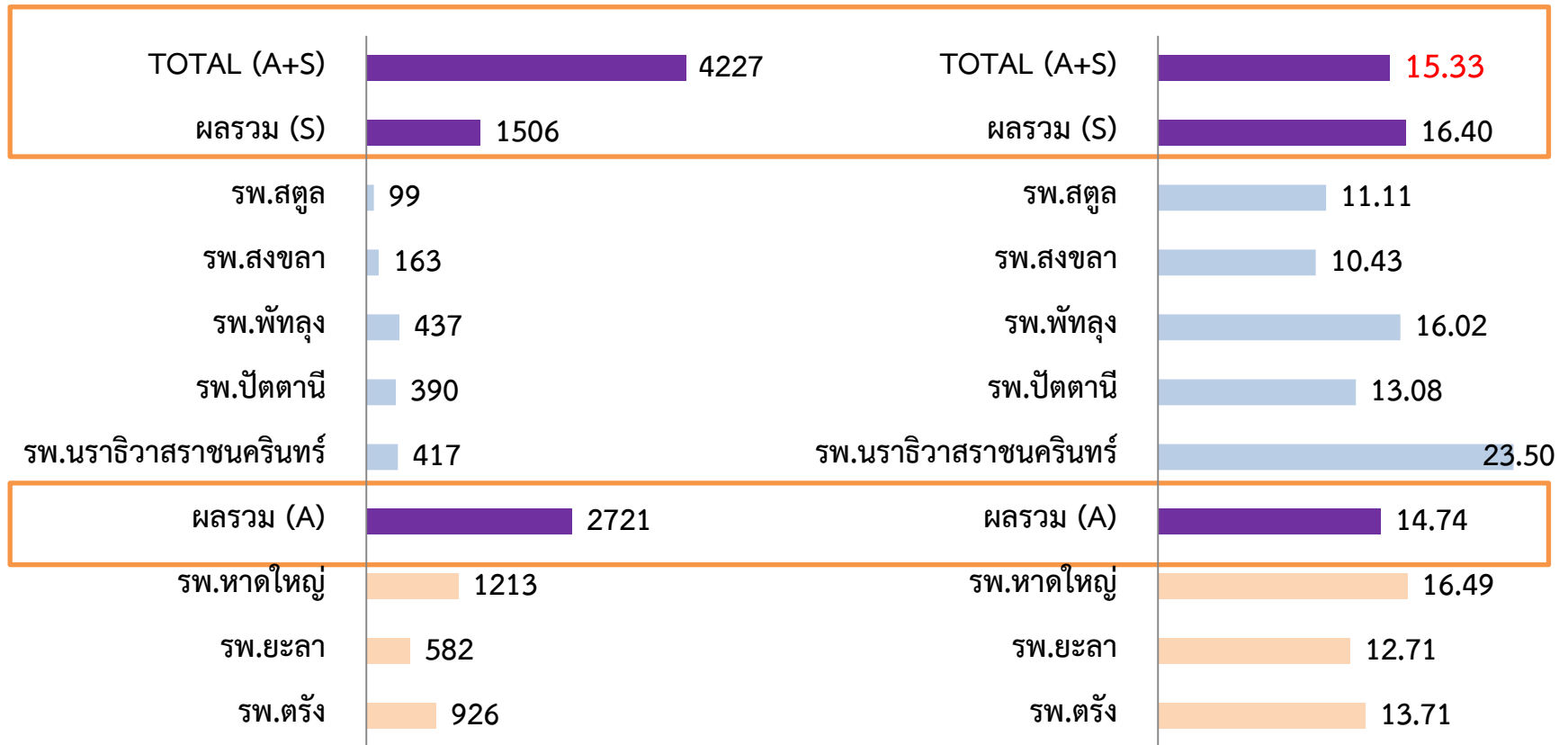
Mortality(663/4566)



Traumatic brain injury (TBI exclude cerebral concussion) : Region 12 (A,S-hospital level)

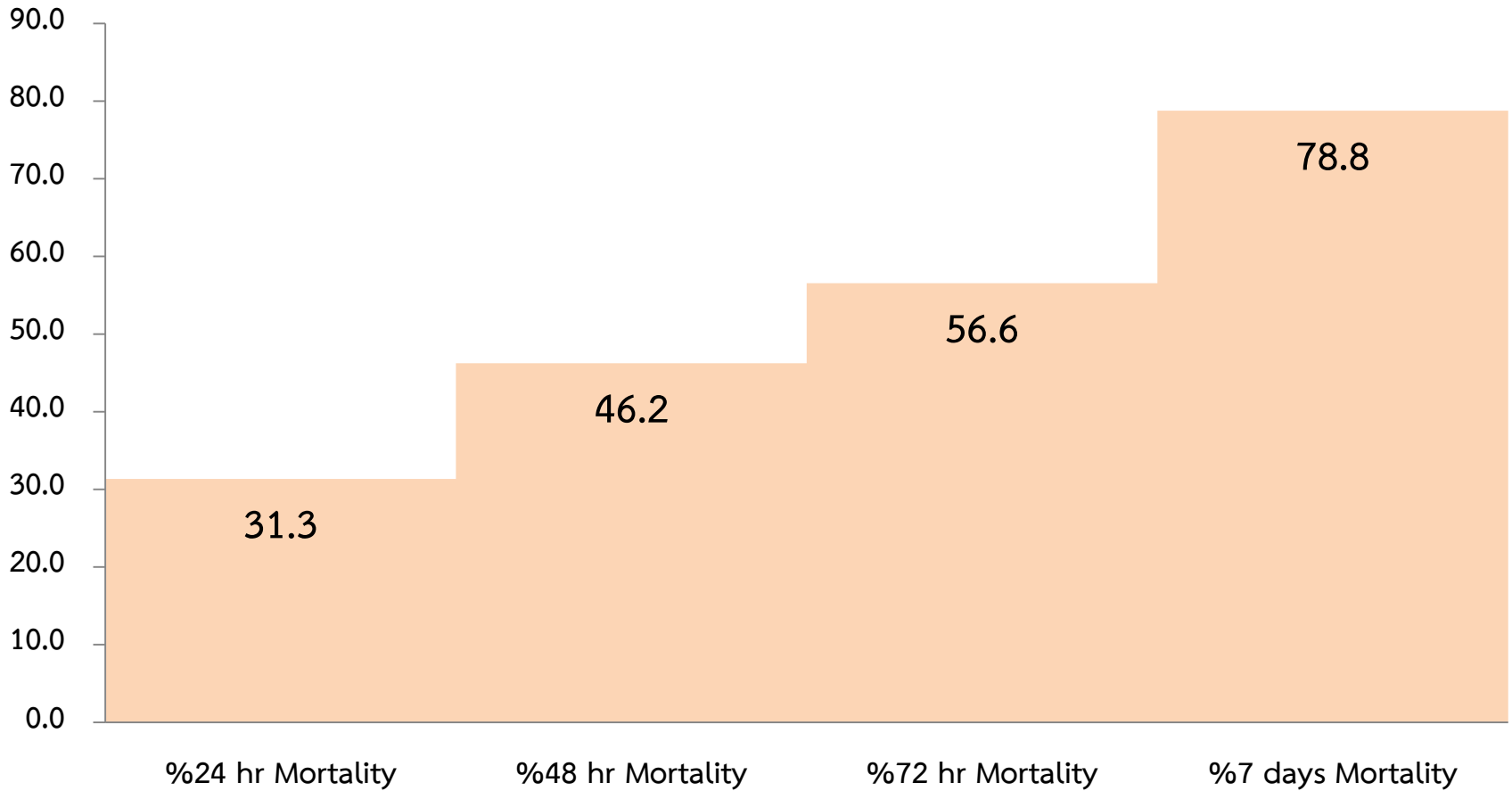
Total(2014-16)

Mortality(648/4227)



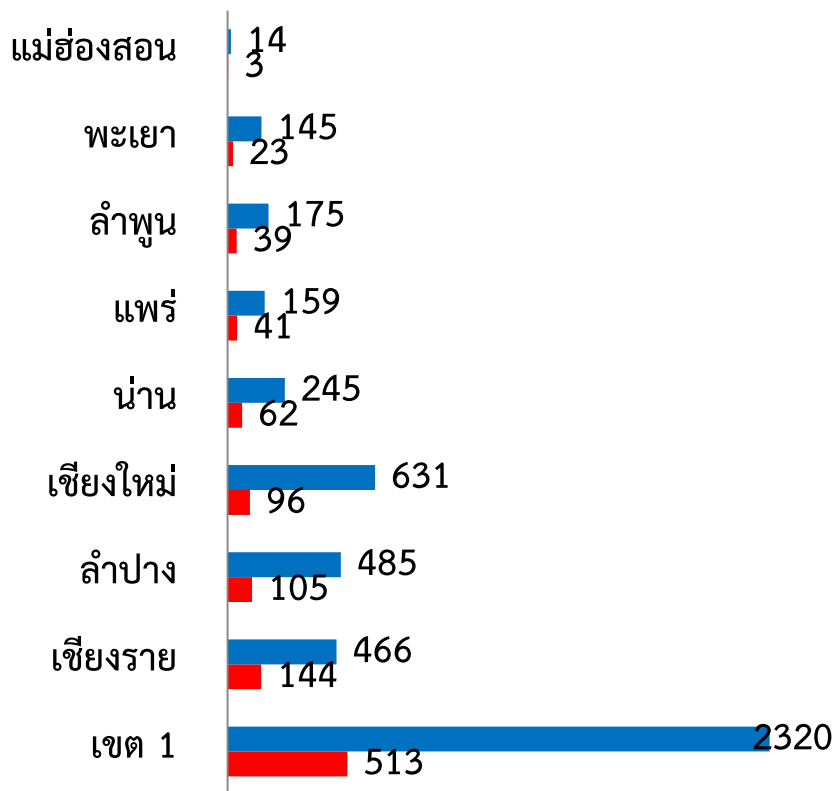
Cumulative mortality for
focal brain injury,EDH,SDH (S063*-S065*)

[N=6,900/36,654=18.8%]

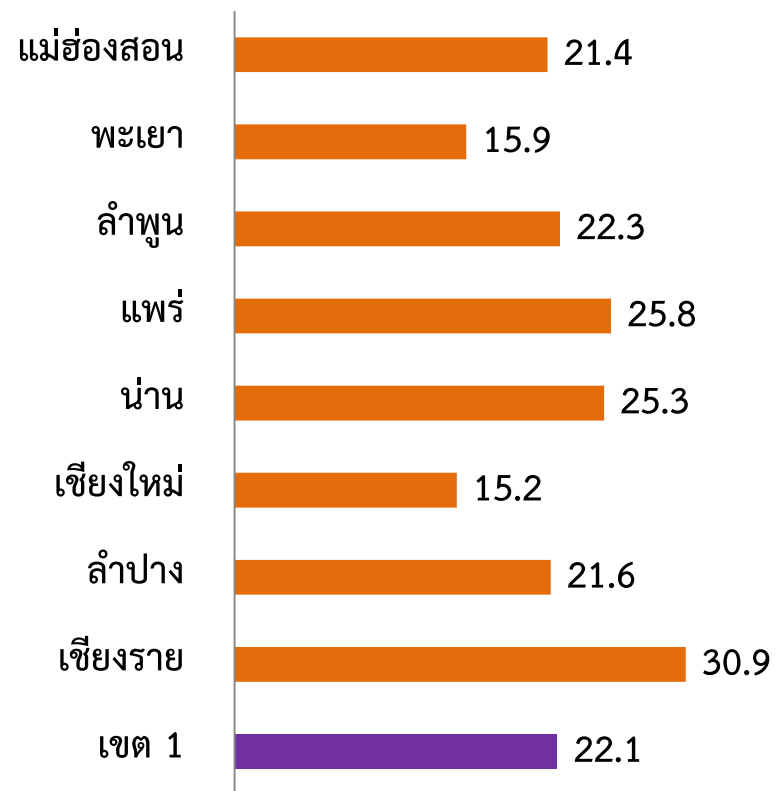


Region 1 : traumatic subdural hemorrhage(S065*)

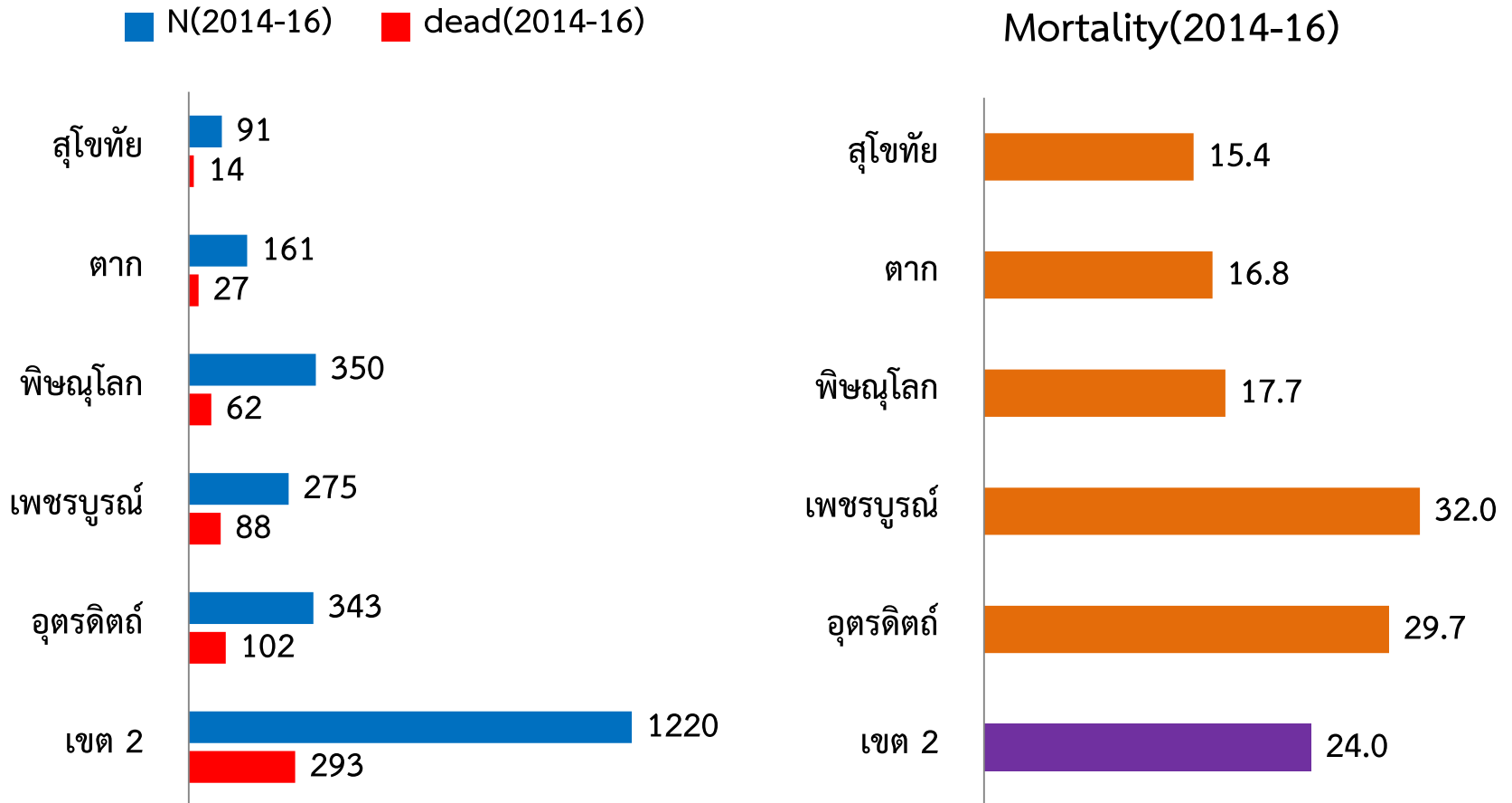
■ N(2014-16) ■ dead(2014-16)



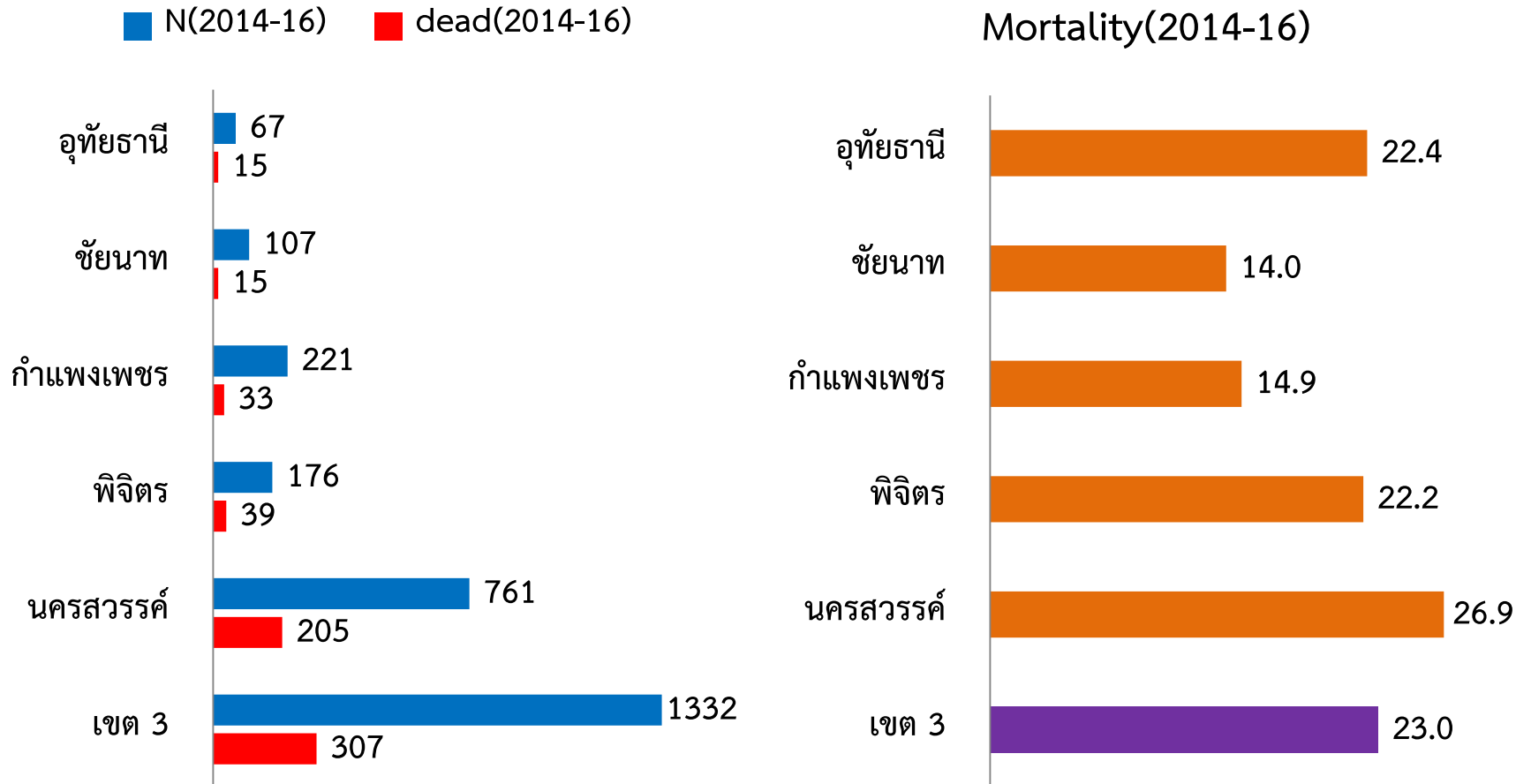
Mortality(2014-16)



Region 2 : traumatic subdural hemorrhage(S065*)

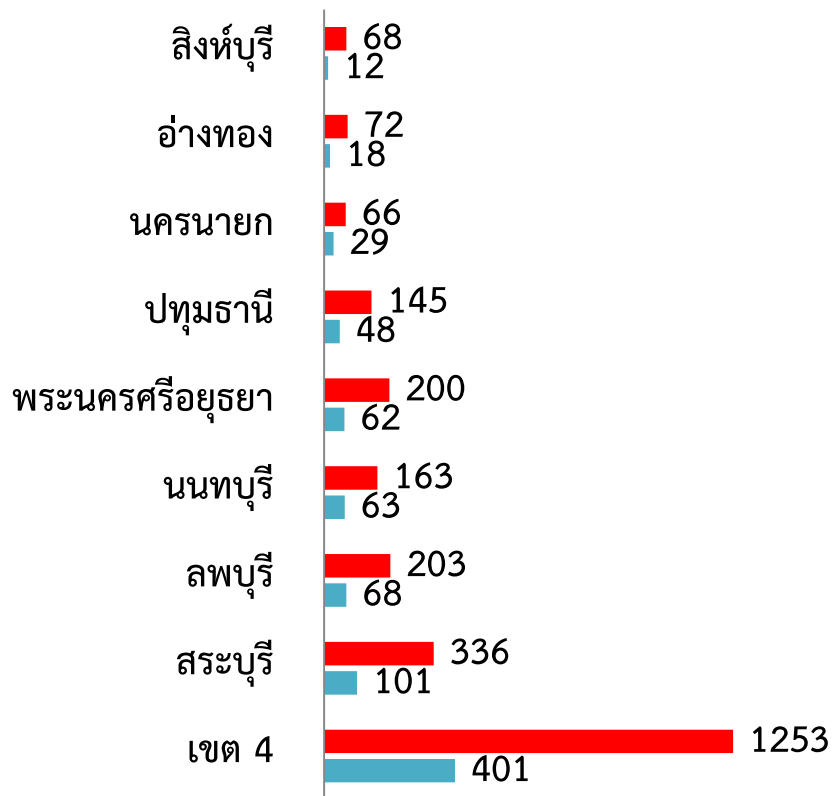


Region 3 : traumatic subdural hemorrhage(S065*)

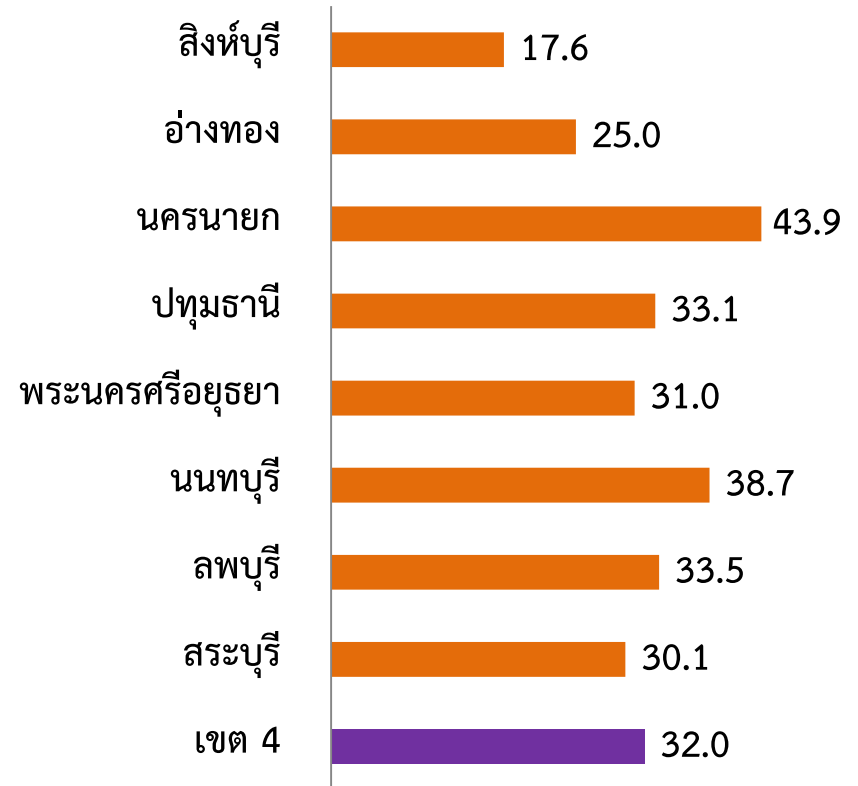


Region 4 : traumatic subdural hemorrhage(S065*)

