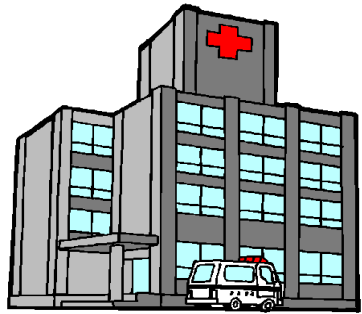


# Interpreting standardised mortality ratios

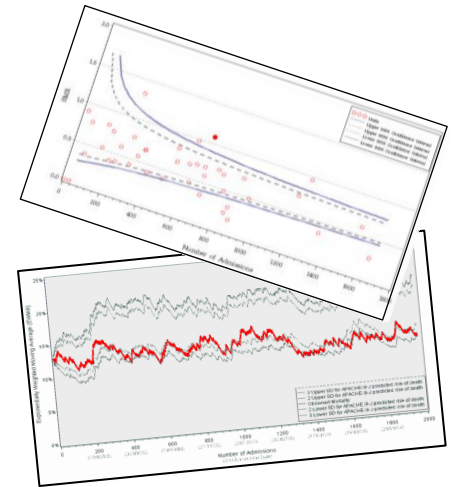
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The importance of data quality and case mix

# ANZICS CORE Adult Patient Database

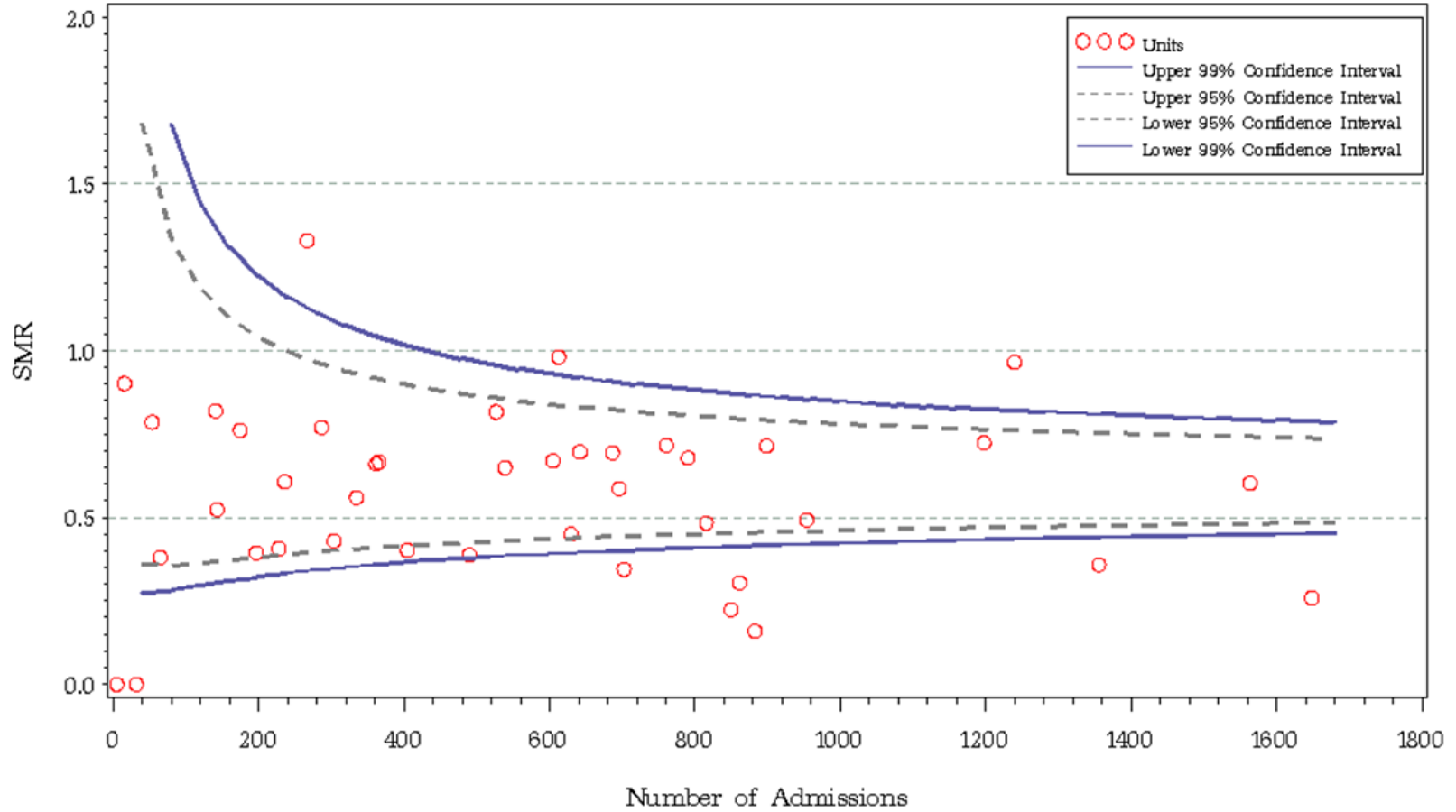


>0	>1	>2	>3	>4	>5
1	1.06	9.2	151	54.4	1.6
2	0.89	10.3	202	57.9	2.2
3	1.43	15.4	113	53	3.4
4	1.02	11.2	168	56	0.3
5	1.49	8.8	192	51.2	1
6	1.32	13.5	111	60	-2.2
7	1.22	12.2	175	67.6	2.2
8	1.1	9.2	245	57	3.3
9	1.34	13	168	60.4	7.2
10	1.12	12.4	197	53	2.7
11	0.75	7.5	173	51.5	6.5