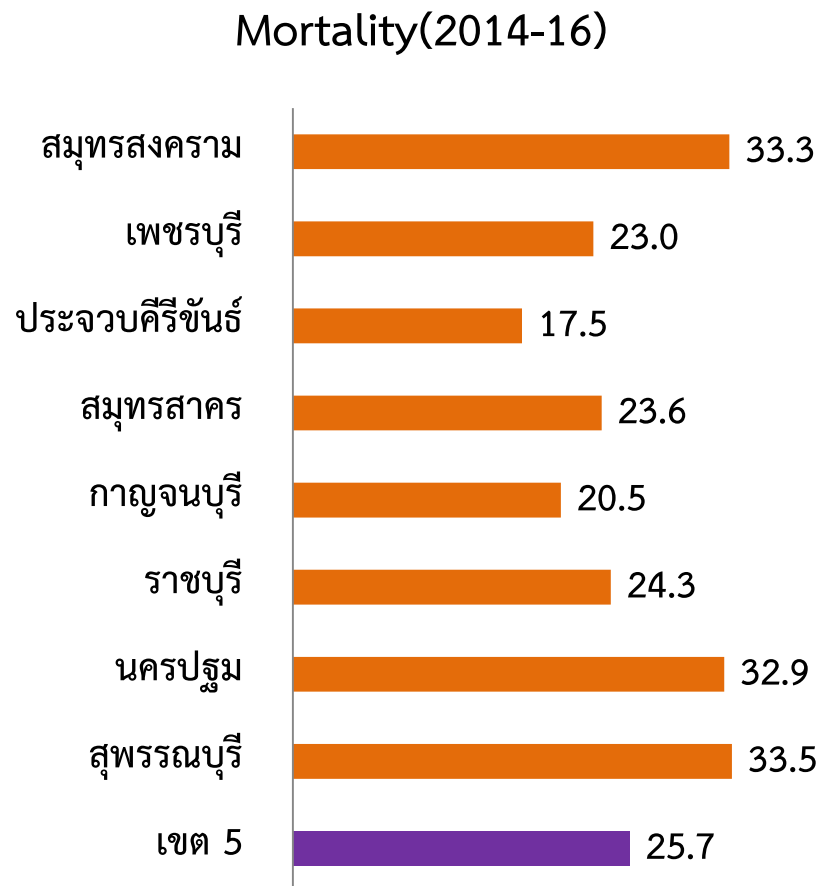
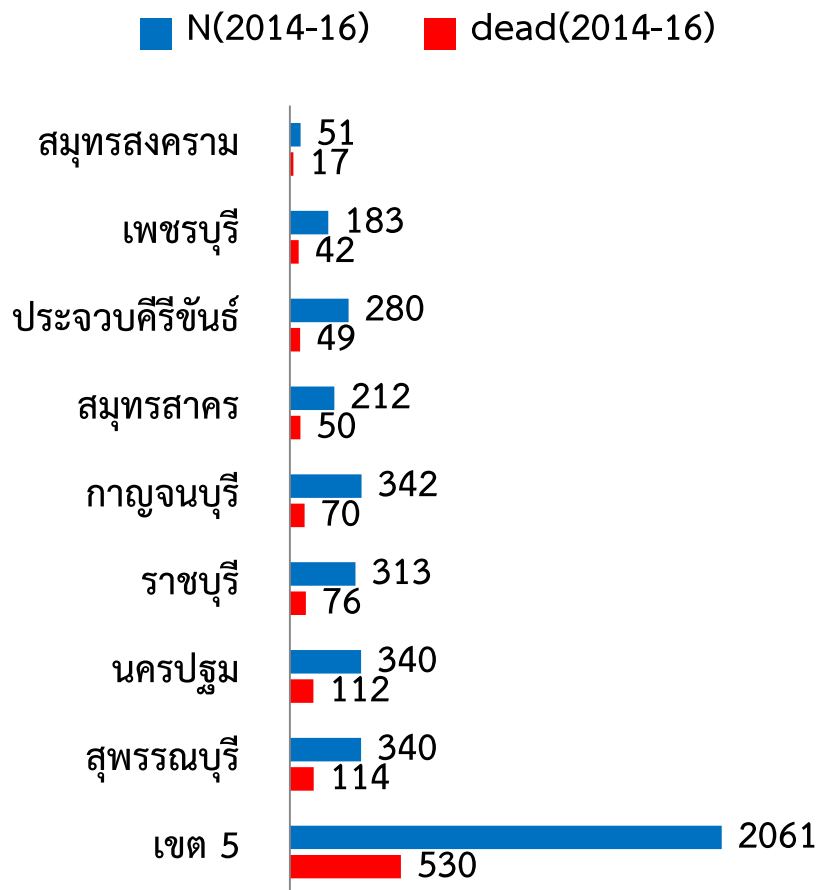
■ N(2014-16) ■ dead(2014-16)



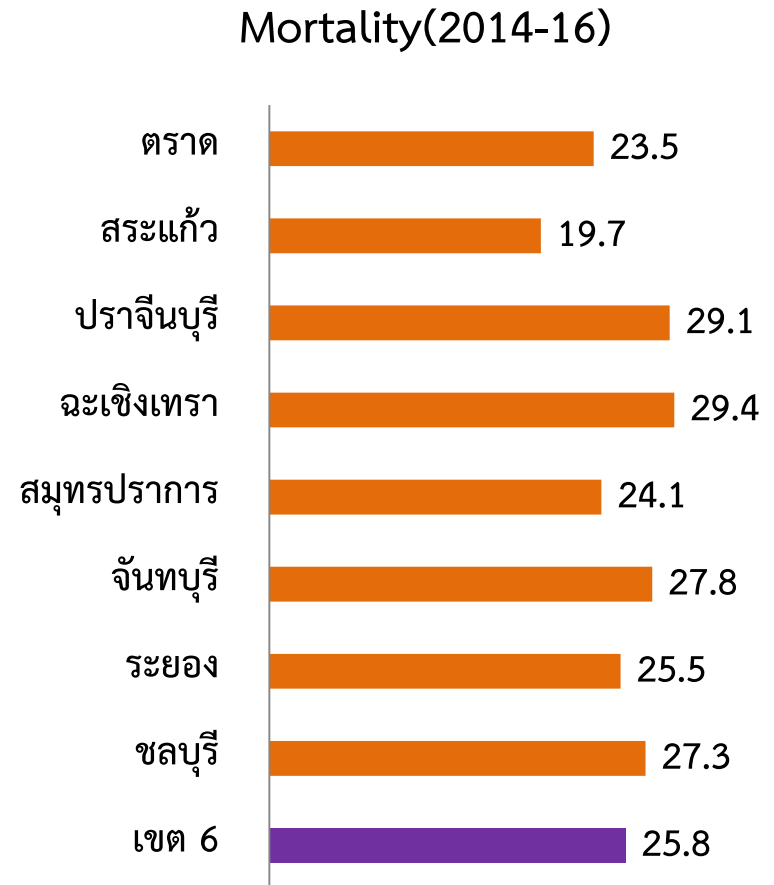
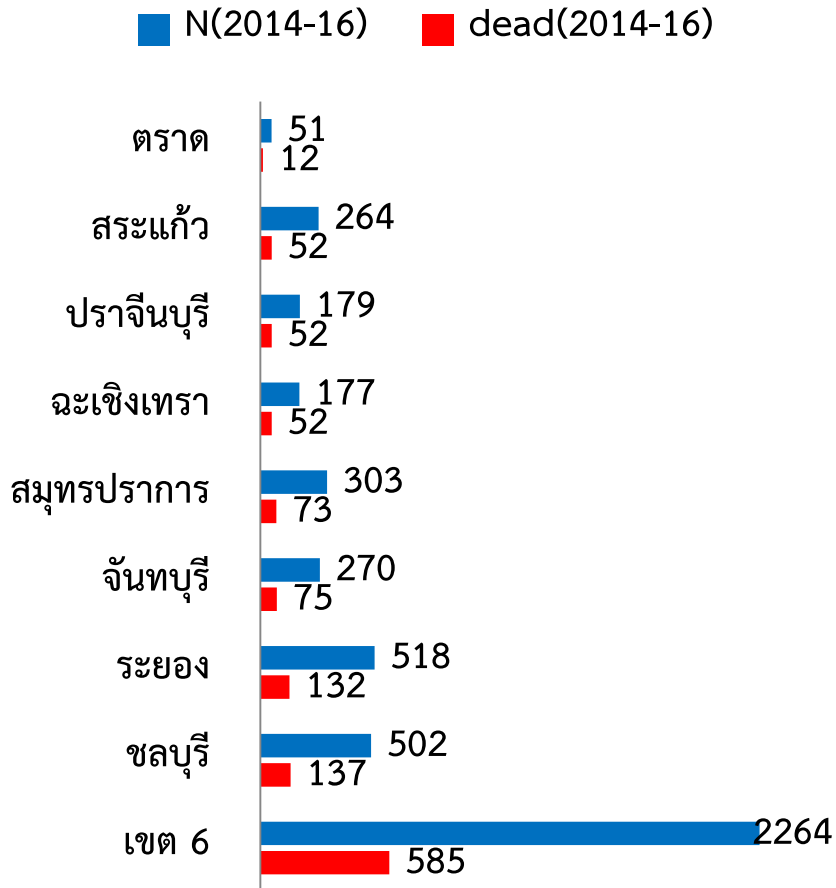
Mortality(2014-16)



Region 5 : traumatic subdural hemorrhage(S065*)

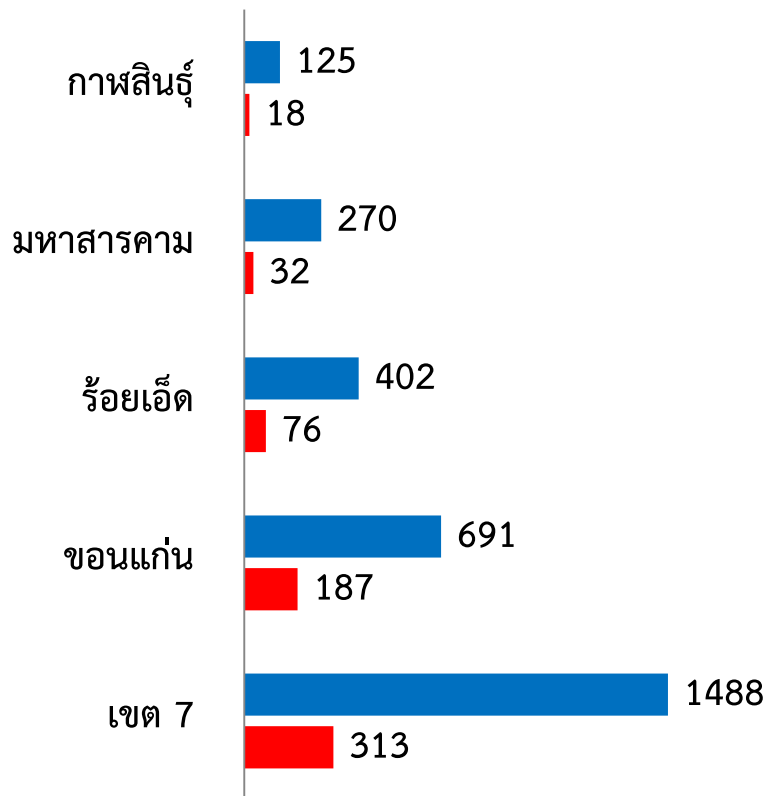


Region 6 : traumatic subdural hemorrhage(S065*)

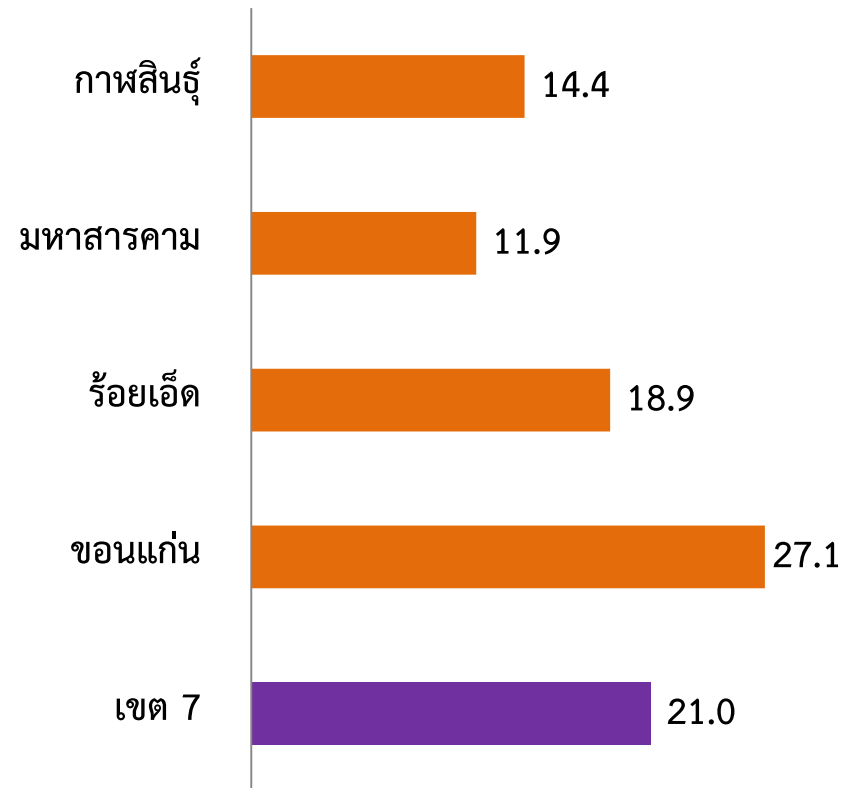


Region 7 : traumatic subdural hemorrhage(S065*)

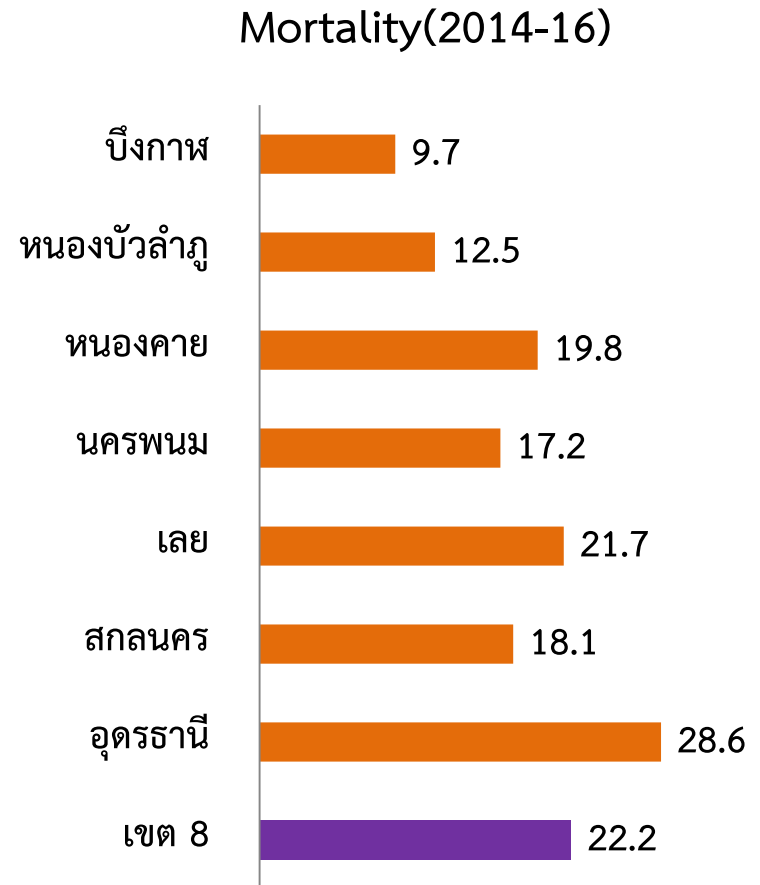
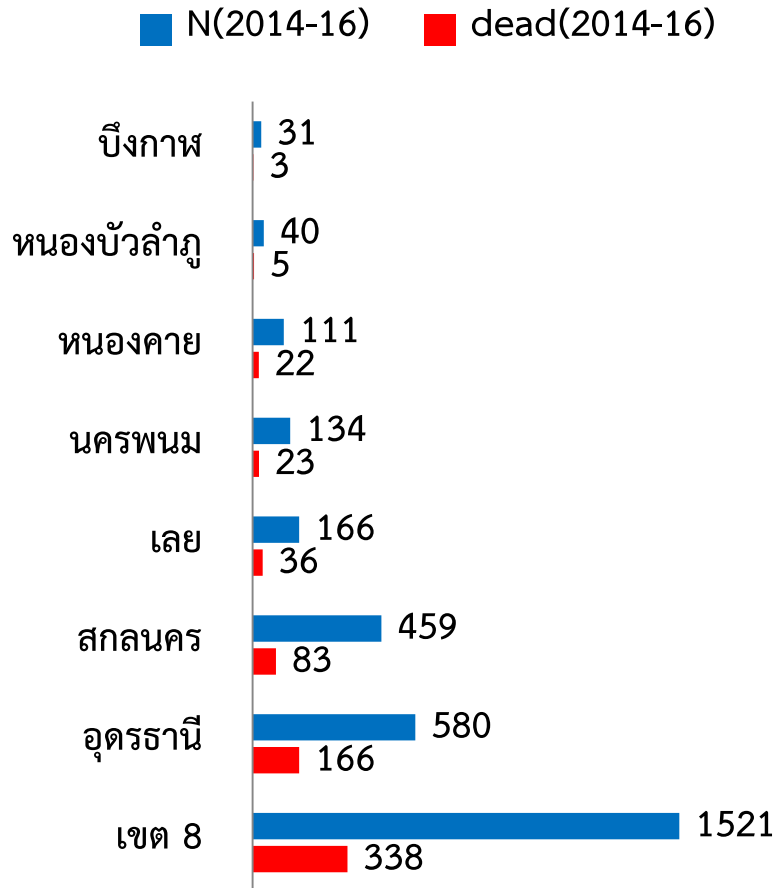
■ N(2014-16) ■ dead(2014-16)



Mortality(2014-16)

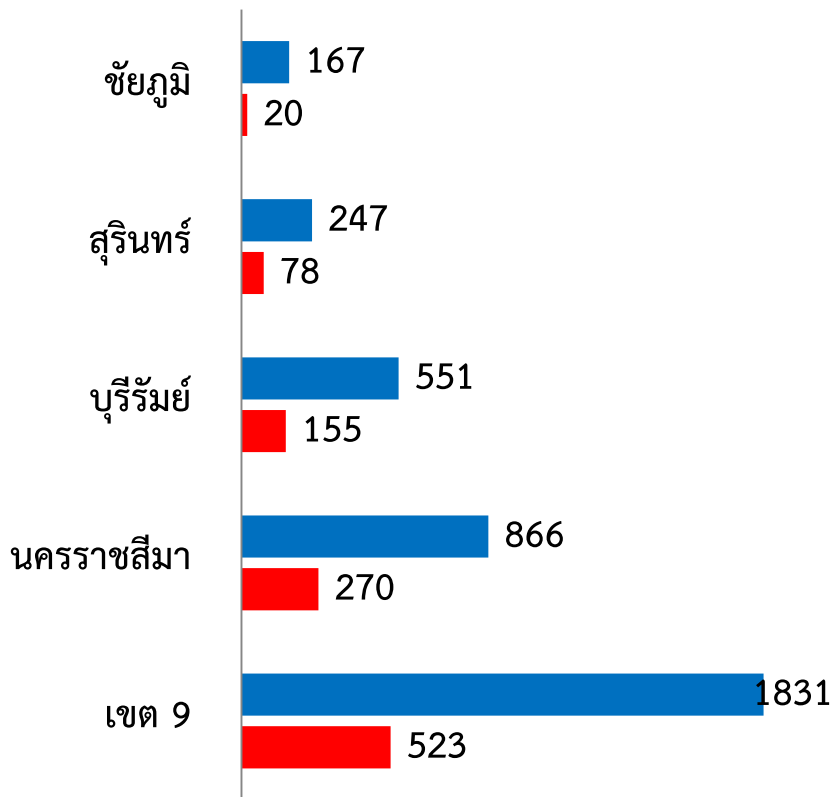


Region 8 : traumatic subdural hemorrhage(S065*)

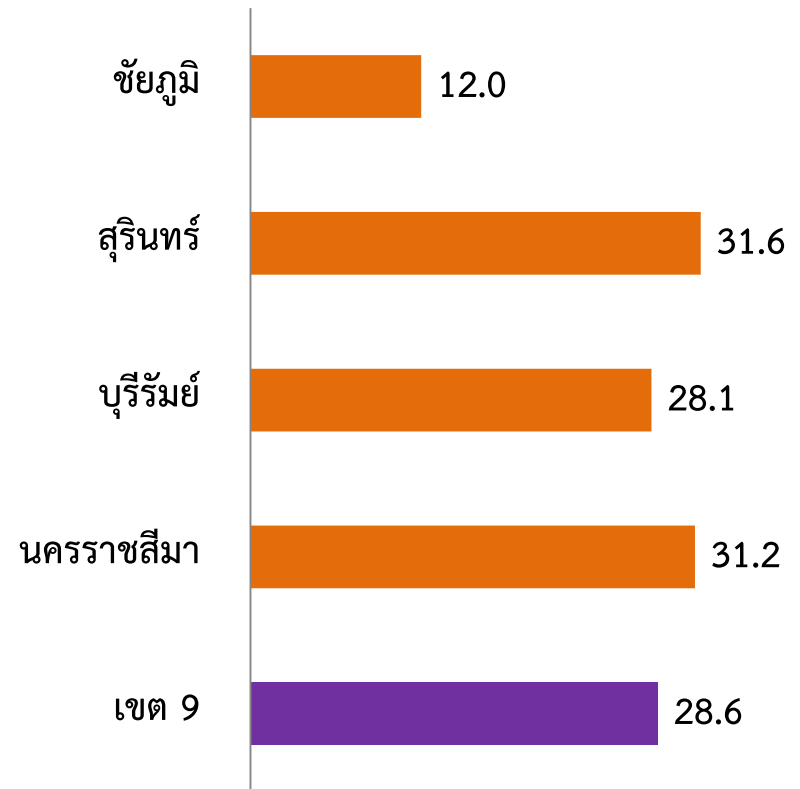


Region 9 : traumatic subdural hemorrhage(S065*)

■ N(2014-16) ■ dead(2014-16)

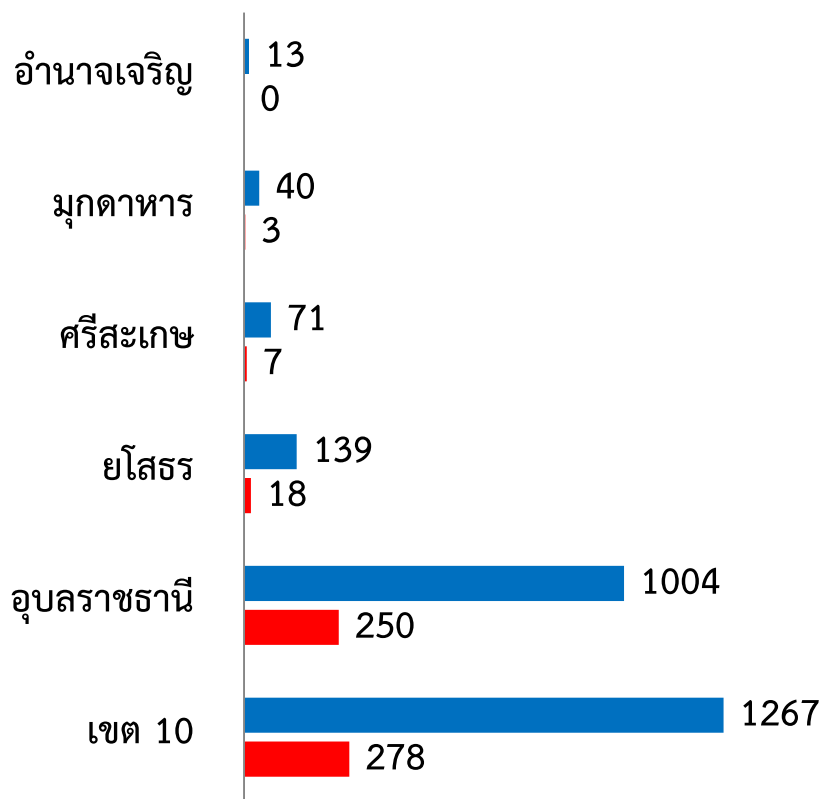


Mortality(2014-16)