12	1.13	10.9	178	62	3.7
13	1.15	12.7	199	53.7	6.4
14	1.09	12	96	49.8	1.4
15	0.96	7.6	164	62.2	-0.1
16	1.16	9.9	252	56	9.2
17	0.76	6.4	136	61.9	9
18	1.05	12.6	150	56.7	2.7
19	1.16	11.7	104	54	-2.1
20	1.2	11.8	148	59.9	3.5
21	1.04	8.6	204	61	3.5
22	1.07	9.3	174	54.3	5.9



# Standardised Mortality Ratio

## APACHE III-J SMR Funnel Plot



# Factors that influence an SMR

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## Data Quality

**Data  
reliability**

**Data  
completeness**

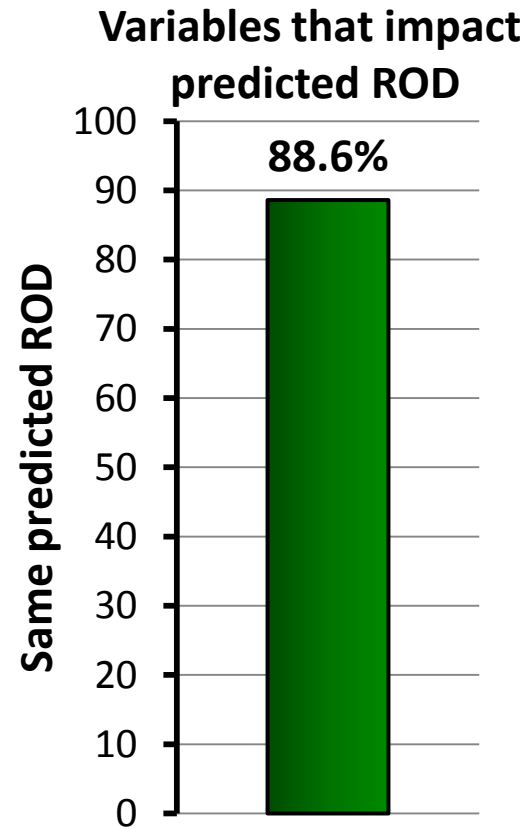
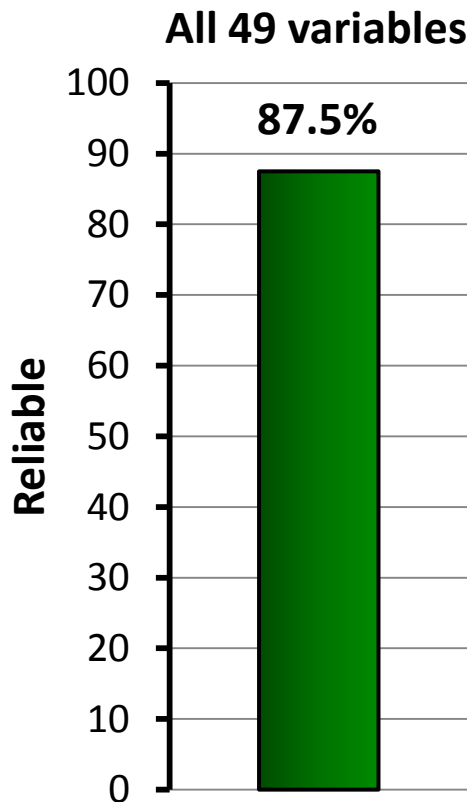
# Data Reliability