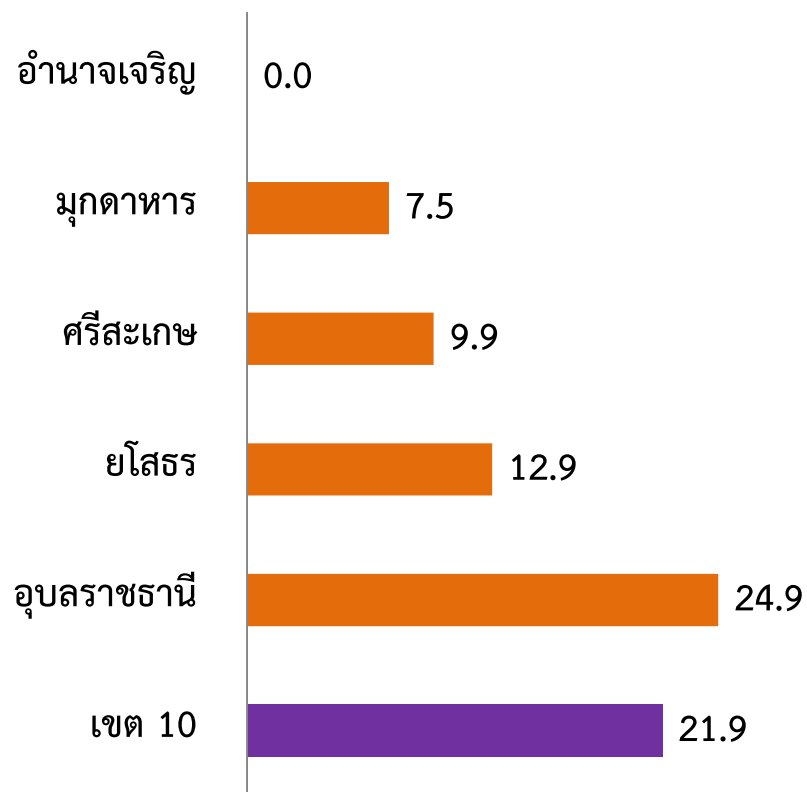


Region 10 : traumatic subdural hemorrhage(S065*)

■ N(2014-16) ■ dead(2014-16)

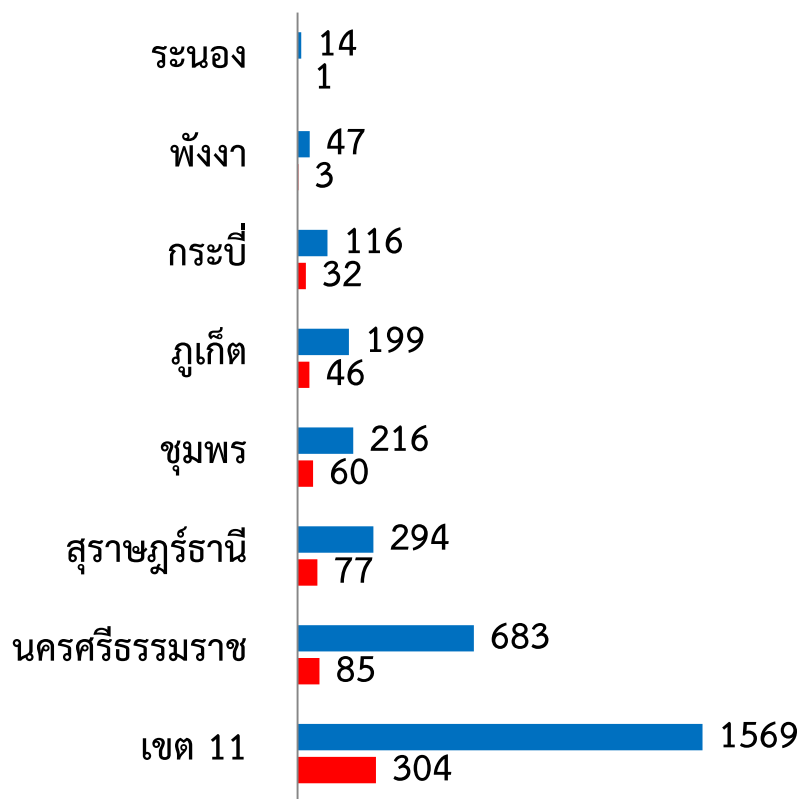


Mortality(2014-16)

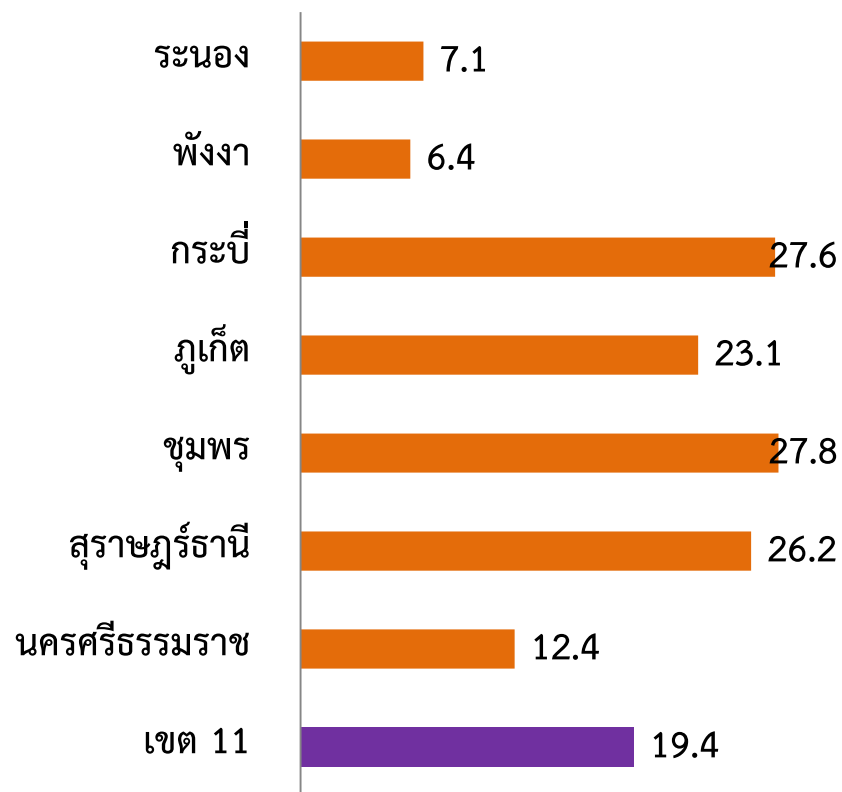


Region 11 : traumatic subdural hemorrhage(S065*)

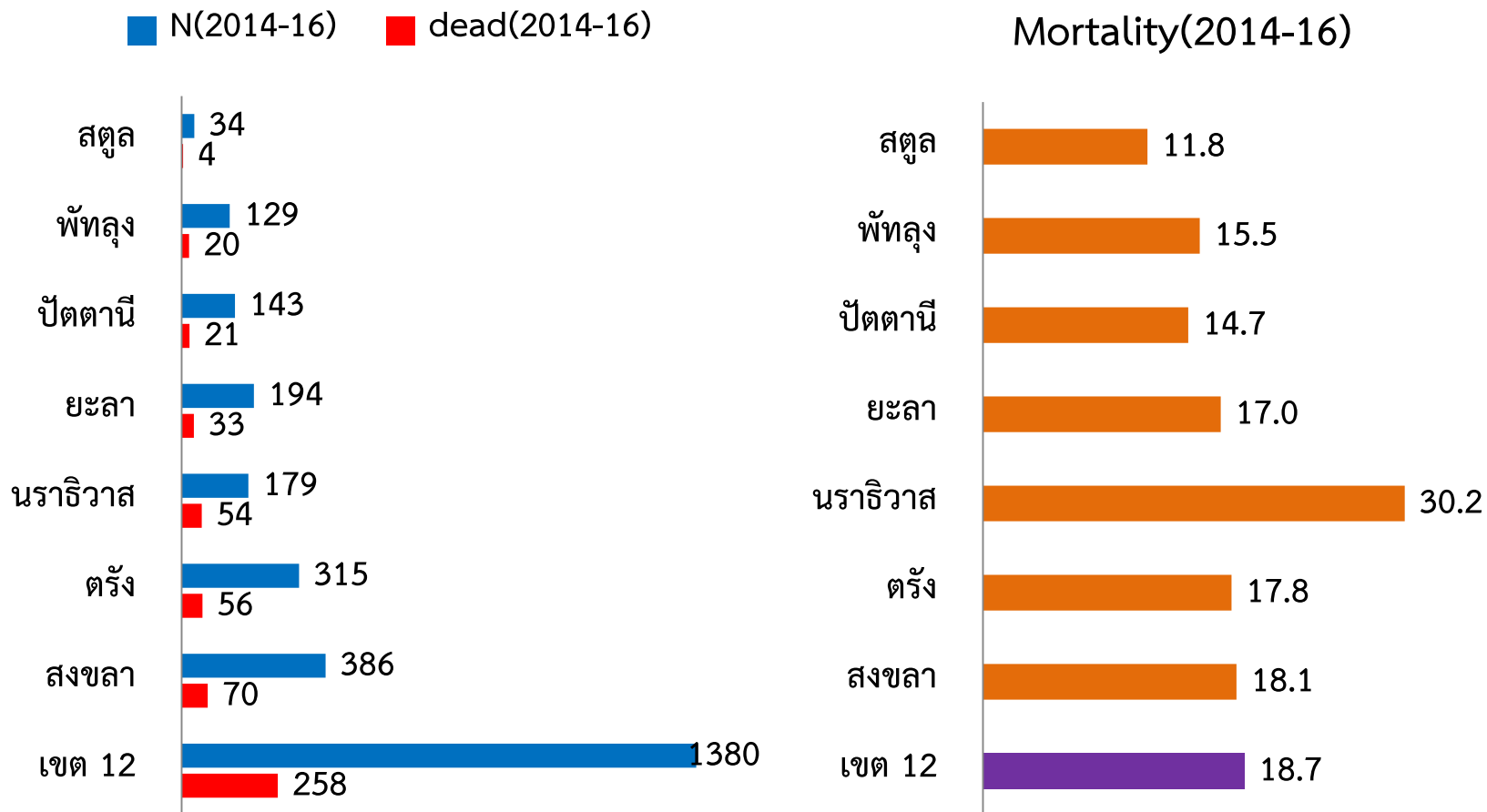
■ N(2014-16) ■ dead(2014-16)



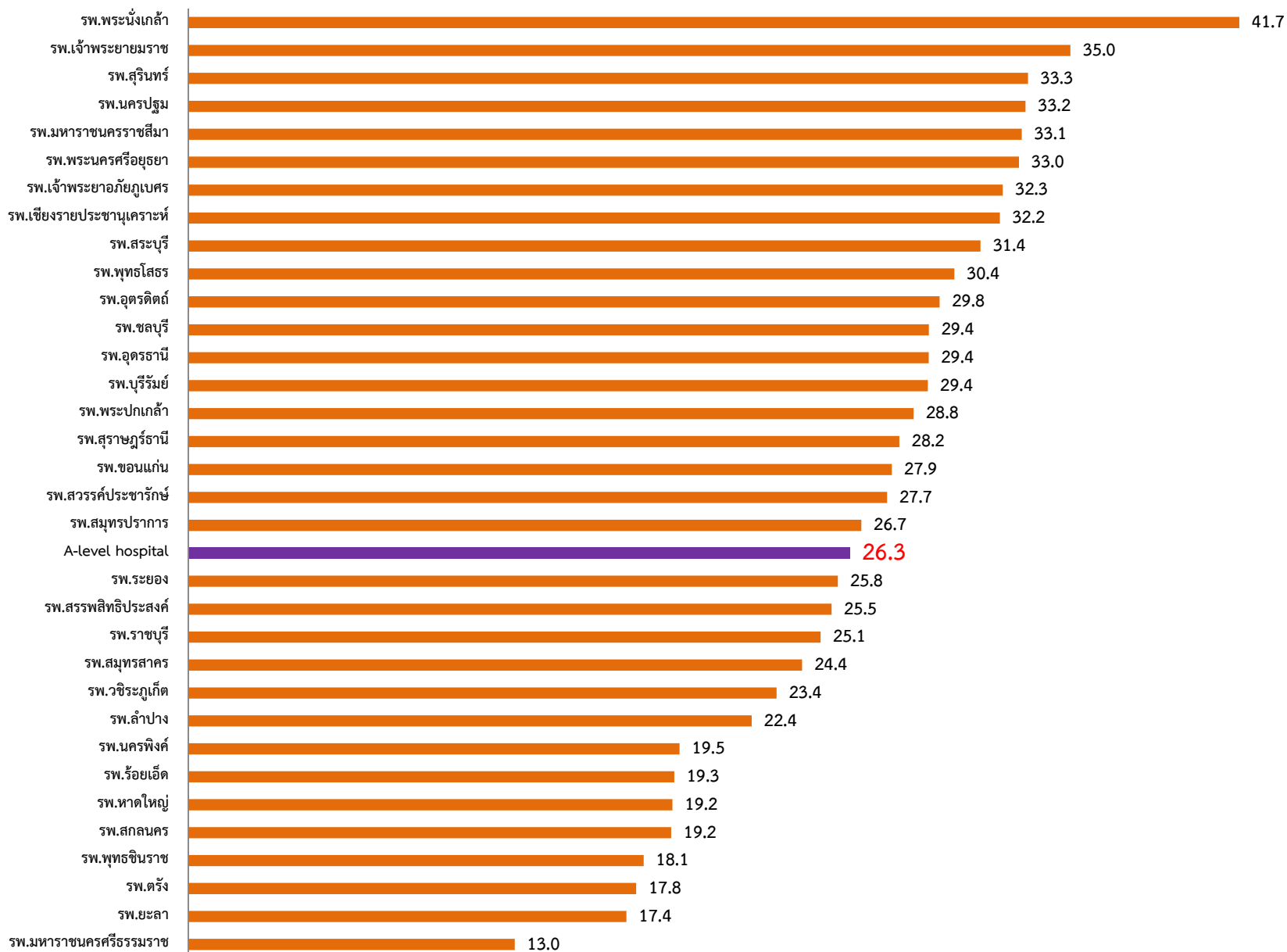
Mortality(2014-16)



Region 12 : traumatic subdural hemorrhage(S065*)



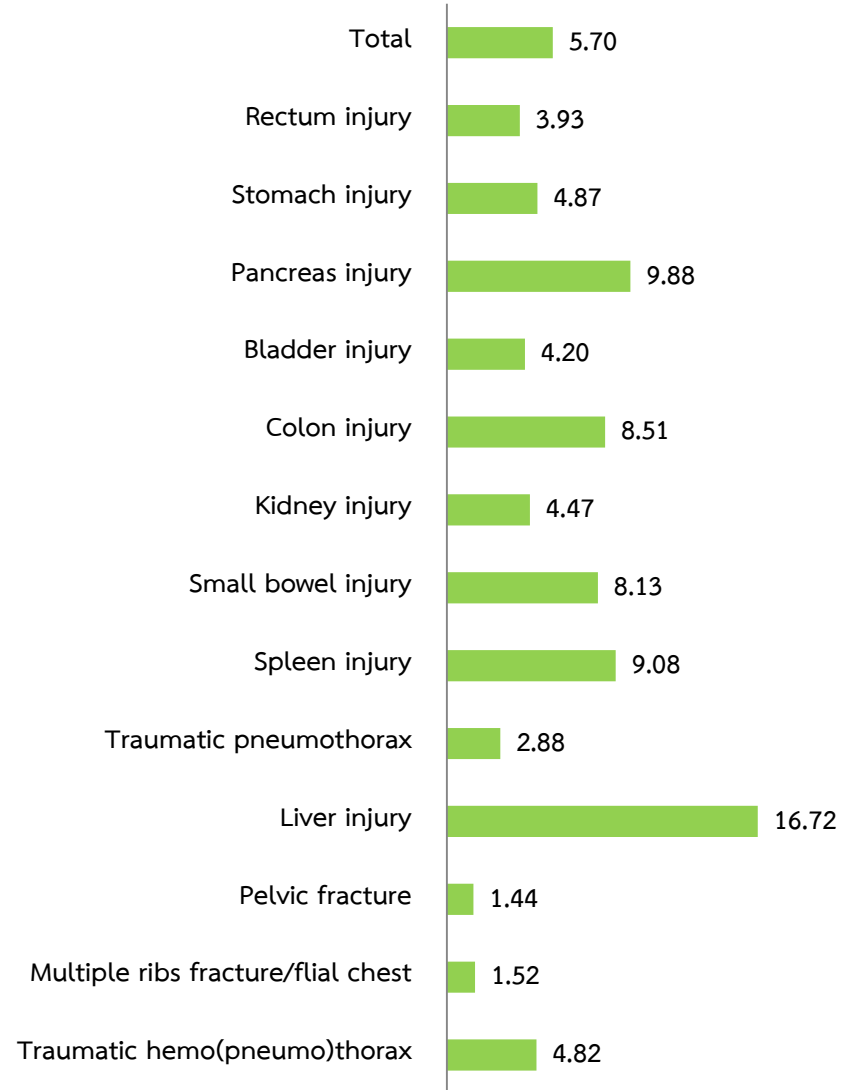
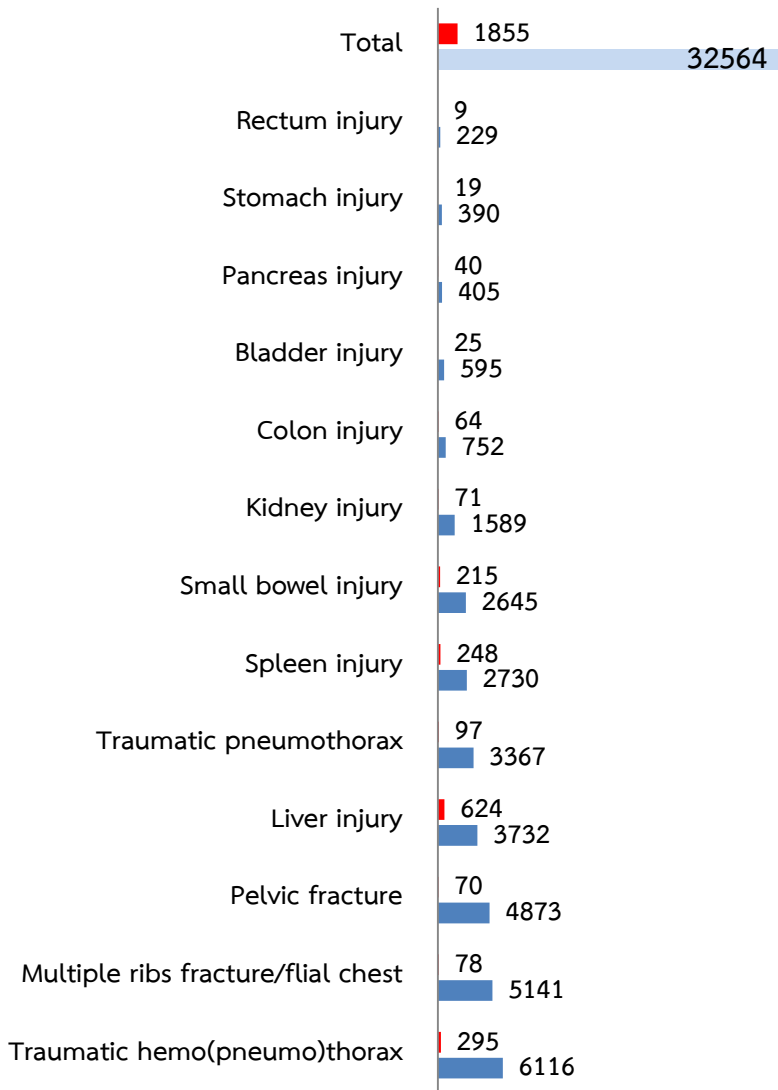
Mortality for traumatic subdural hemorrhage(S065*) [N=3,364/12,811]



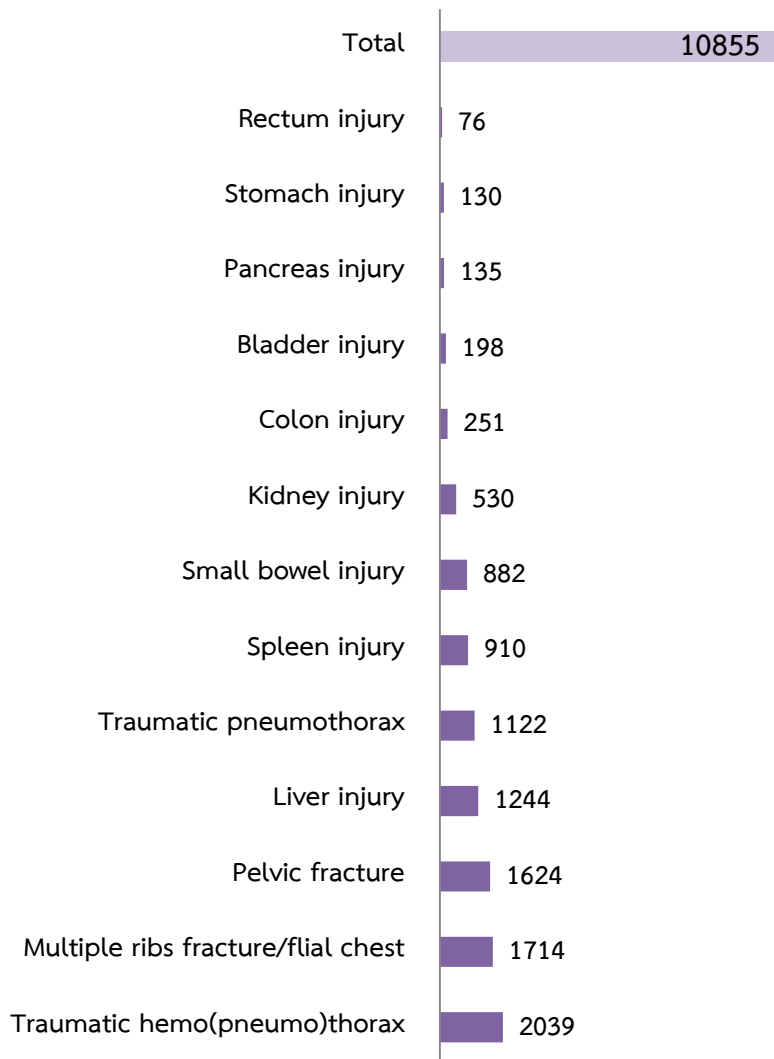
Dead (1,855) : total cases (32,564)

Mortality(2014-16)

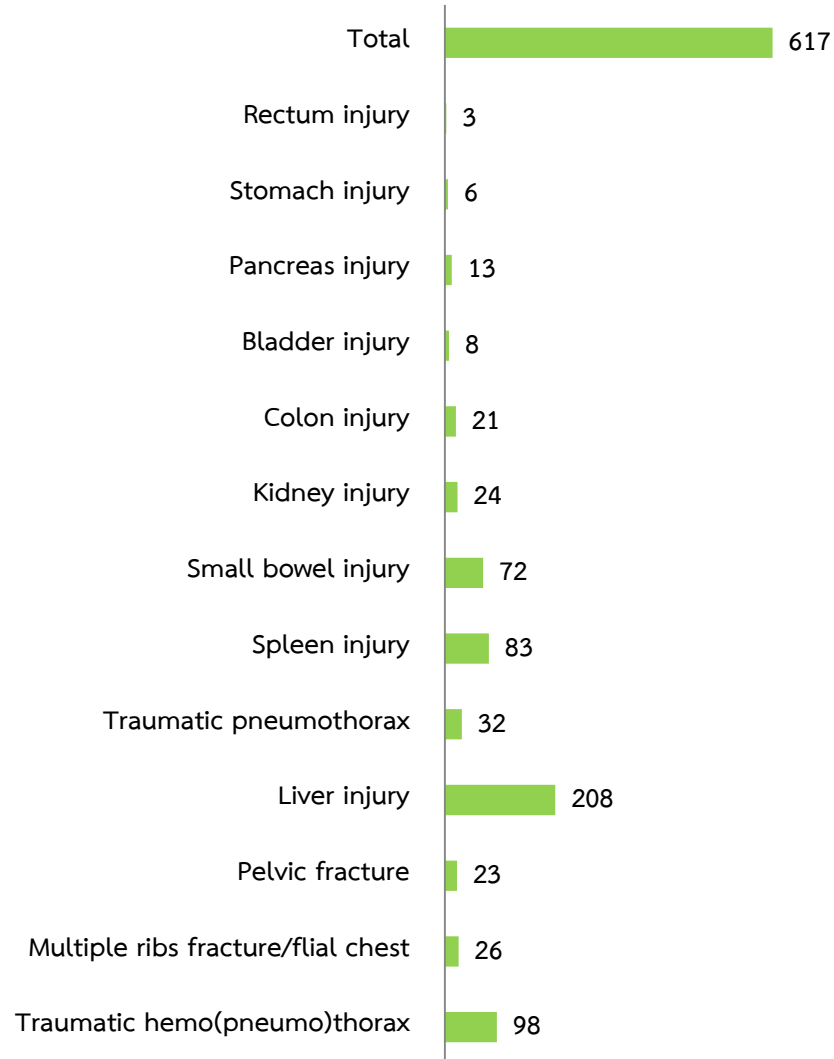
5.7 %



N per year (10,855)