## APD Data Audit Program: Interim Results

APACHE III-J

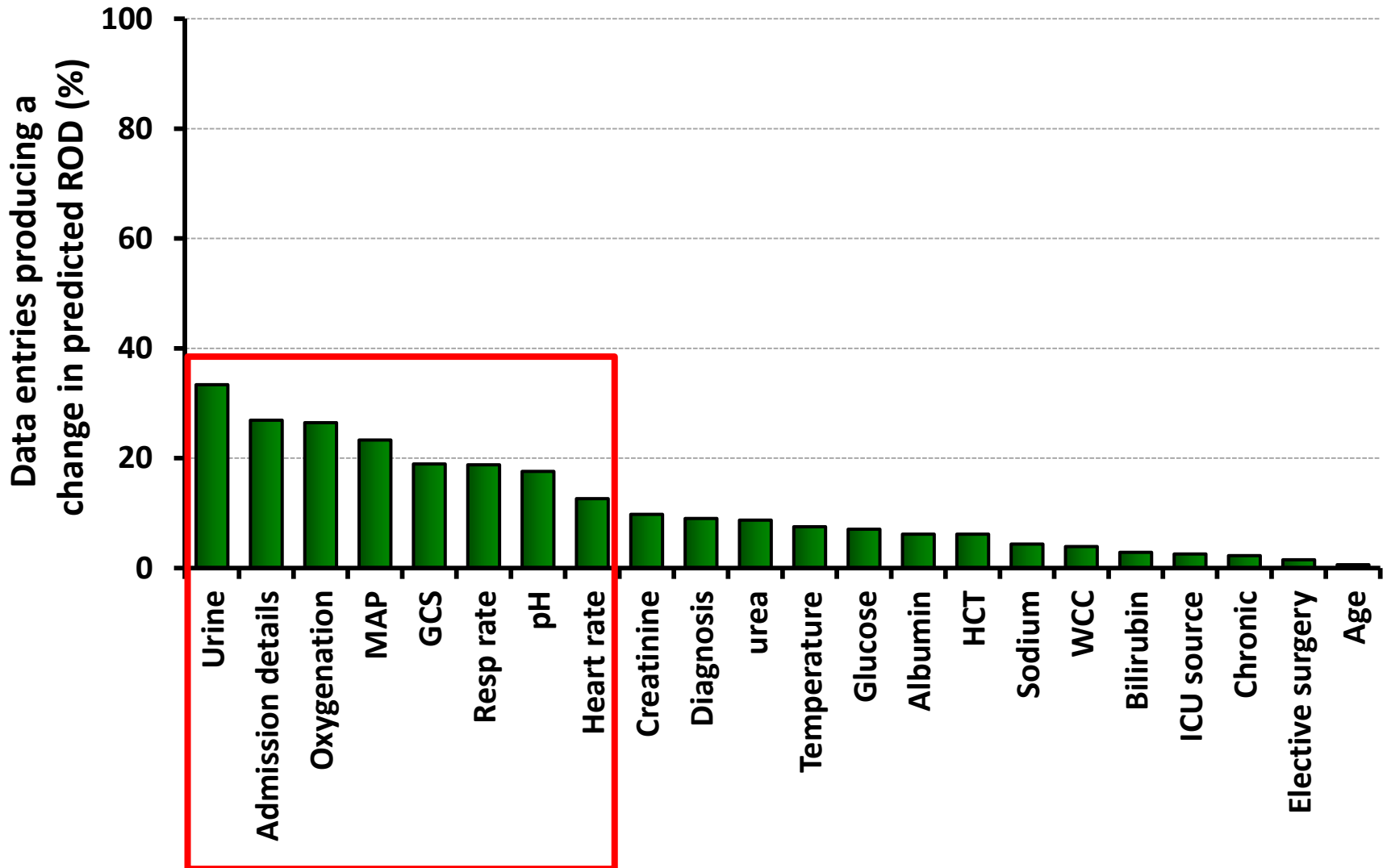
Audited over 32,000 data entries

665 admissions to 27 units