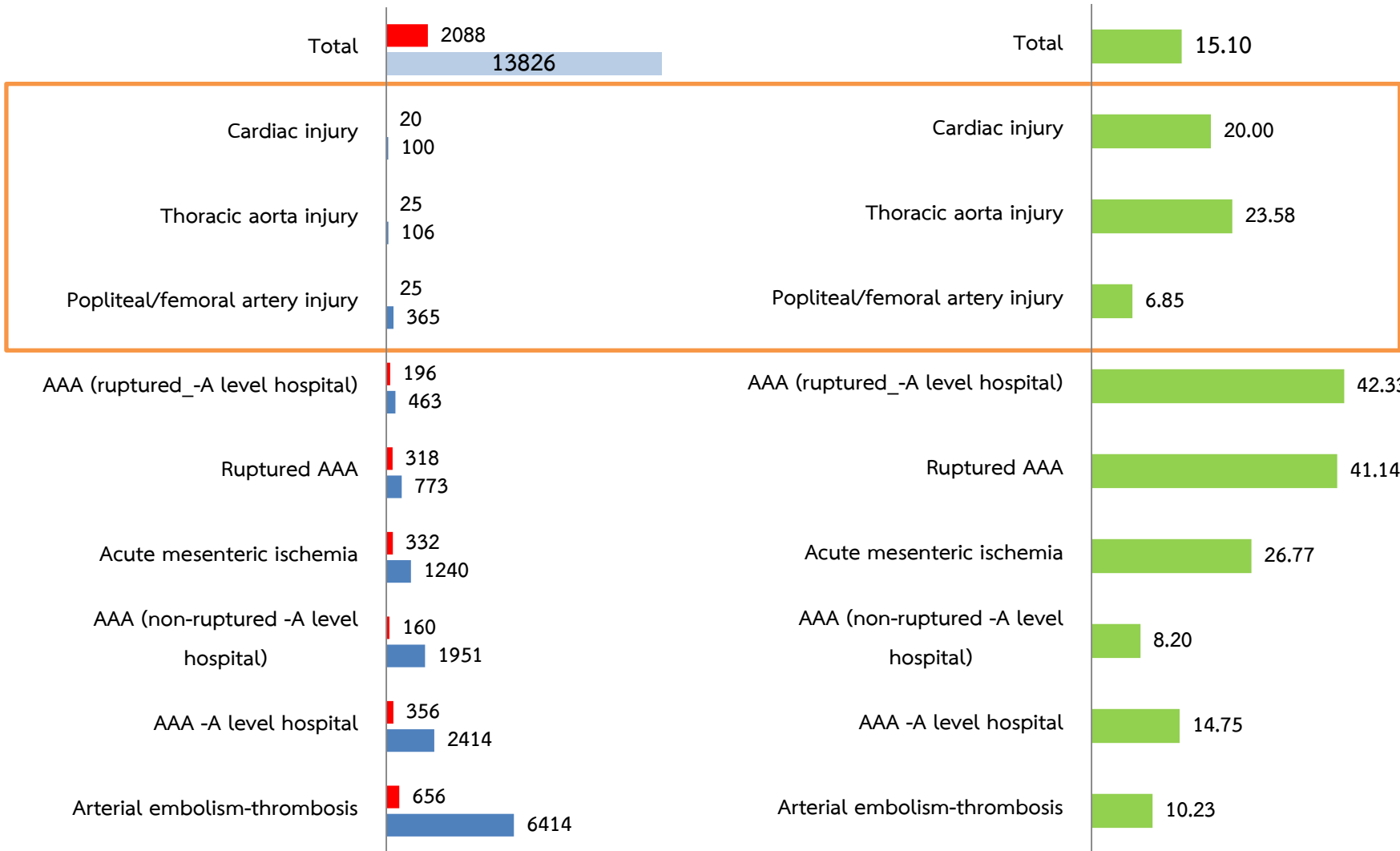
Dead per year (617)



Dead (1,414) : total cases (10,639)

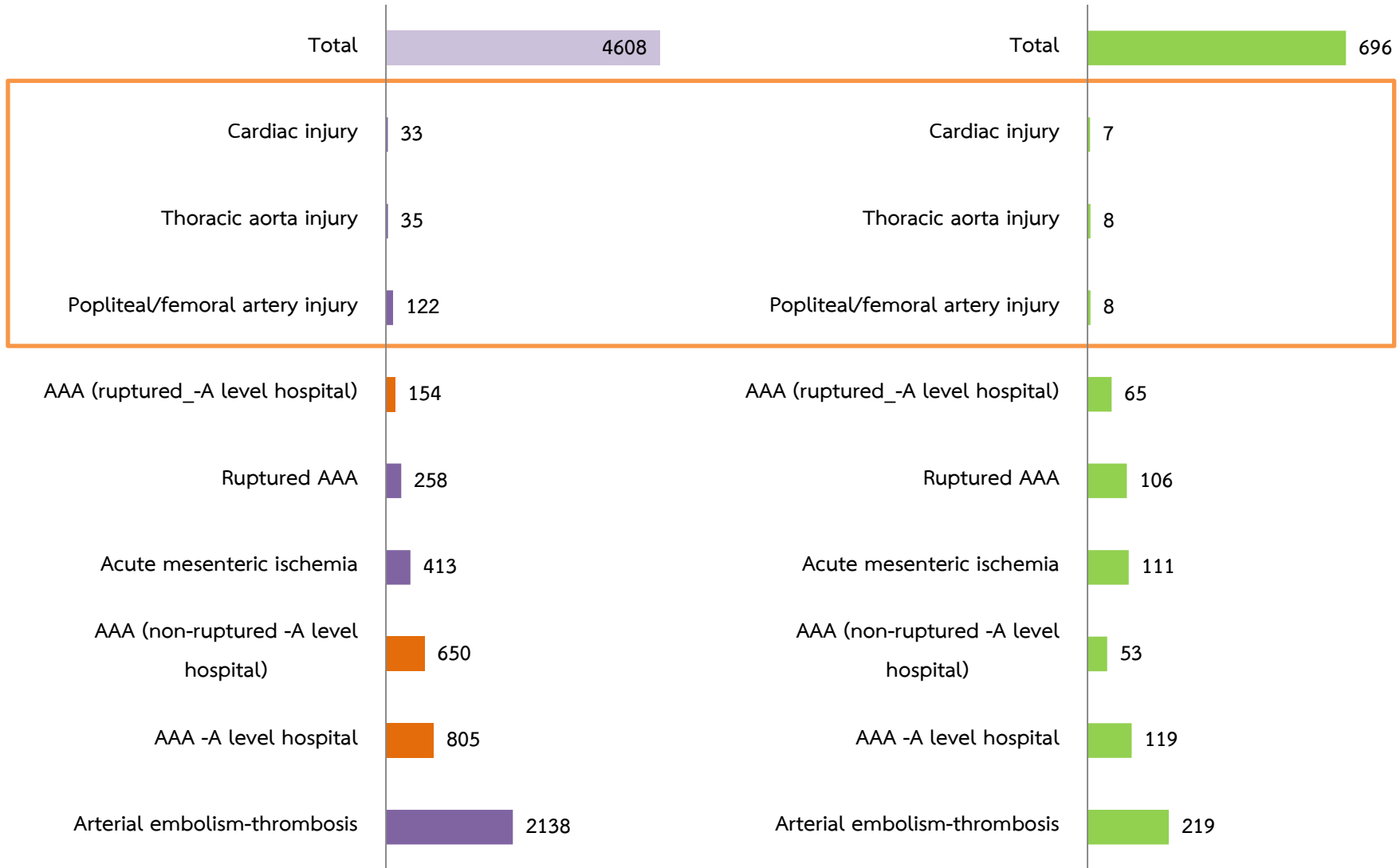
Mortality(2014-16)

13.3%

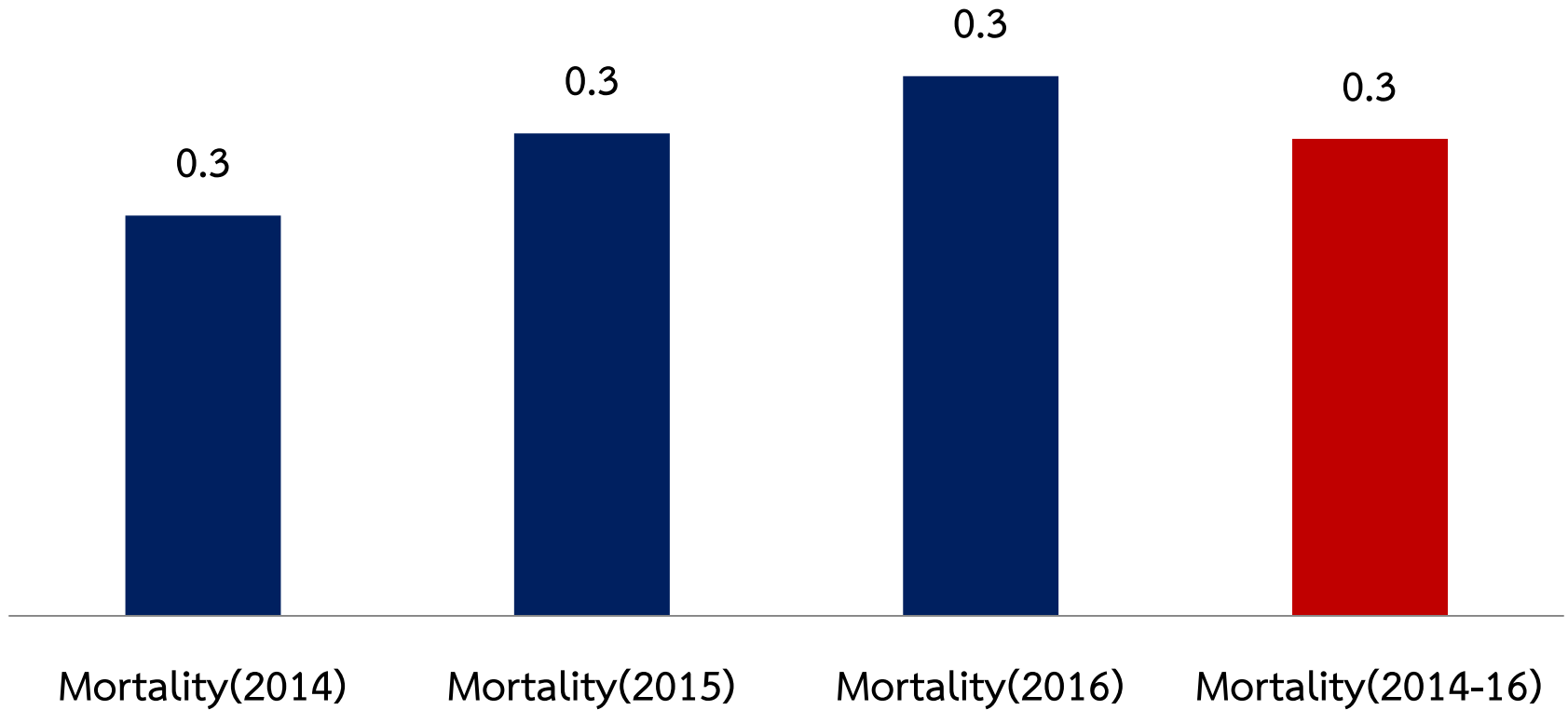


N per year (3,546)

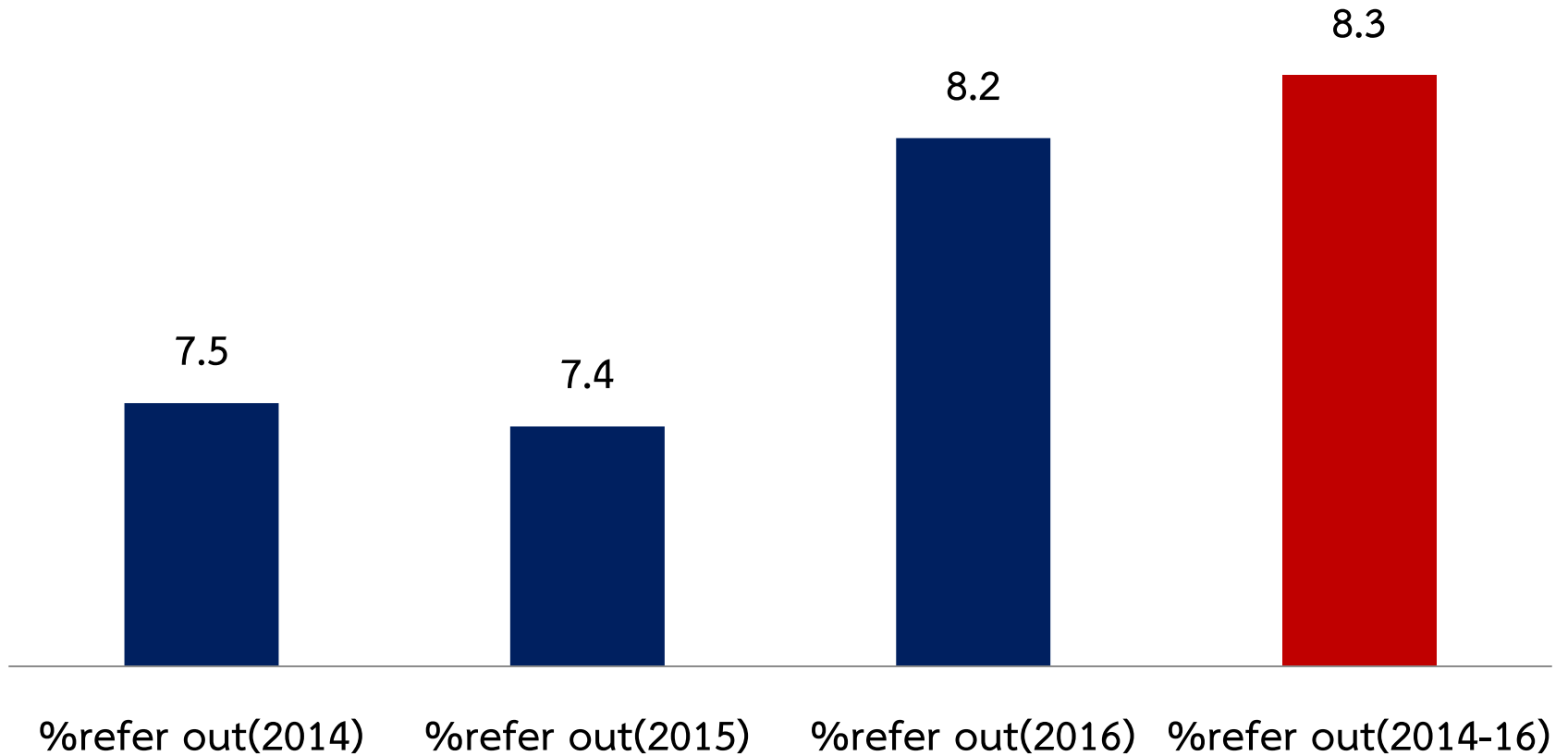
Dead per year (472)



In-hospital mortality
for traumatic brain injury(S06*)
at F-level hospitals [N=23,680]



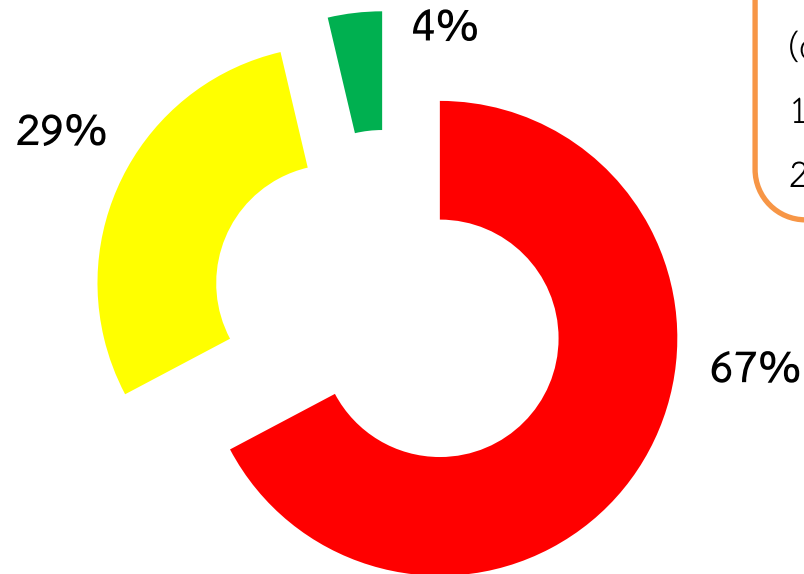
% Refer-out for traumatic brain injury(S06*)
at F-level hospitals [N=23,680]



Chonburi hospital trauma statistics
(A-level : 850 hospital bed)

Dead proportion by ER triage
(total dead from ER-admitted patients
: 5,384 from 39,950) at Chonburi hospital

Red Yellow Green



96% of dead cases

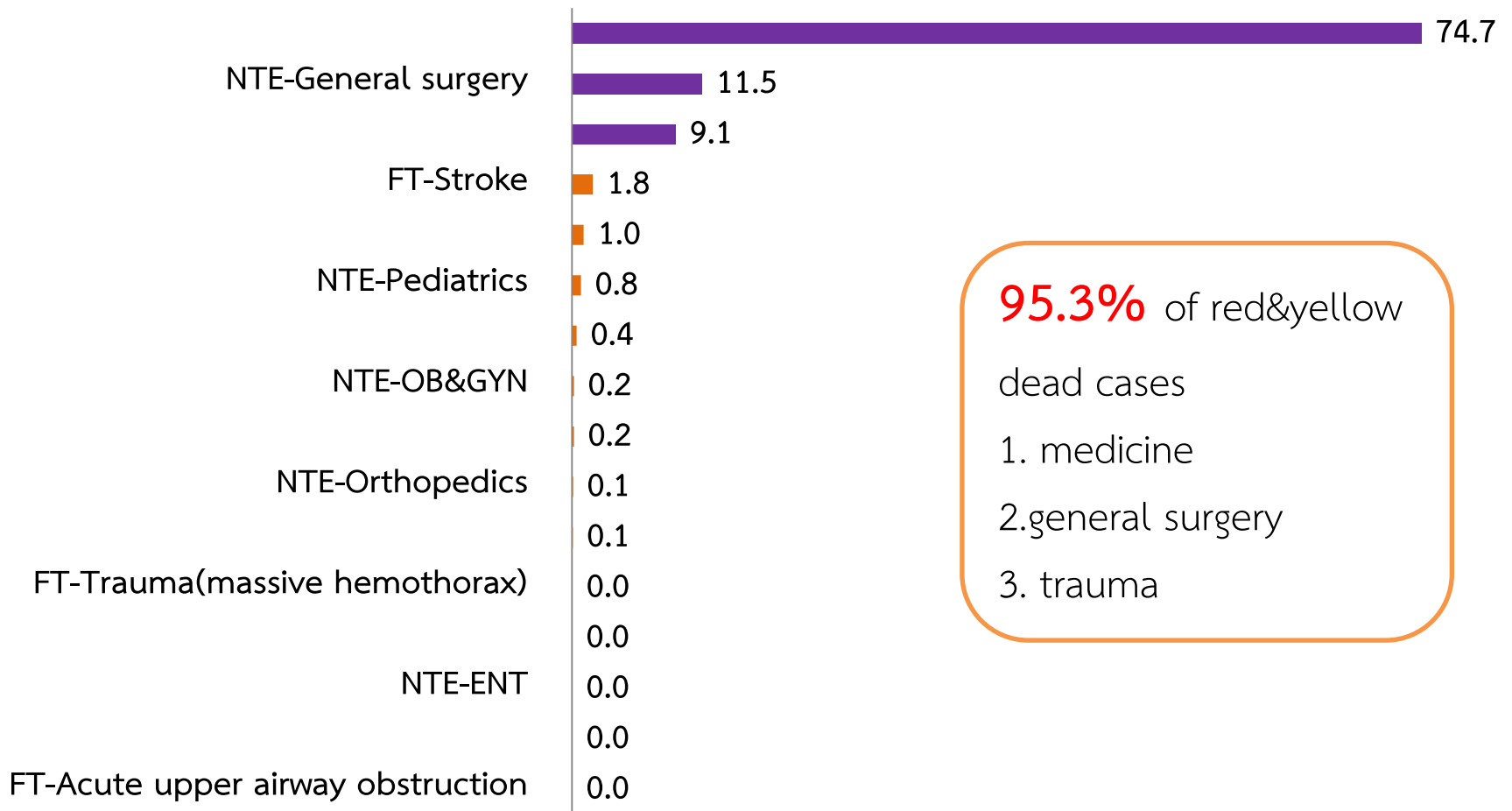
(dead=5,179)

1. Red cases

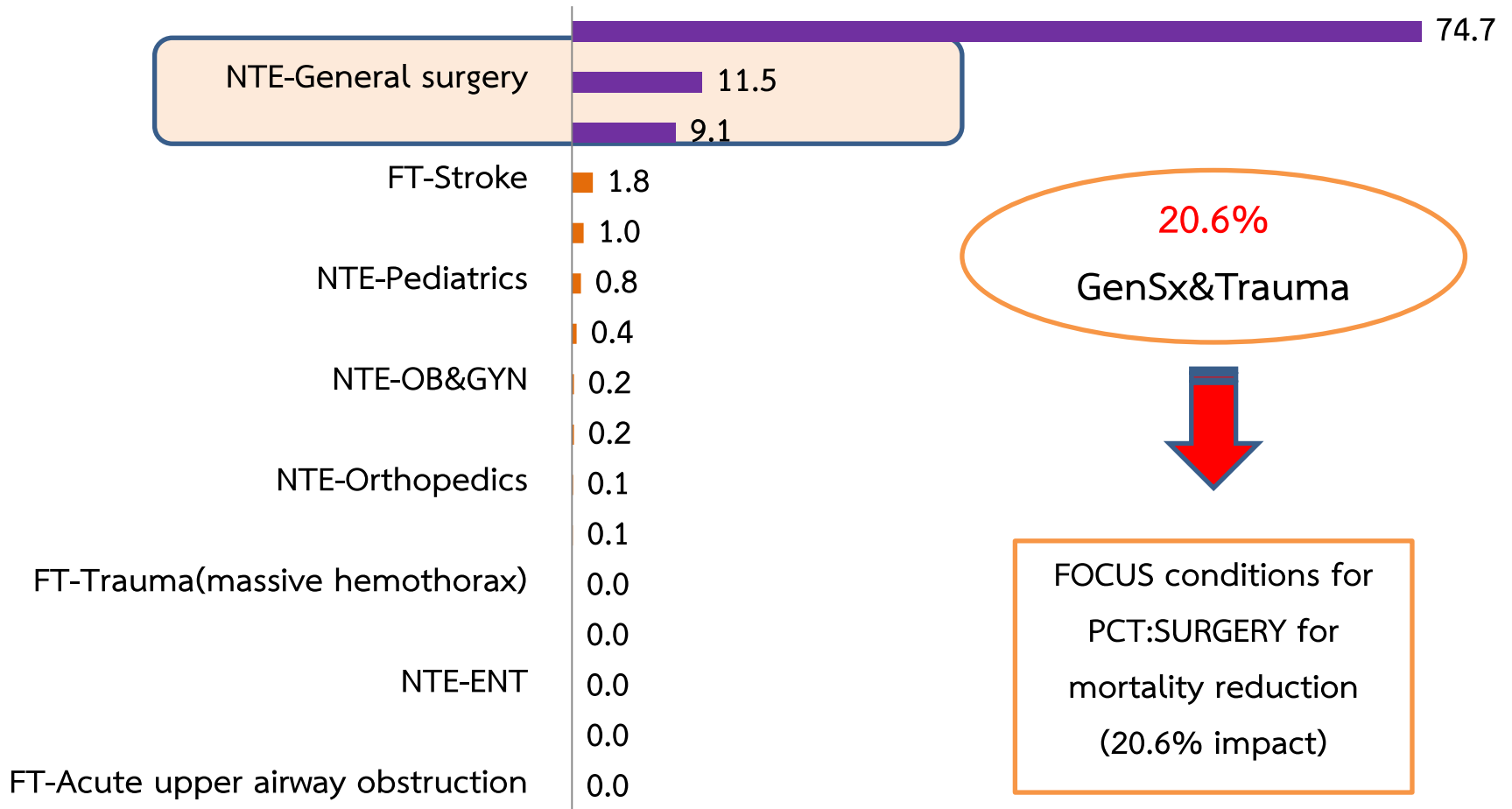
2. Yellow cases

Dead proportion(%) by emergency groups

for *red&yellow* cases (total red&yellow dead cases =5,179)