# Problematic Variables

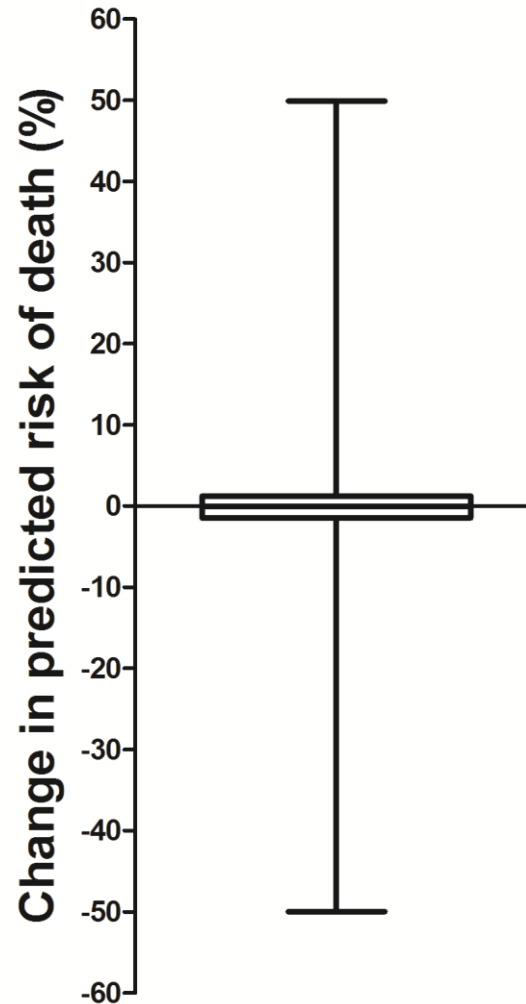
11.4% of data entries produce a change in predicted risk of death