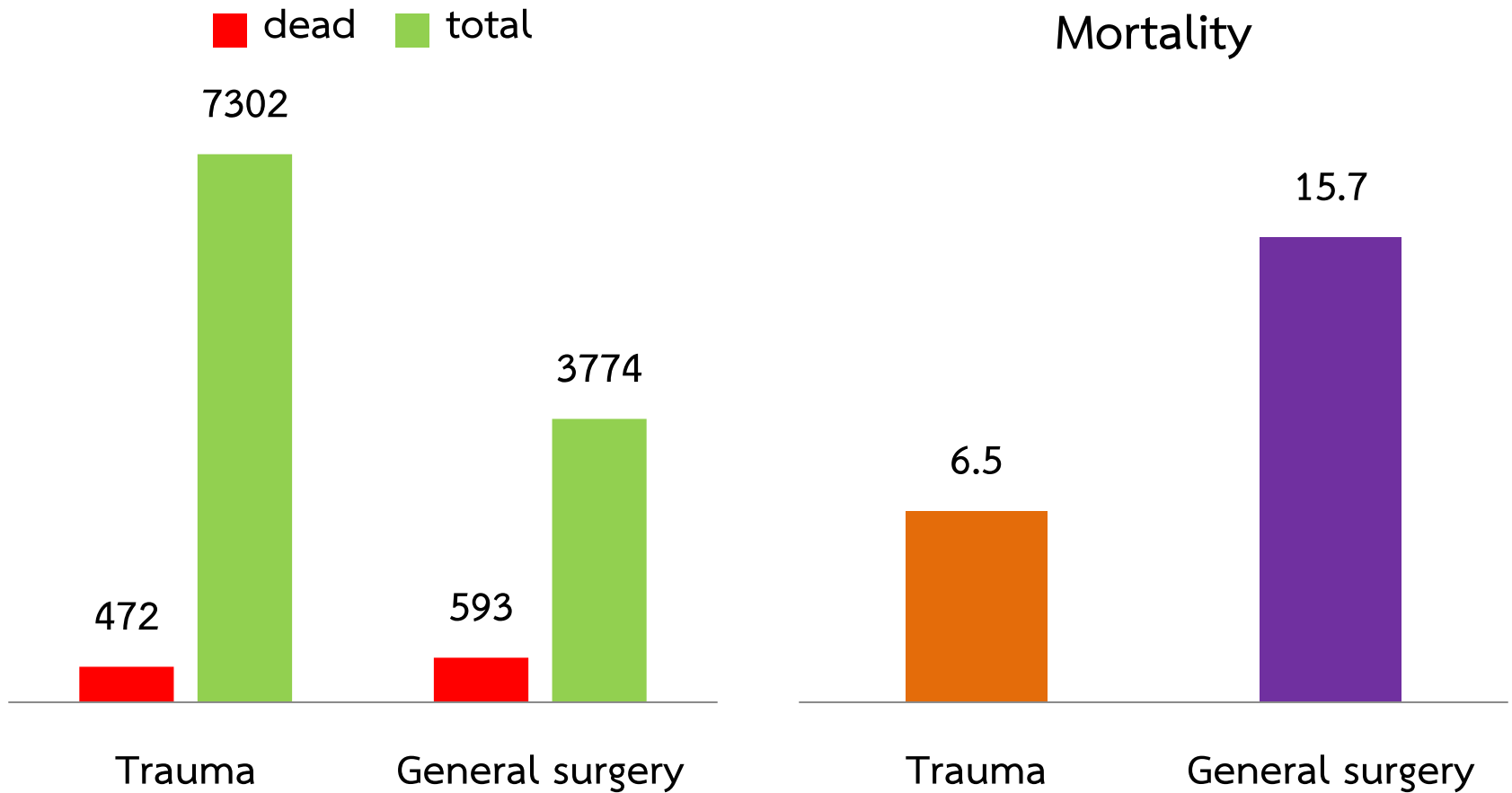


Dead proportion(%) by emergency groups
for *red&yellow* cases (total red&yellow dead cases =5,179)

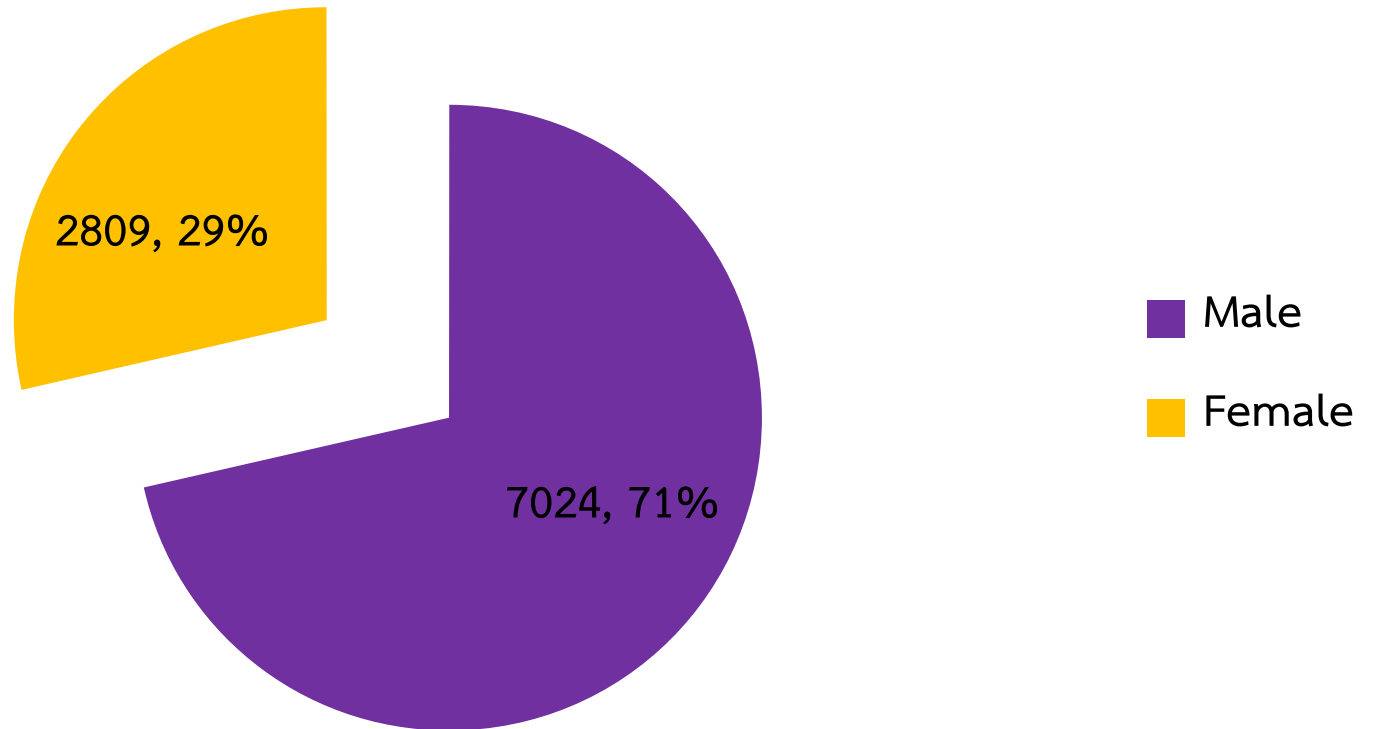


Trauma Vs General surgery

(red&yellow cases: N=11,076)



In-hospital traumatic cases(S*) *by gender*
at Chonburi hospital : N=9,833(April2016-April2018)



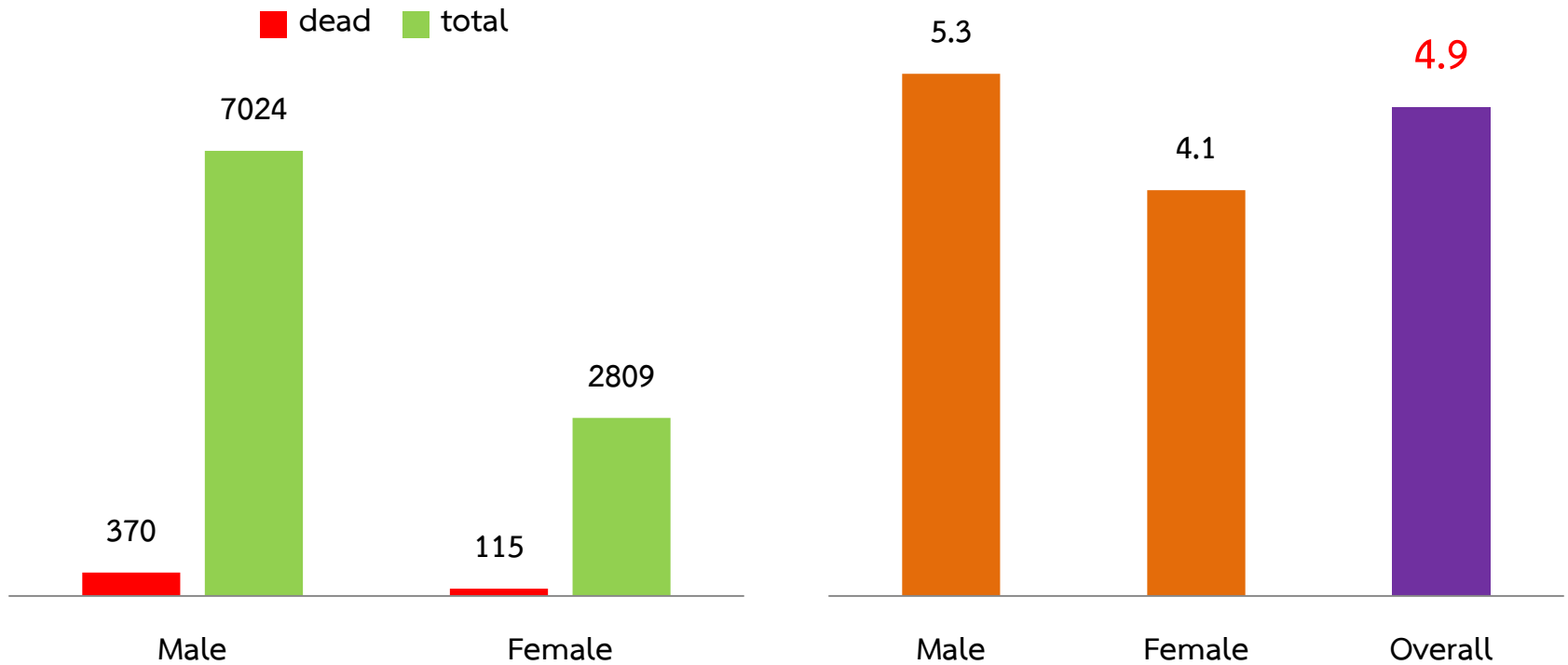
In-hospital traumatic patients(S*) at Chonburi hospital

gender-related dead *proportion*

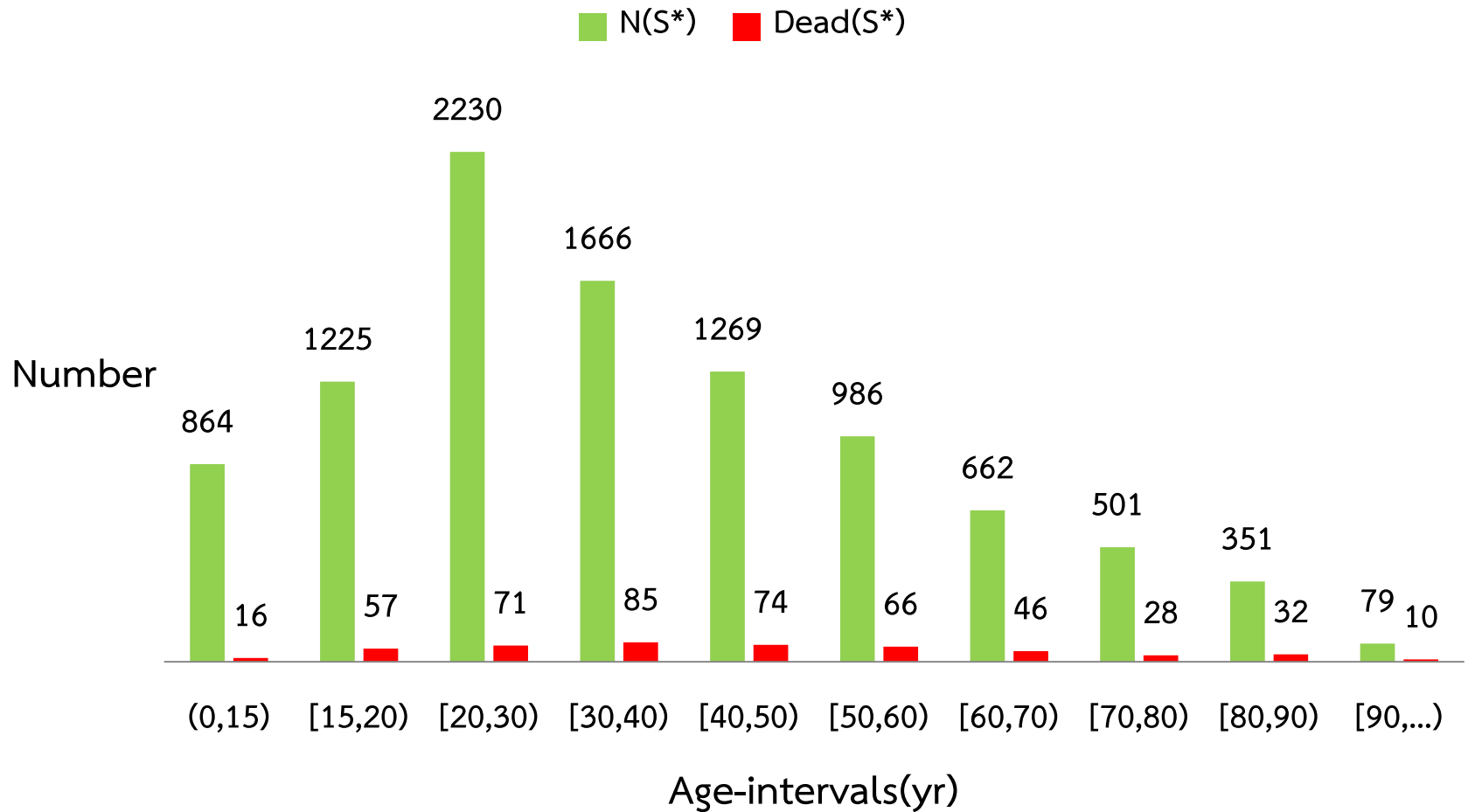
(N=9,833)

gender-related *mortality*

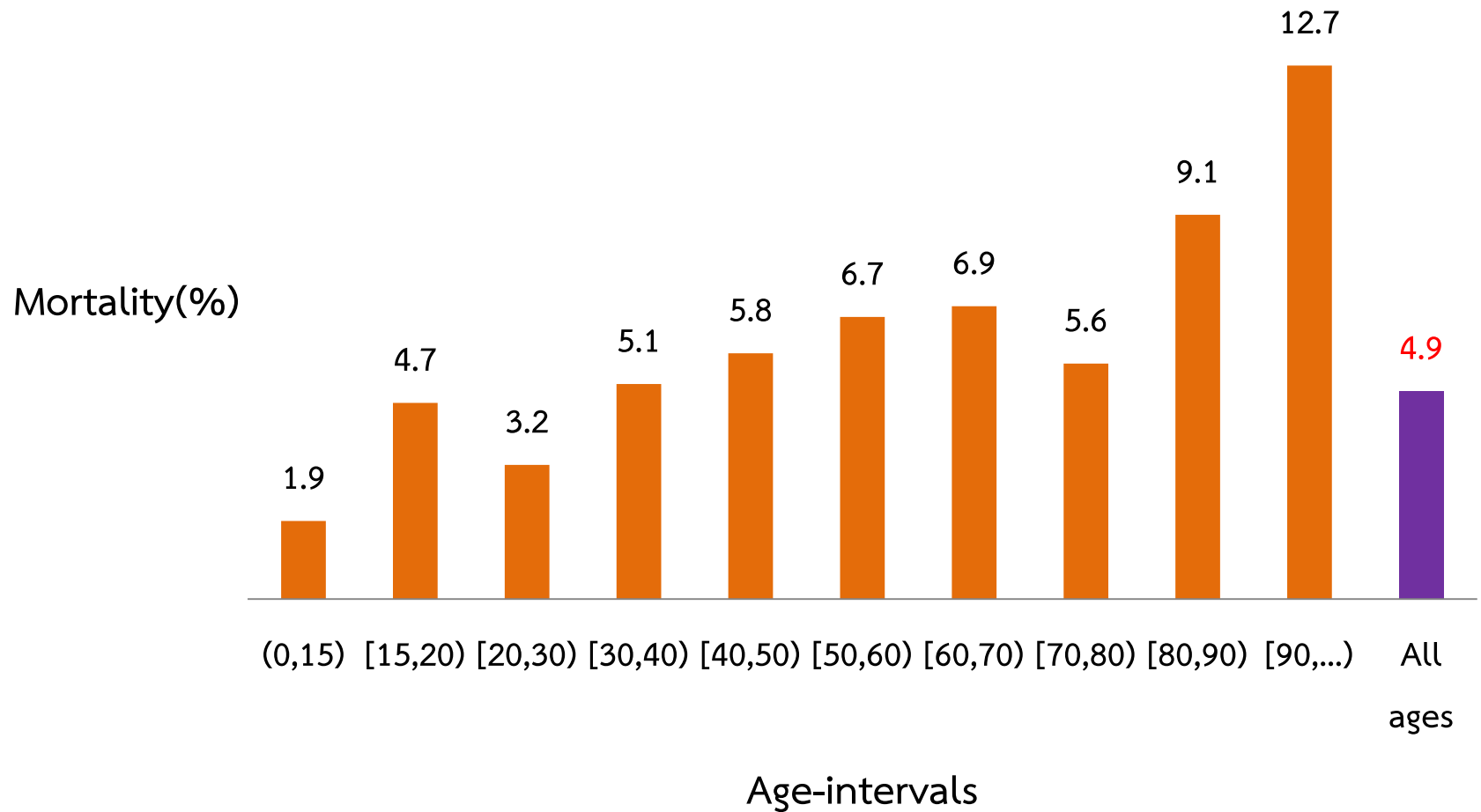
(N=485/9,833)



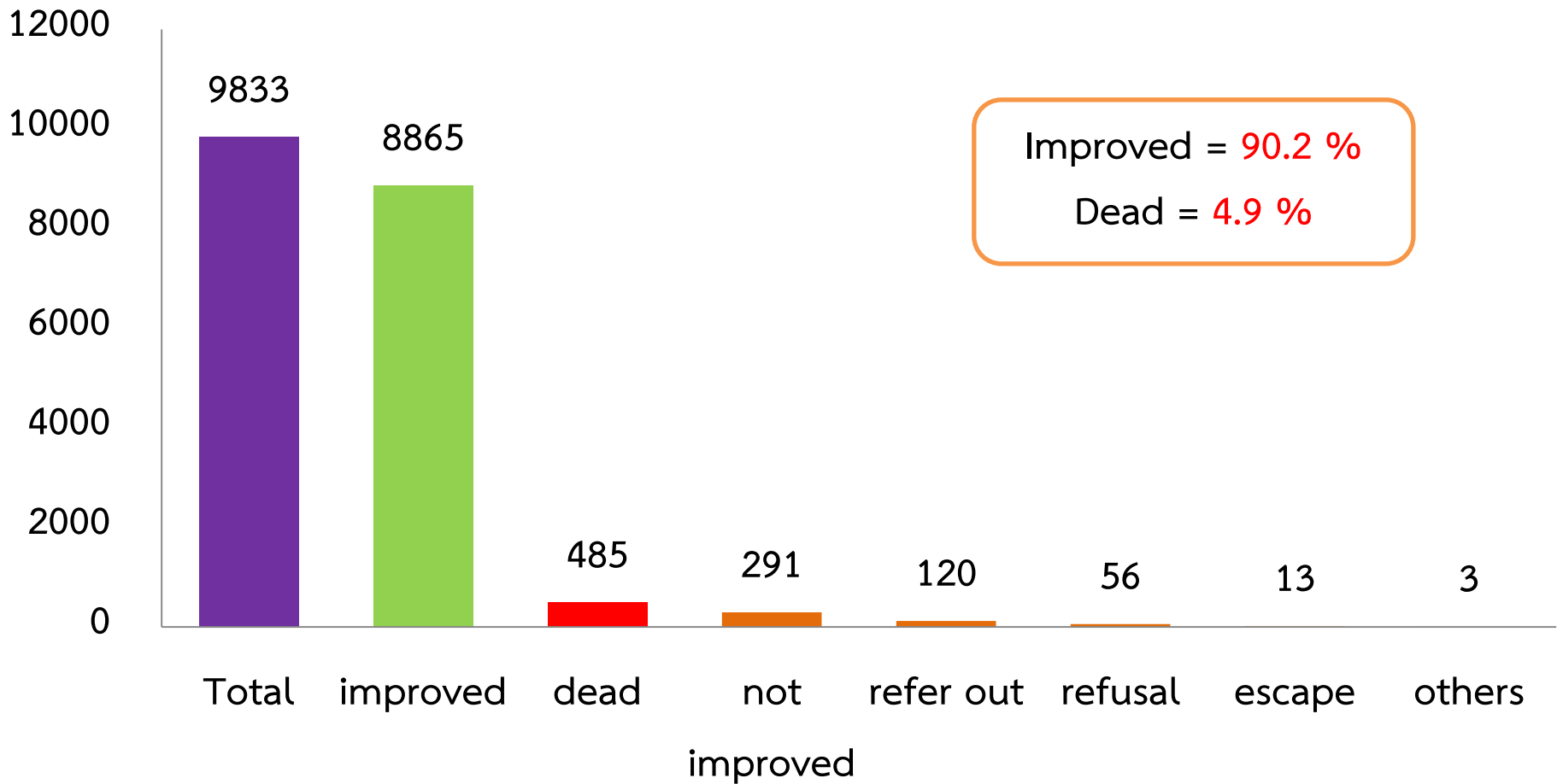
In-hospital traumatic cases(S^*) *by age-intervals*
at Chonburi hospital : $N=9,833$ (April2016-April2018)



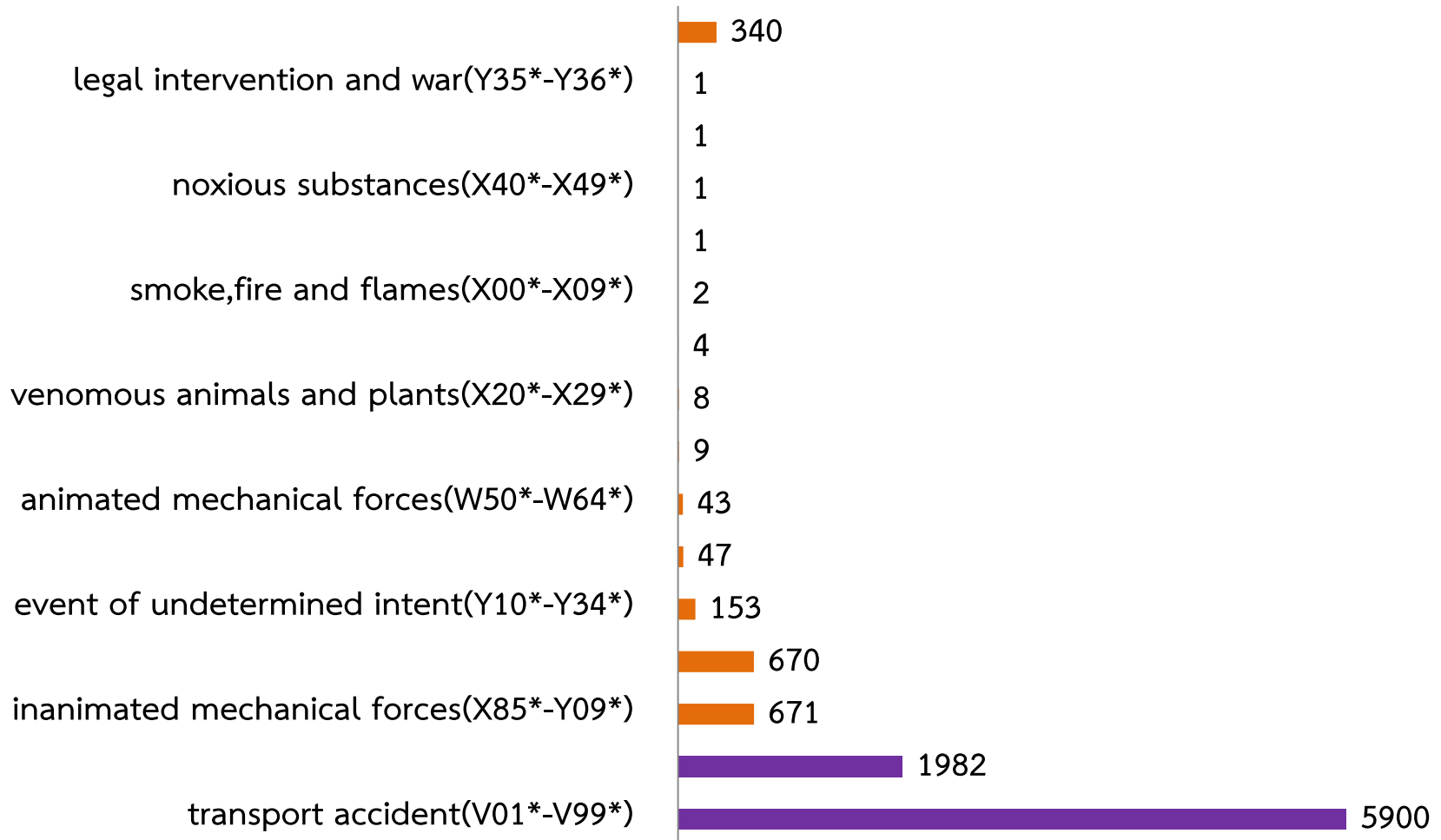
In-hospital mortality for traumatic patients(S*) *by age-intervals*
at Chonburi hospital : N=485/9,833(April2016-April2018)