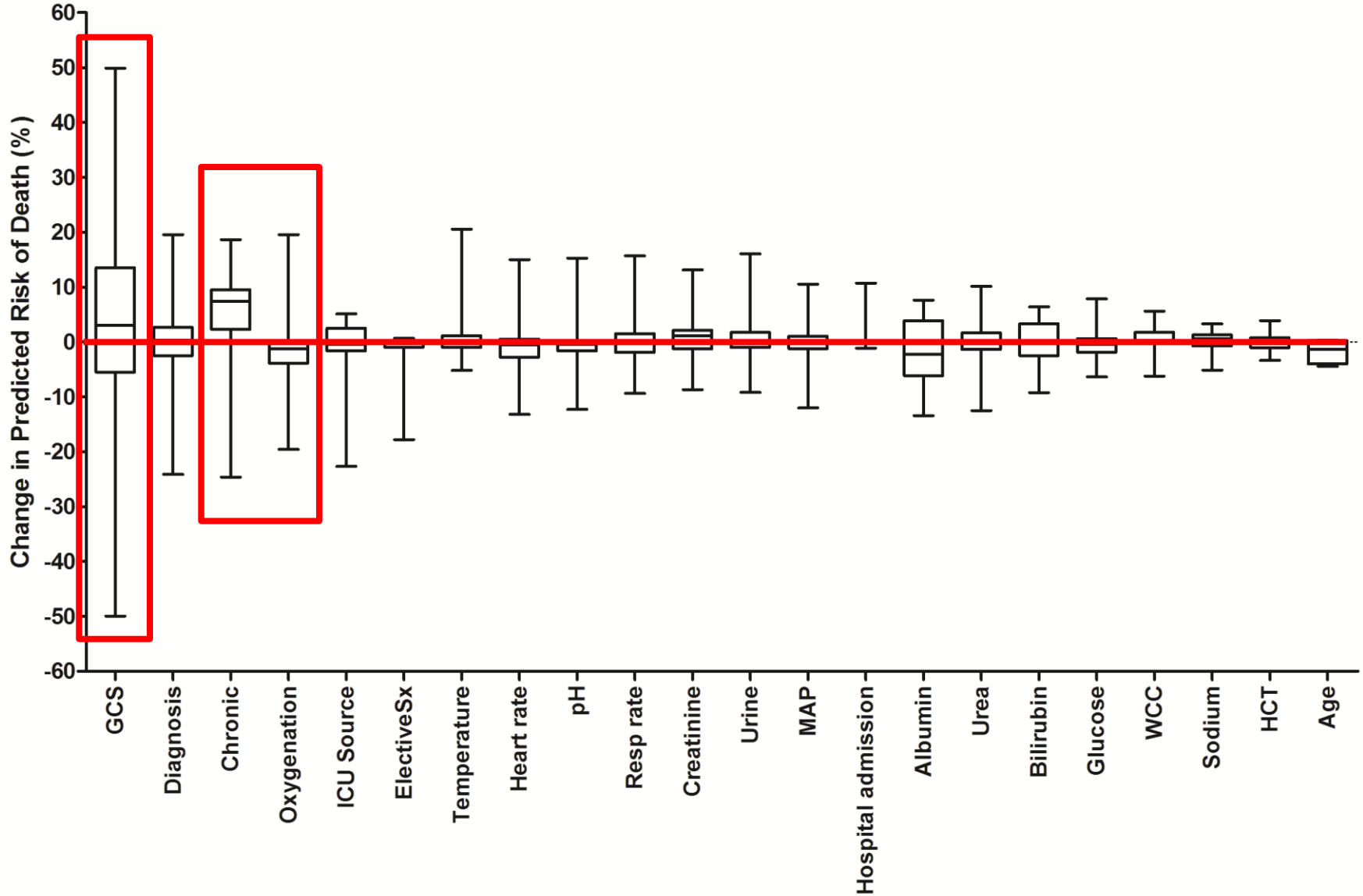
# Change in predicted ROD

---

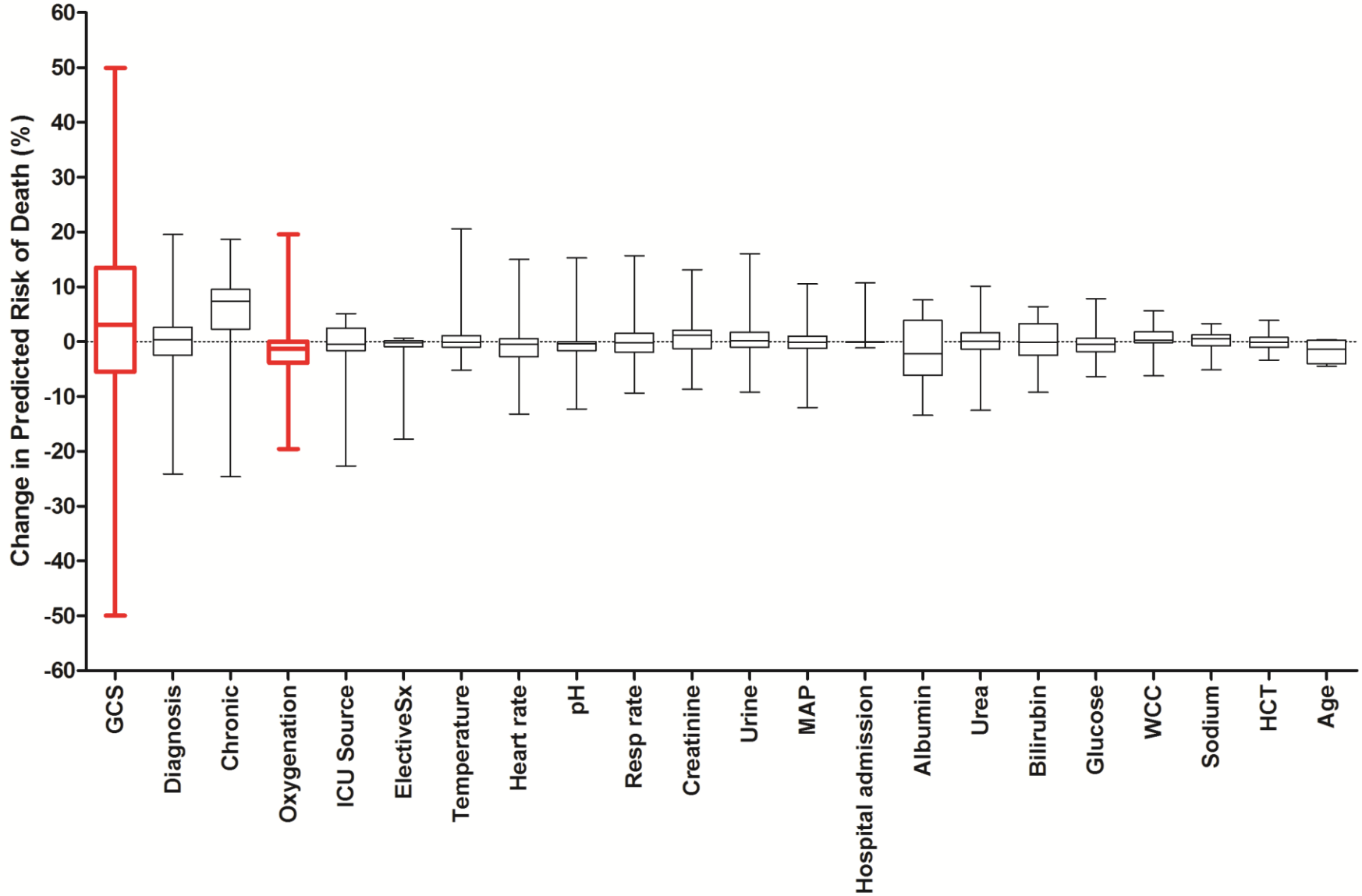