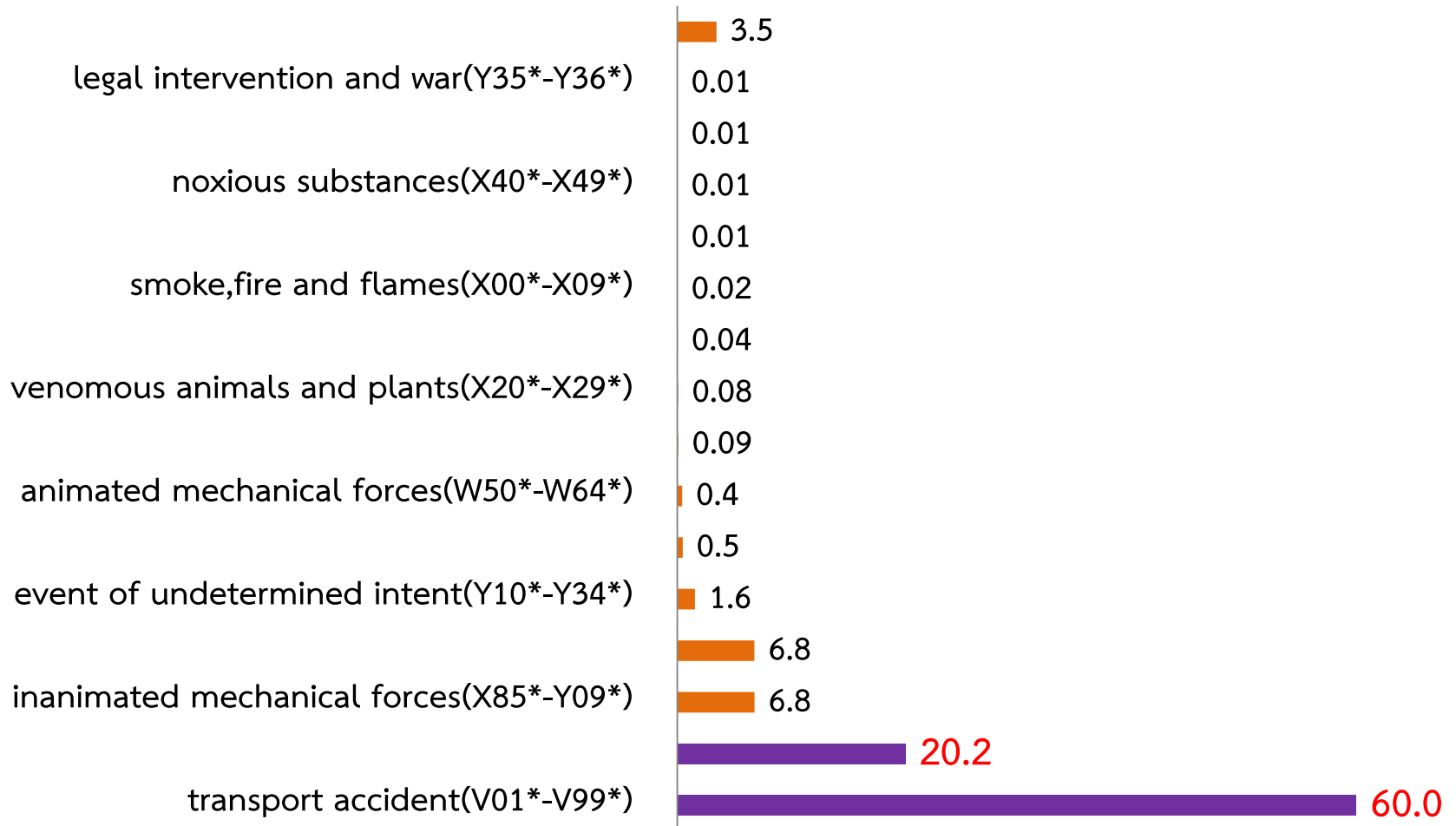
In-hospital traumatic patients(S*) *by discharge status*
at Chonburi hospital (N=9,833)



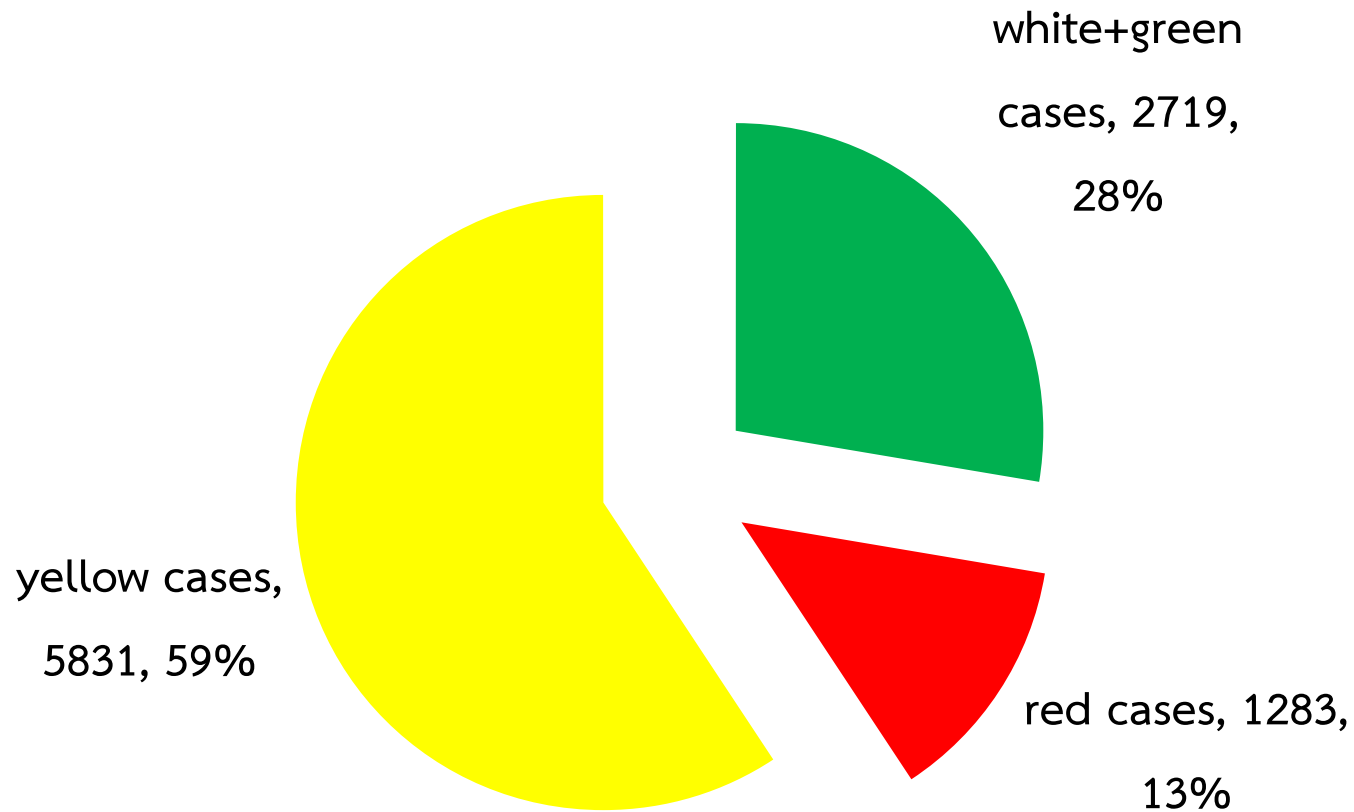
In-hospital traumatic patients(S*) *by causes*
at Chonburi hospital (N=9,833)



Percent of in-hospital traumatic patients(S*) *by causes*
at Chonburi hospital (N=9,833)

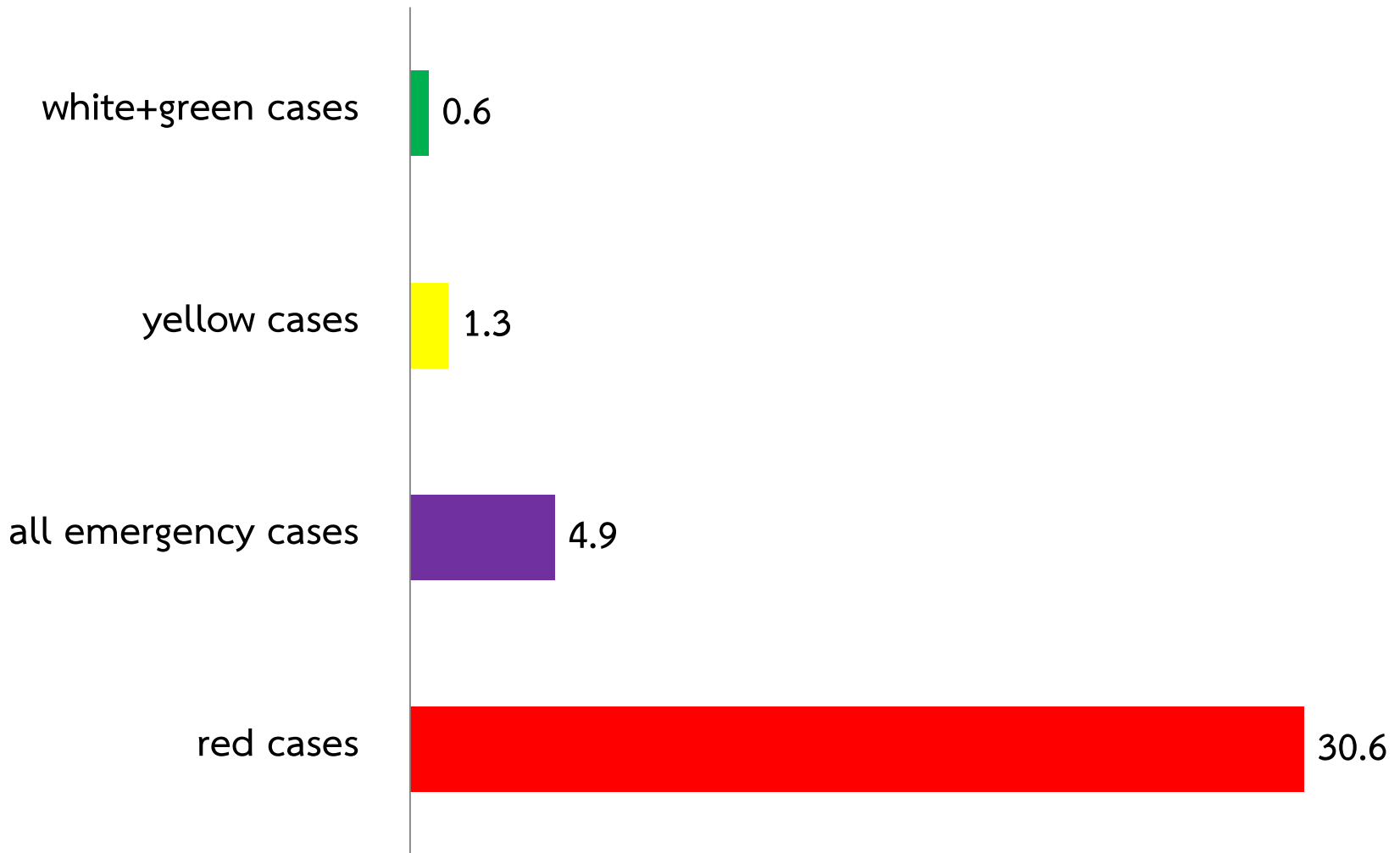


Proportion of in-hospital traumatic patients(S*)
by triage system at Chonburi hospital (N=9,833)



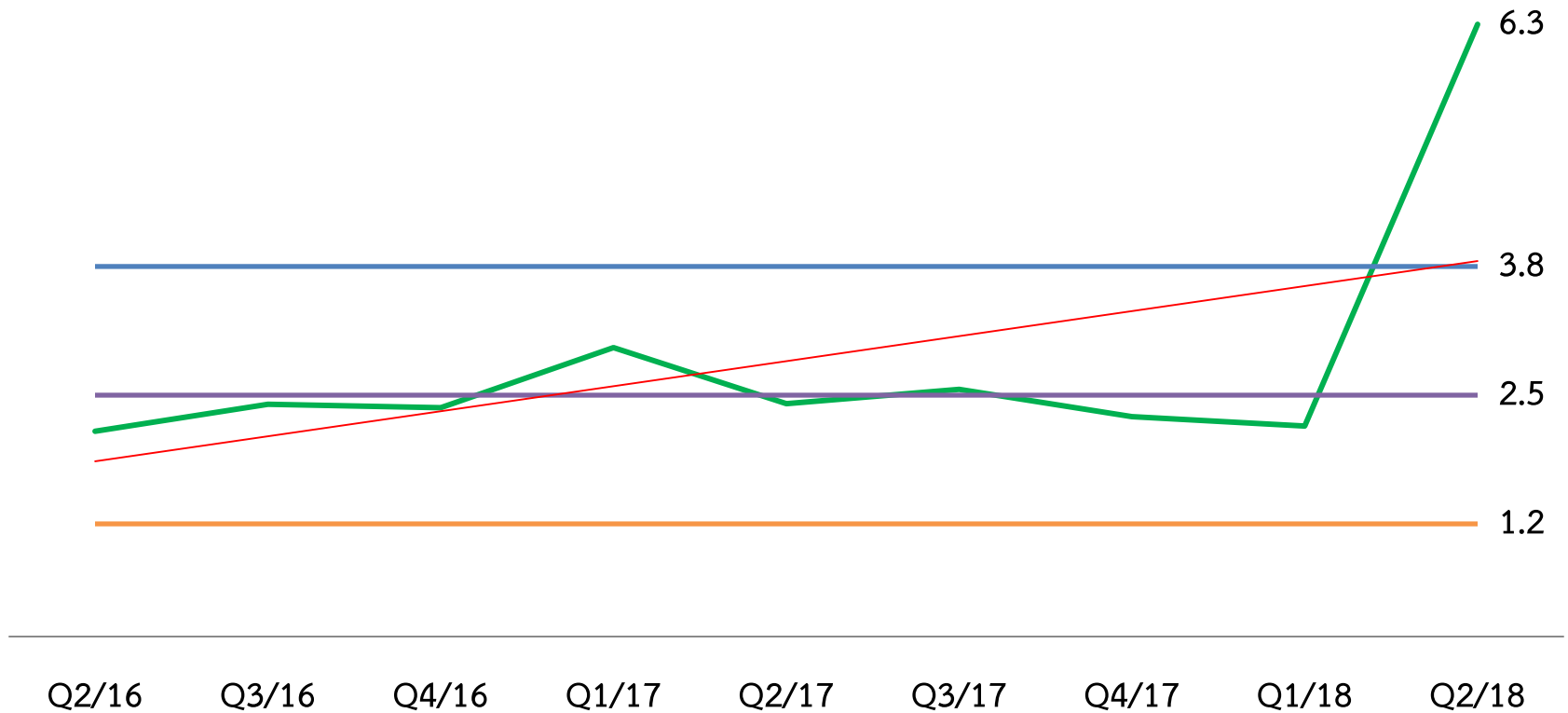
In-hospital mortality(%) for traumatic patients(S*)

by triage system at Chonburi hospital (N=9,833)



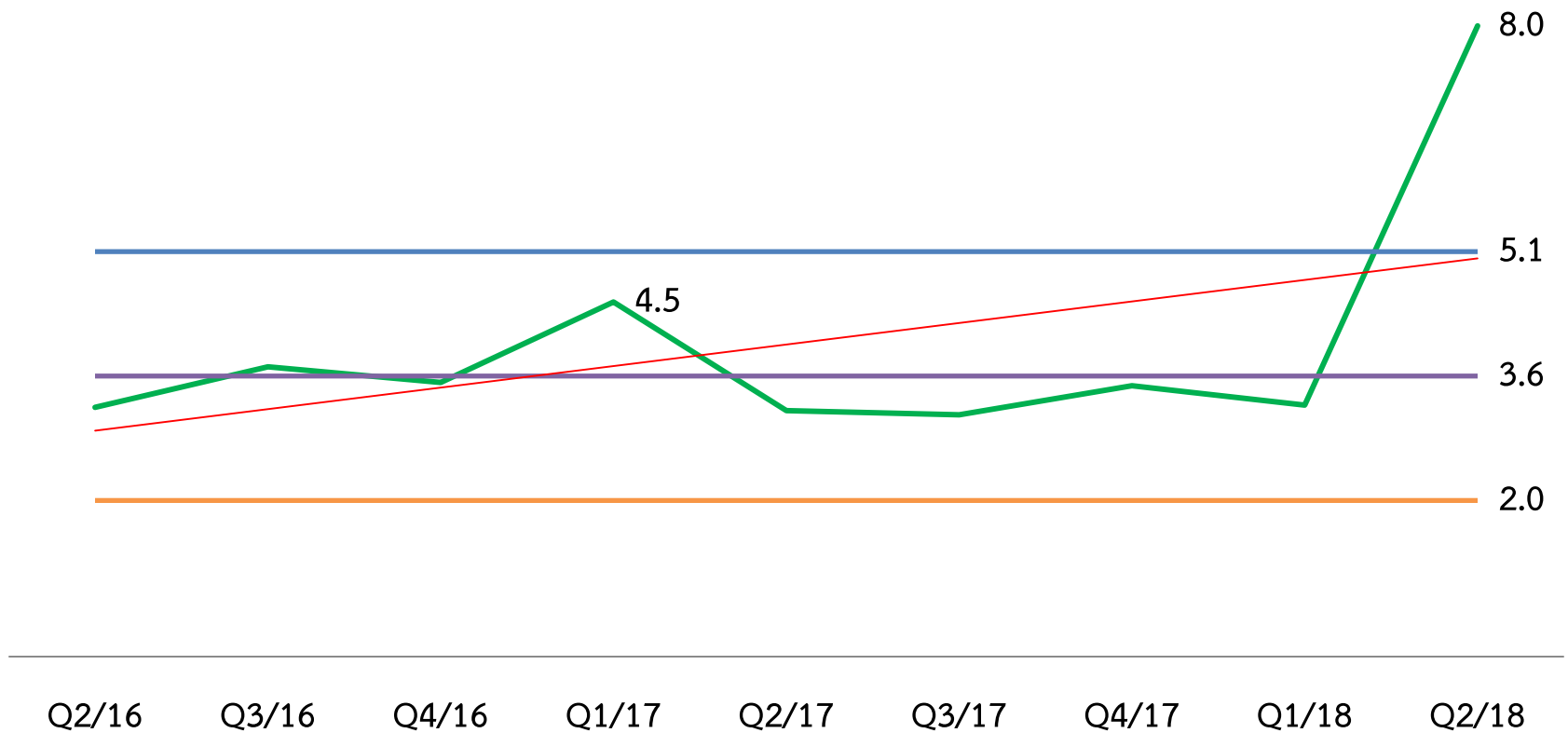
24-h mortality for in-hospital traumatic patients : exclude cerebral concussion(S* exclude S060*) [N=8,234]

— Mortality — M+1SD — M-1SD — Mean — เชิงเส้น (Mortality)



72-h mortality for in-hospital traumatic patients : exclude cerebral concussion(S* exclude S060*) [N=8,234]

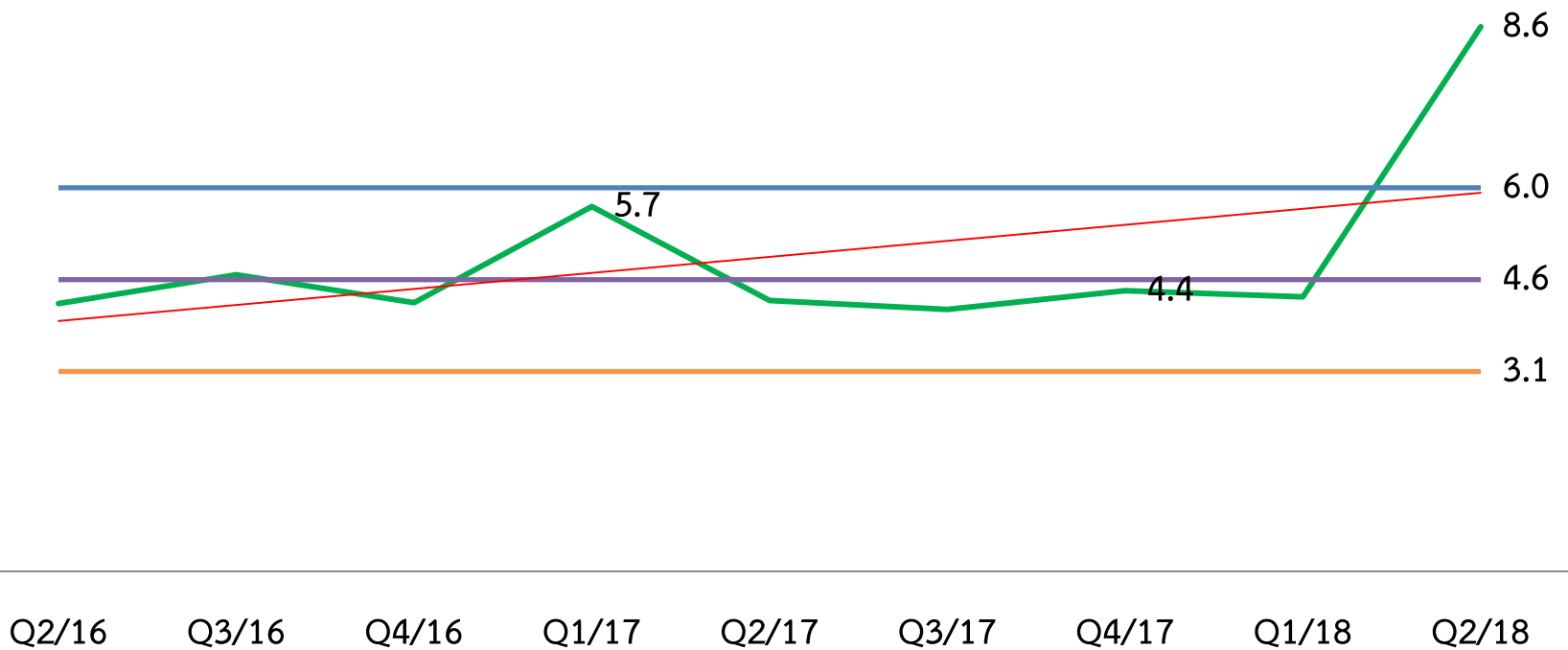
— Mortality — M+1SD — M-1SD — Mean — เชิงเส้น (Mortality)



7-days mortality for in-hospital traumatic patients : exclude cerebral concussion