**11.4%**  
of data entries



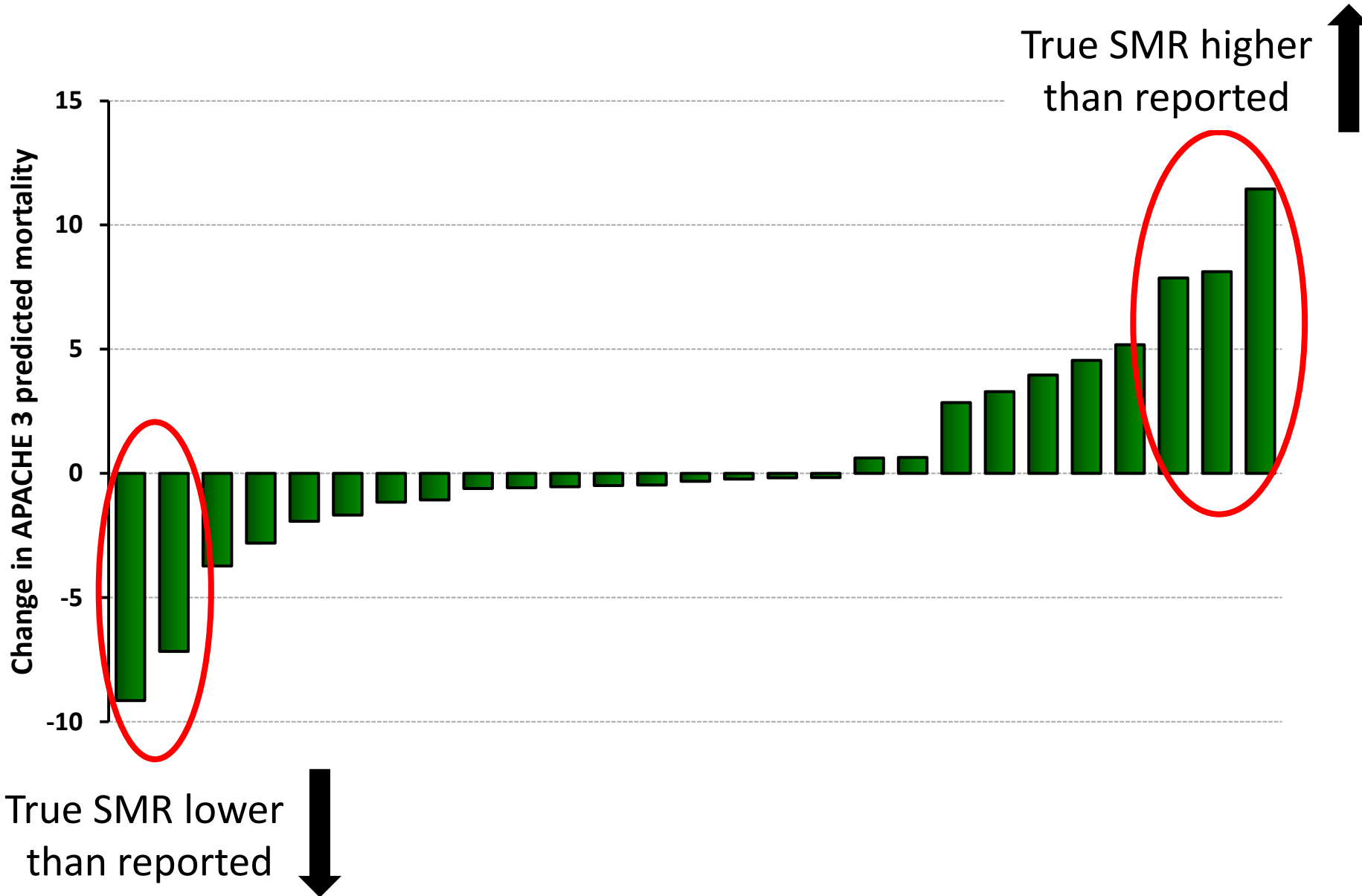
# Change in predicted ROD by variable



# Change in predicted ROD by variable

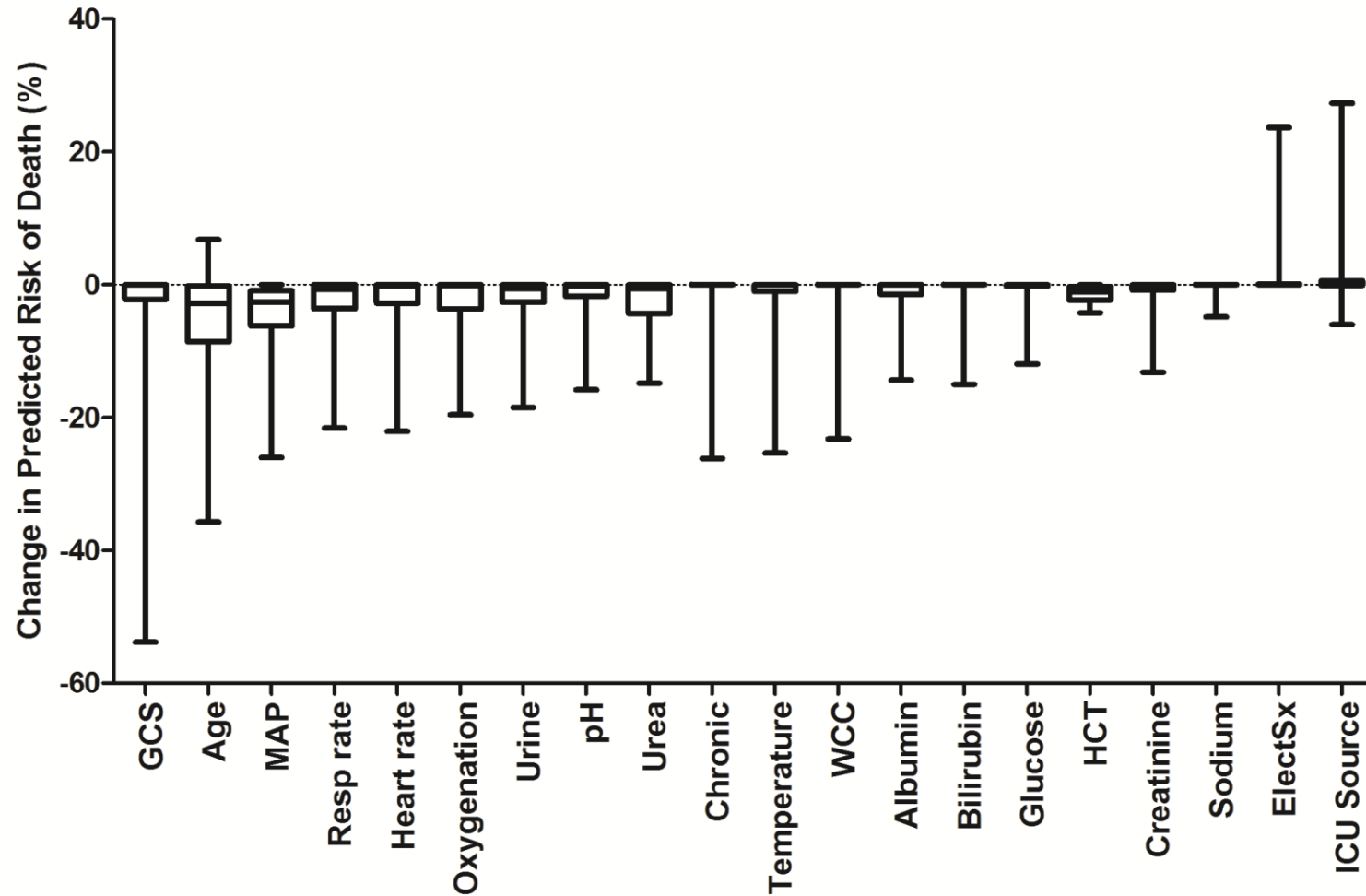