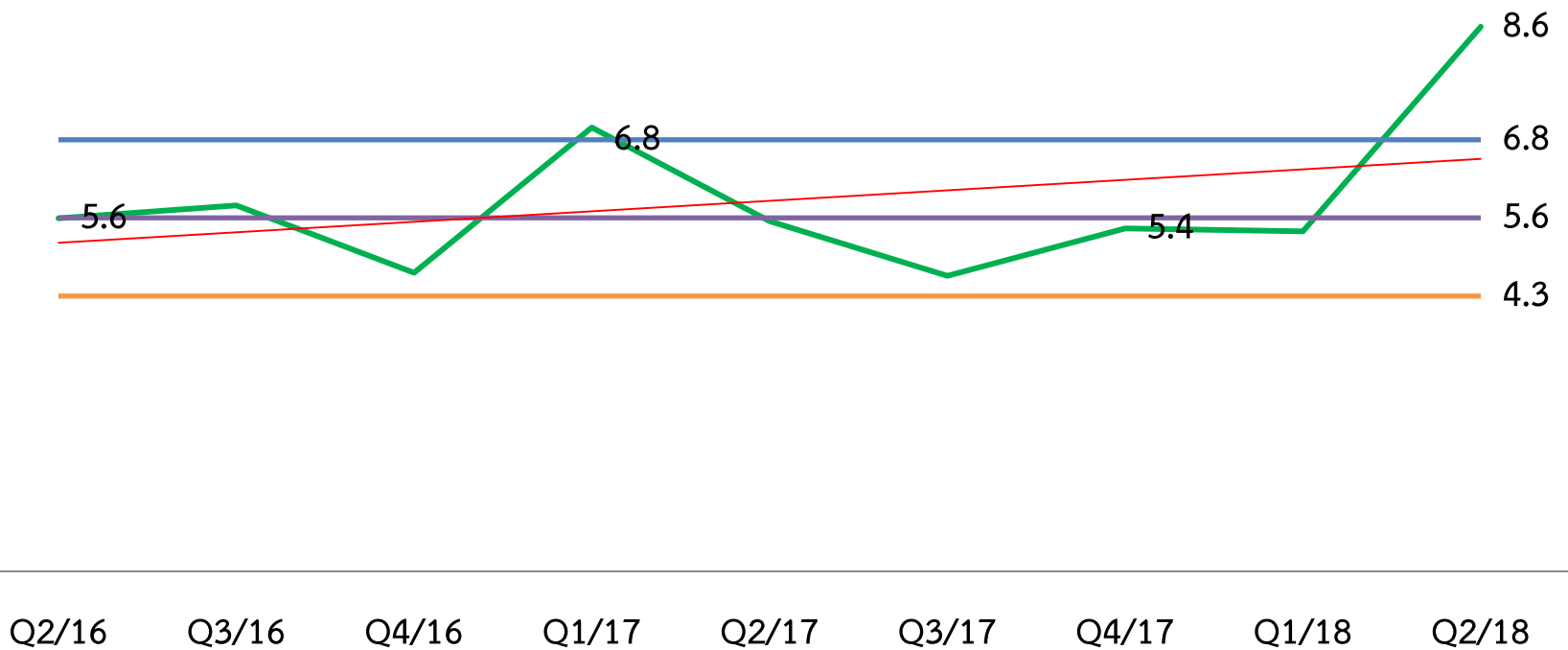
(S* exclude S060*) [N=8,234]

— Mortality — M+1SD — M-1SD — Mean — เชิงเส้น (Mortality)



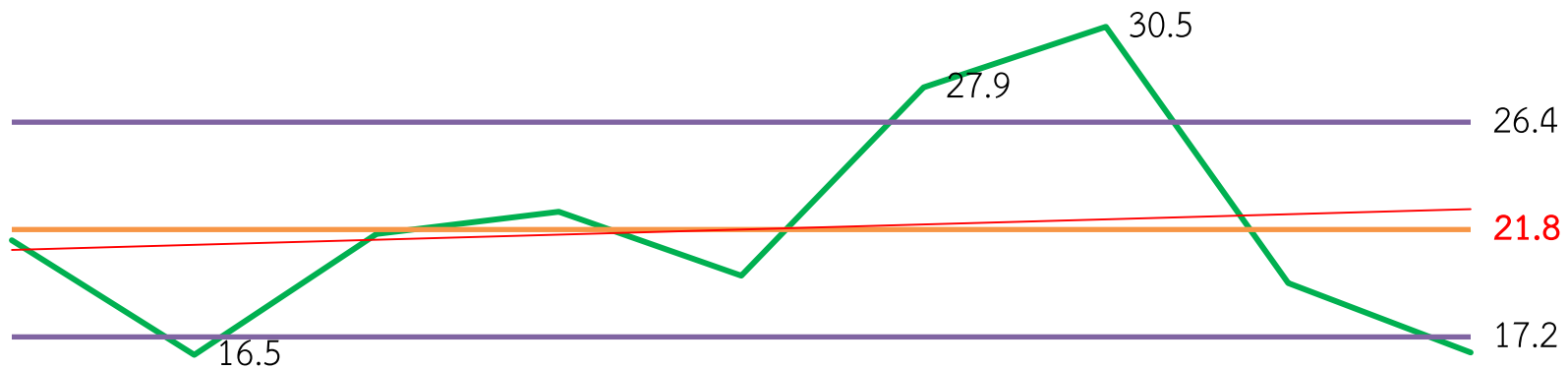
30-days mortality for in-hospital traumatic patients : exclude cerebral concussion
(S* exclude S060*) [N=8,234]

— Mortality — M+1SD — M-1SD — Mean — เชิงเส้น (Mortality)



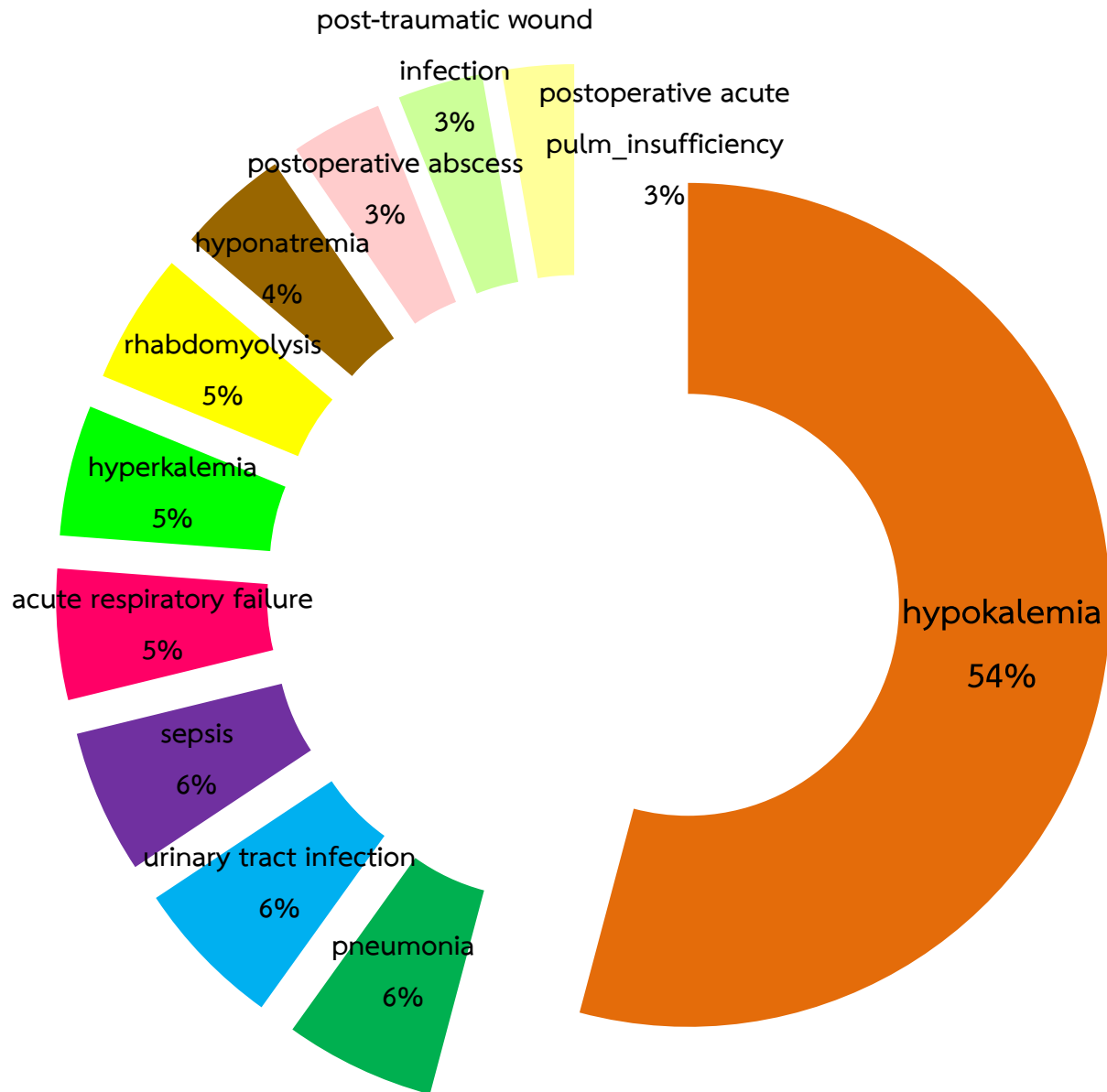
%complication for in-hospital traumatic patients at Chonburi hospital

— % complication — Mean — M+1SD — M-1SD — เส้นสีแดง (% complication)



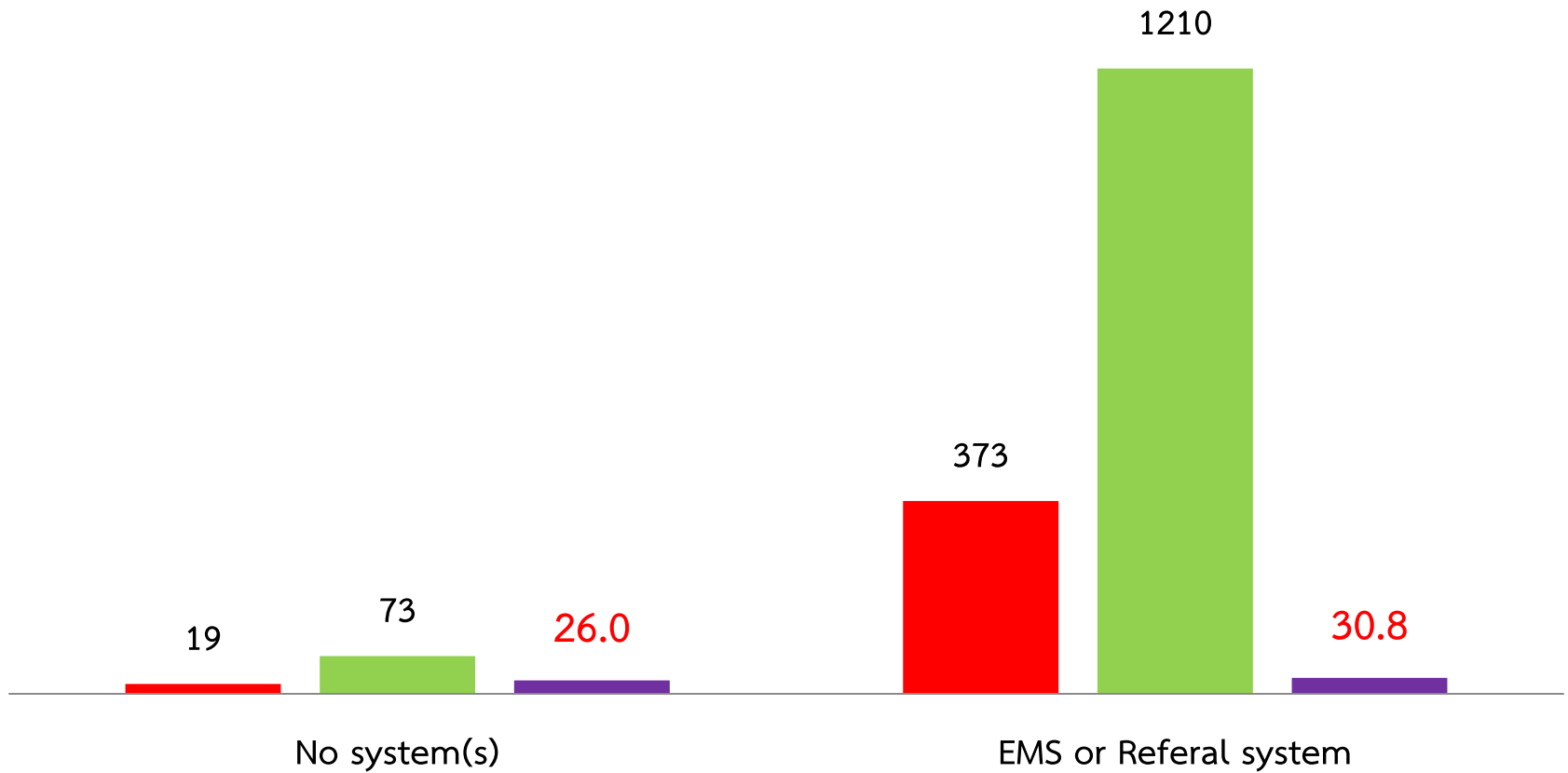
Q2/16 Q3/16 Q4/16 Q1/17 Q2/17 Q3/17 Q4/17 Q1/18 Q2/18

Proportion of complications in *traumatic in-patients*
with complication(s) at Chonburi hospital

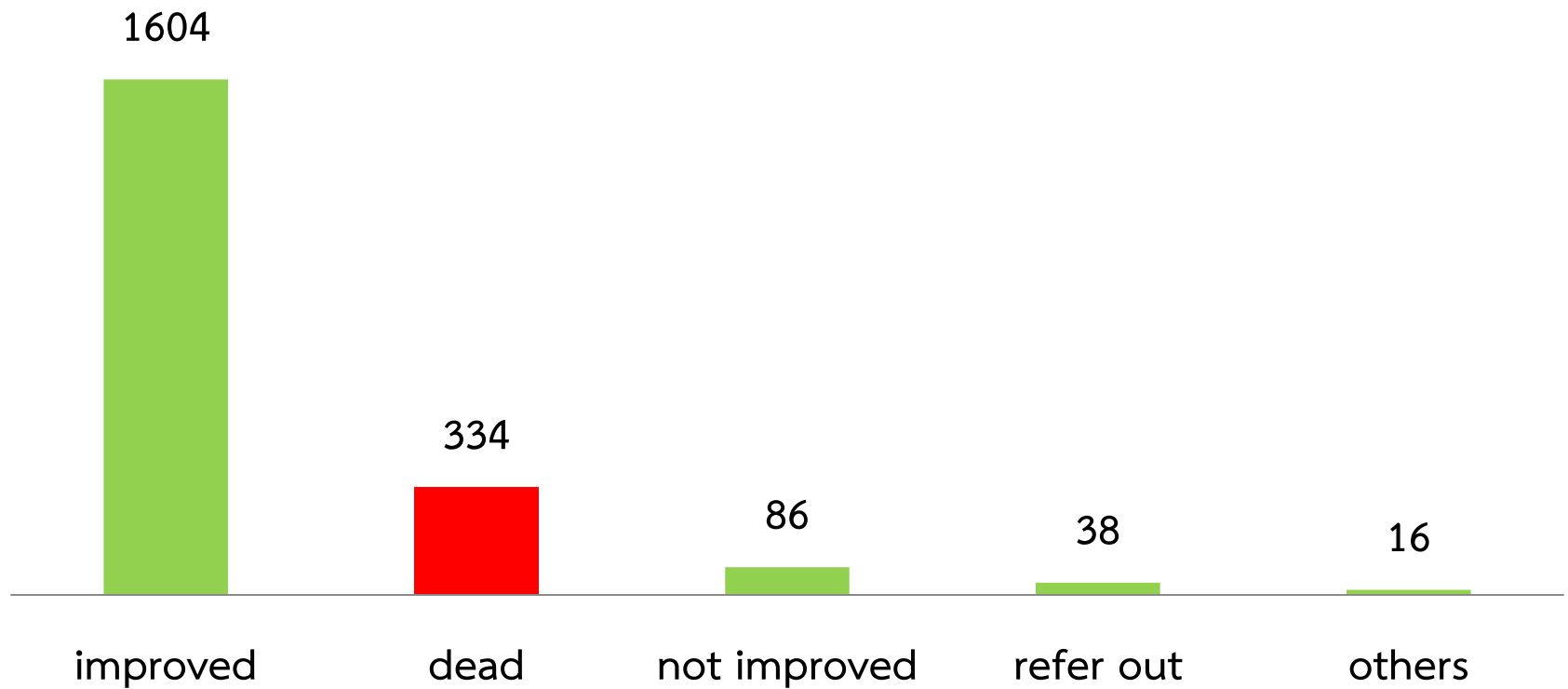


In-hospital traumatic patients(*red cases*) mortality by arrival types
at Chonburi hospital (N=1,283)

■ dead ■ Total ■ Mortality

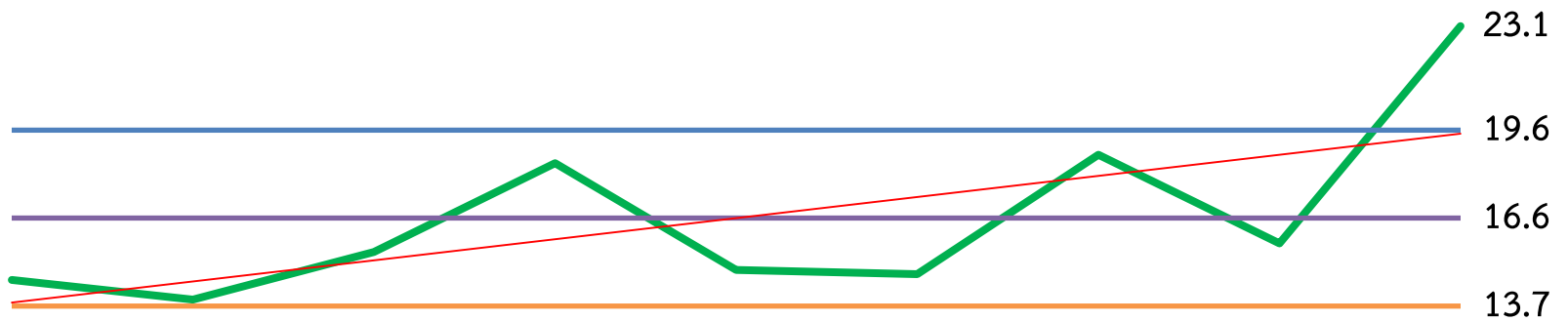


in-hospital TBI patients(S06* *exclude*
cerebral concussion[S060*])
by discharge status(N=2,078)
at Chonburi hospital



Mortality(%) for TBI(exclude cerebral concussion)
at Chonburi hospital : N=2,078

Mortality Mean M+1SD M-1SD เชิงเส้น (Mortality)



Q2/16

Q3/16

Q4/16

Q1/17

Q2/17

Q3/17

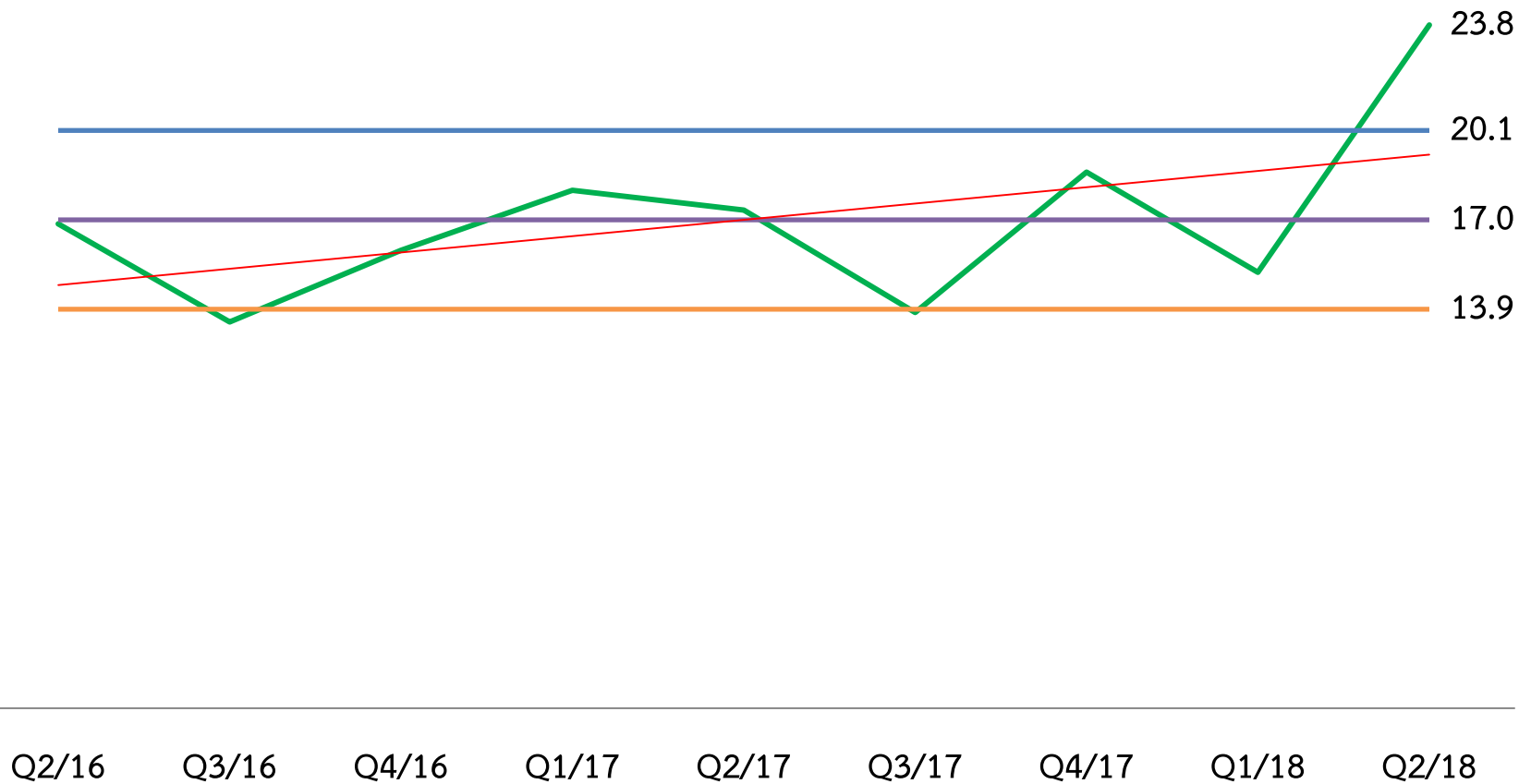
Q4/17

Q1/18

Q2/18

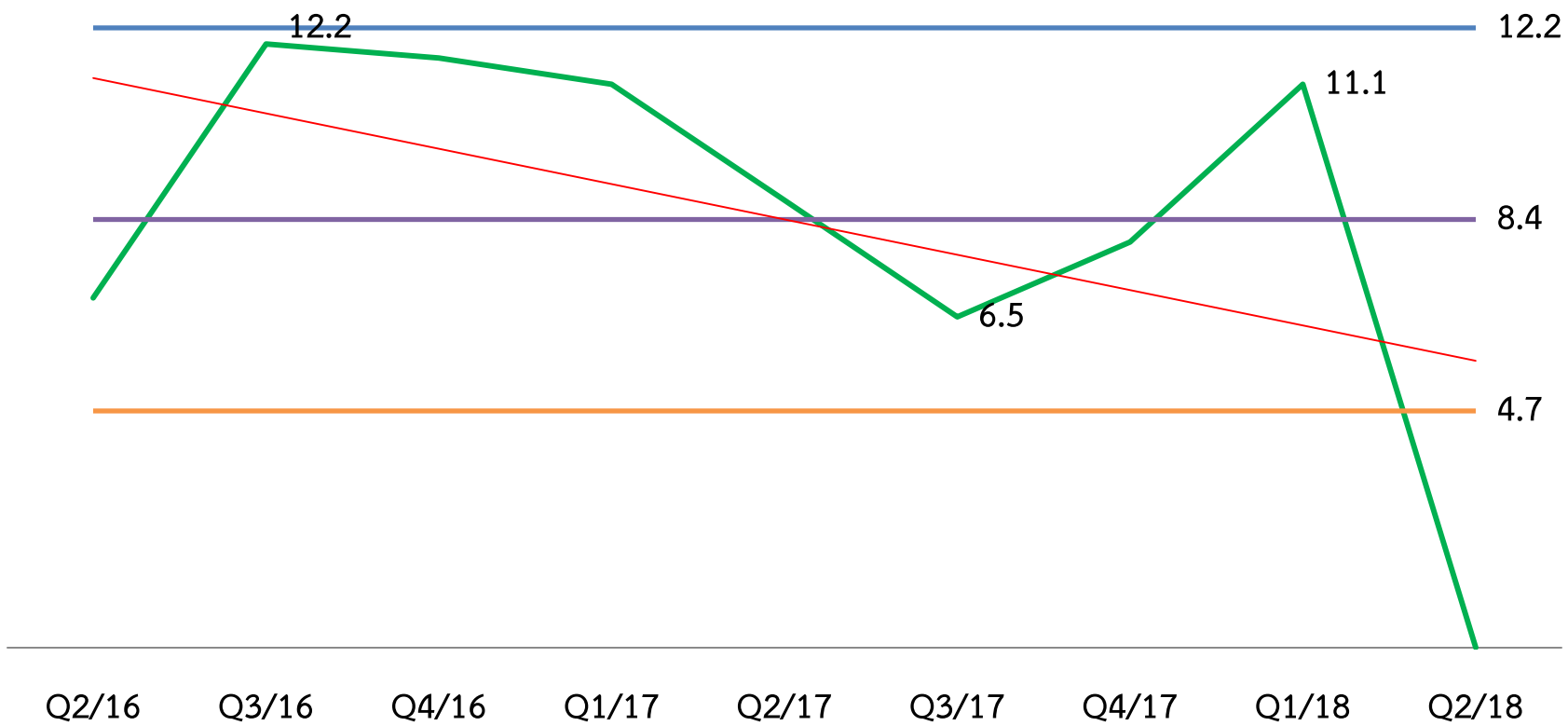
Mortality(%) for focal brain injury,EDH,SDH(S063*,S064*,S065*)
at Chonburi hospital : N=1,426

— Mortality — Mean — M+1SD — M-1SD — เชิงเส้น (Mortality)



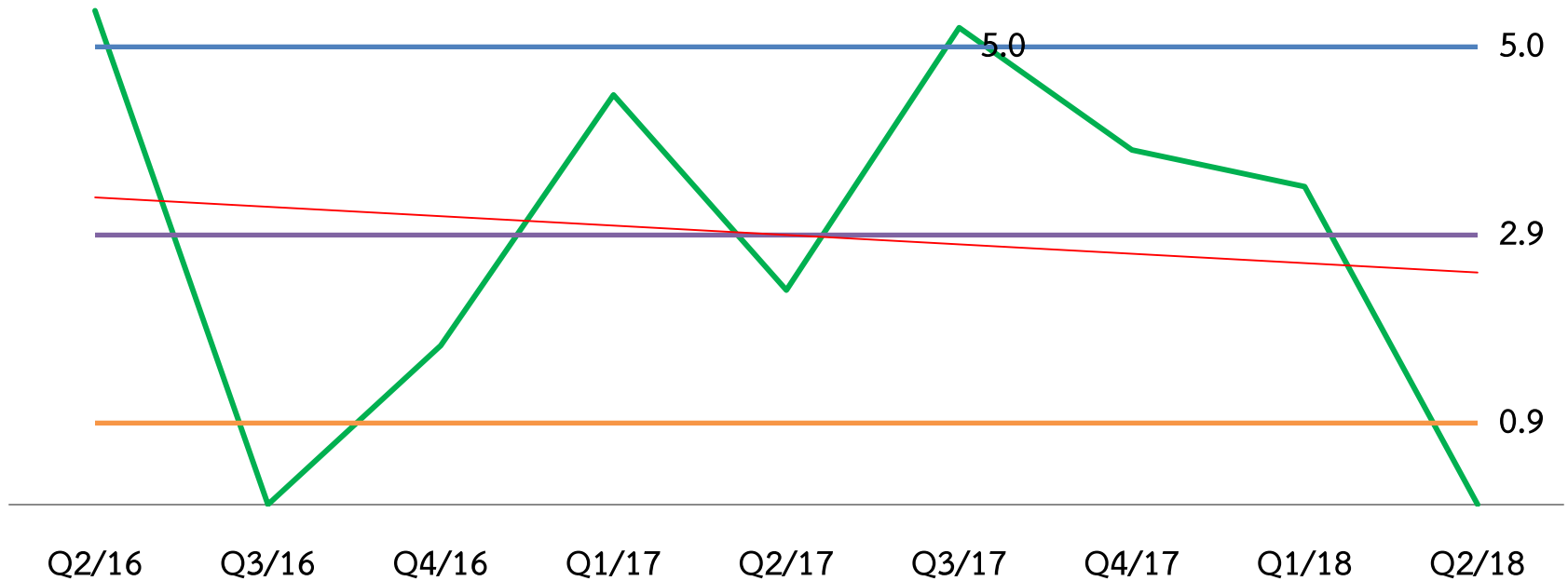
Mortality(%) for abdominal injury(S36*)
at Chonburi hospital : N=337

Mortality Mean M+1SD M-1SD เชิงเส้น (Mortality)



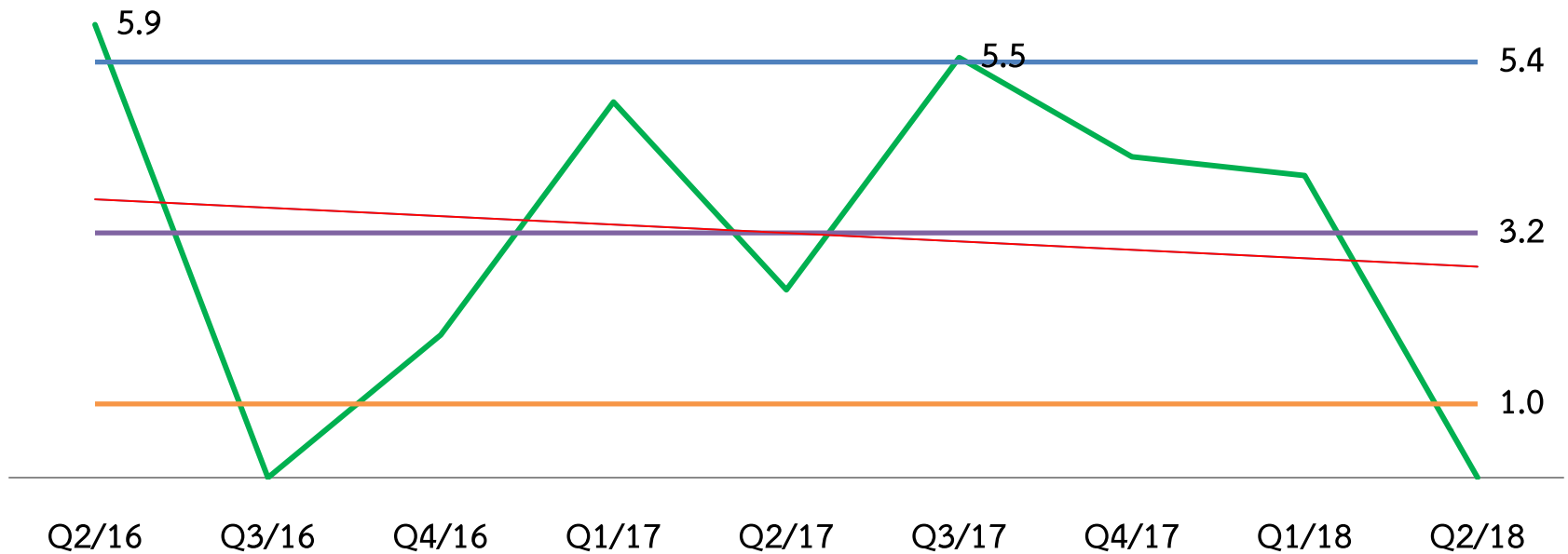
Mortality(%) for fracture
(neck of femur, pertrochanteric : S720*,S721*)
in patients(age > 49 yr)
at Chonburi hospital : N=437

— Mortality — Mean — M+1SD — M-1SD — เชิงเส้น (Mortality)



Mortality(%) for fracture
(neck of femur,pertrochanteric : S720*,S721*)
in patients(age > 64 yr)
at Chonburi hospital : N=405

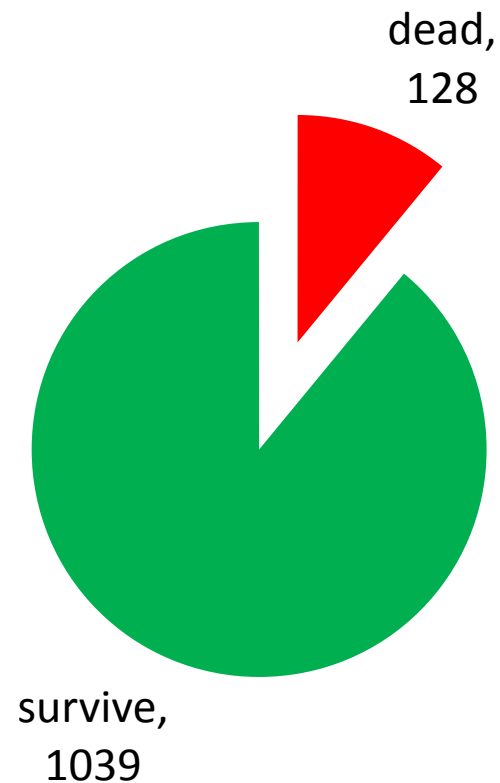
— Mortality — Mean — M+1SD — M-1SD — เชิงเส้น (Mortality) — เชิงเส้น (Mortality)



Abdominal injury (S36*) : 2010-2018(Jan-Mar) database Chonburi hospital (N=1,267)

- Age = 32 yr
- LOS = 13 day
- Cost = 90,439 baht/case
- 10.1 % - Mortality

proportion of death



Abdominal injury (S36*) : 2010-2018(Jan-Mar) database

Chonburi hospital (N=1,267)

Dead cases (N=128)

- Age = 33 yr
- LOS = 7 day
- Cost = 147,743 baht/case
- Top 3

1. Liver injury

(62/128=48.4%) :S361*

2. Small bowel injury

(21/128=16.4%) :S364*

3. Spleen injury

(16/128=12.5%) :S360*

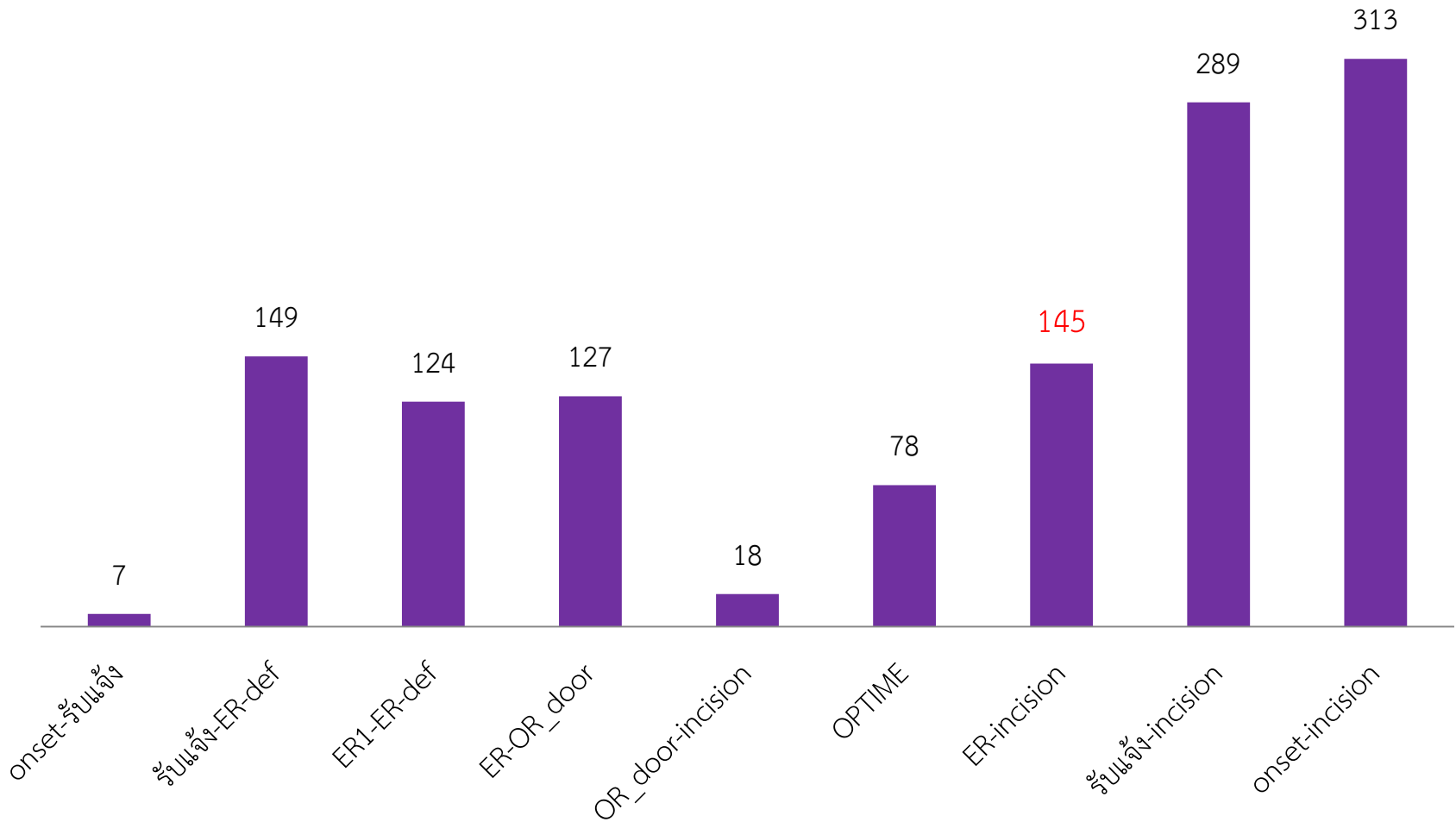
Survive cases (N=1,039)

- Age = 31 yr
- LOS = 14 day
- Cost = 84,089 baht/case

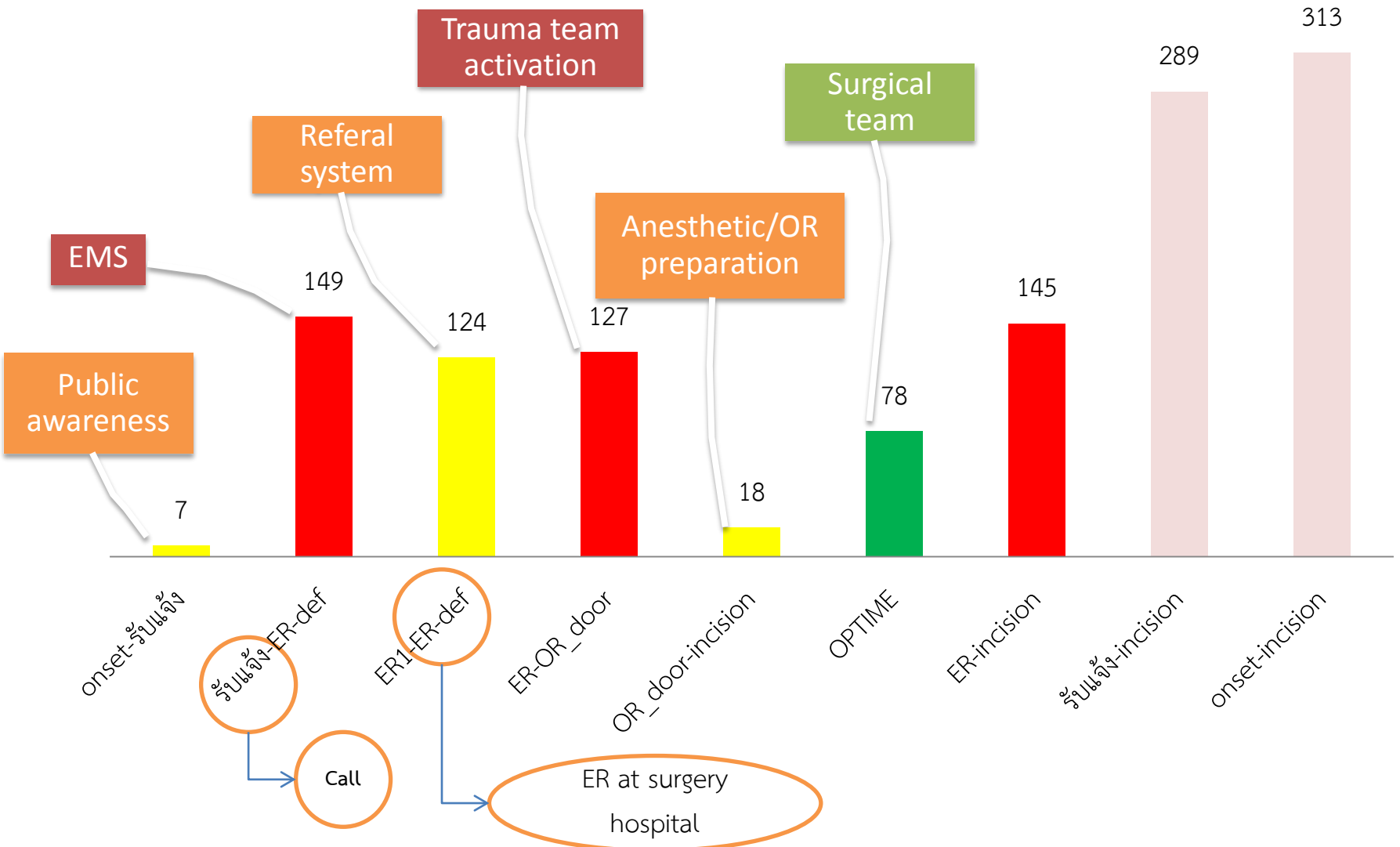
3 codes FOCUS

Diagnosis	Mortality
Liver injury	62/428 = 14.5%
Small bowel injury	21/270 = 7.8%
Spleen injury	16/320 = 5.0%

Mean time indicators(min) for fast track exploratory laparotomy
: abdominal injury with shock (2017: N=57)

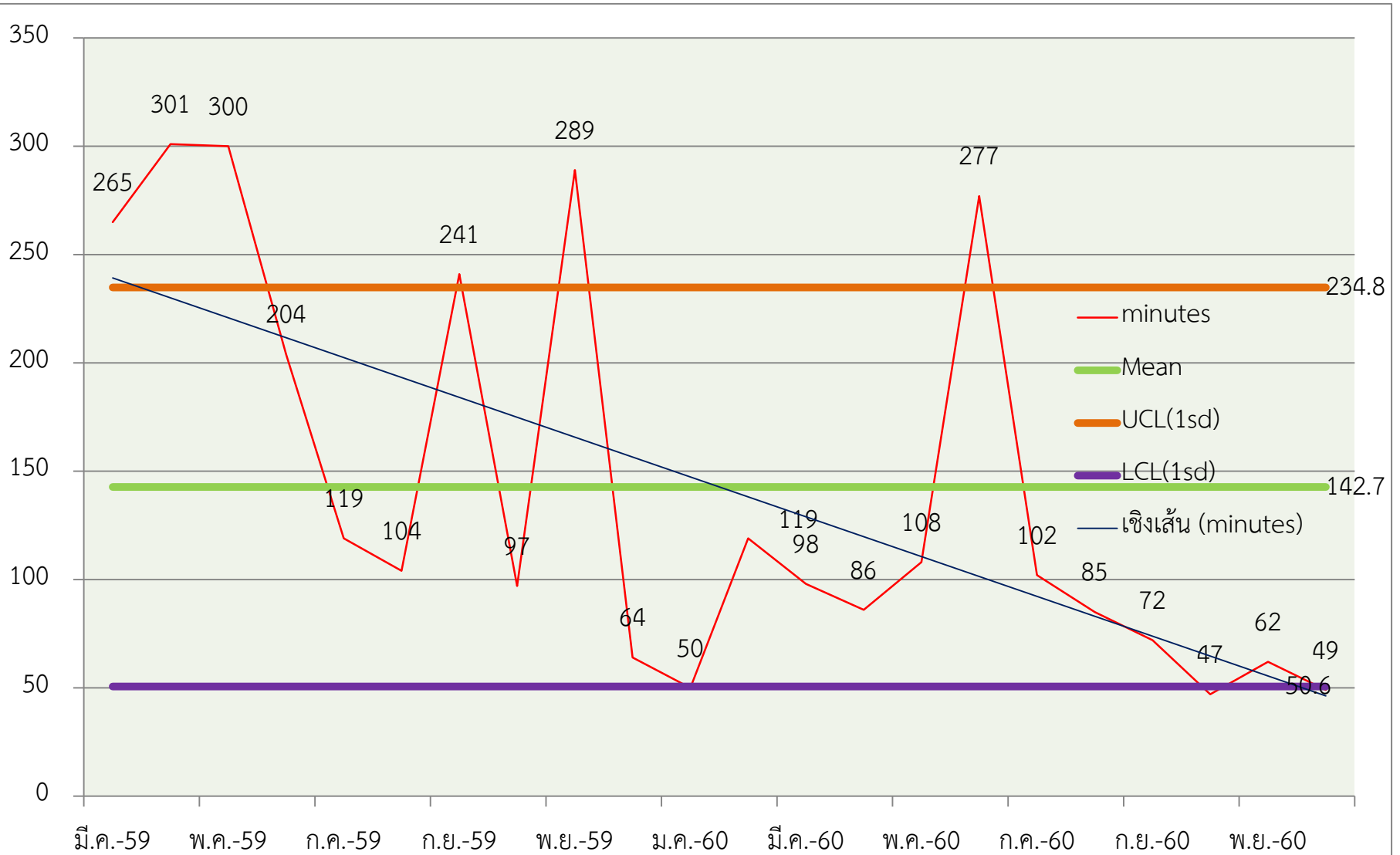


Mean time indicators(min) for fast track exploratory laparotomy
 : abdominal injury with shock (2017: N=57)



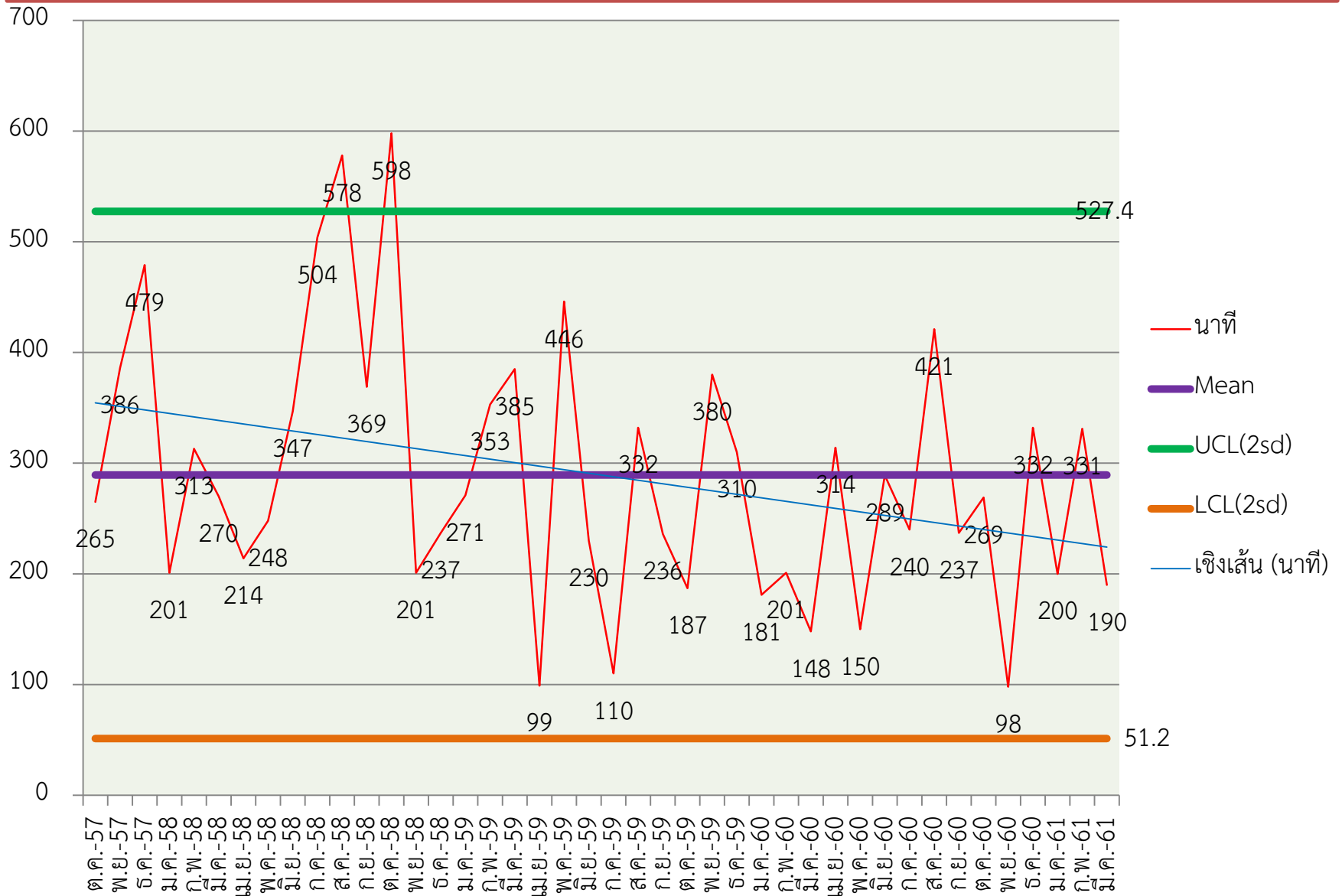
Admit to incision time (minutes)

Abdominal injury with shock (Fast track)



Admit-to-incision (min)

➤ Abdominal injury



Admit-to-incision (minute)

➤ TBI (S063*-S065*)