# Change in predicted mortality by unit



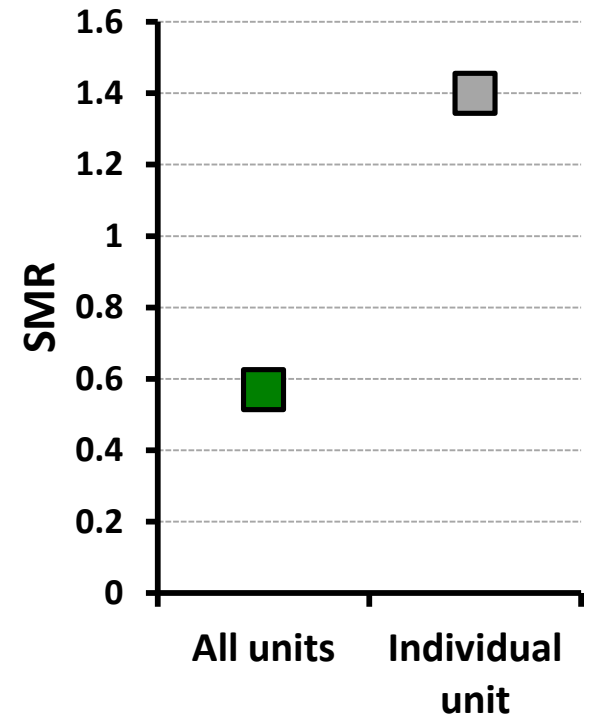
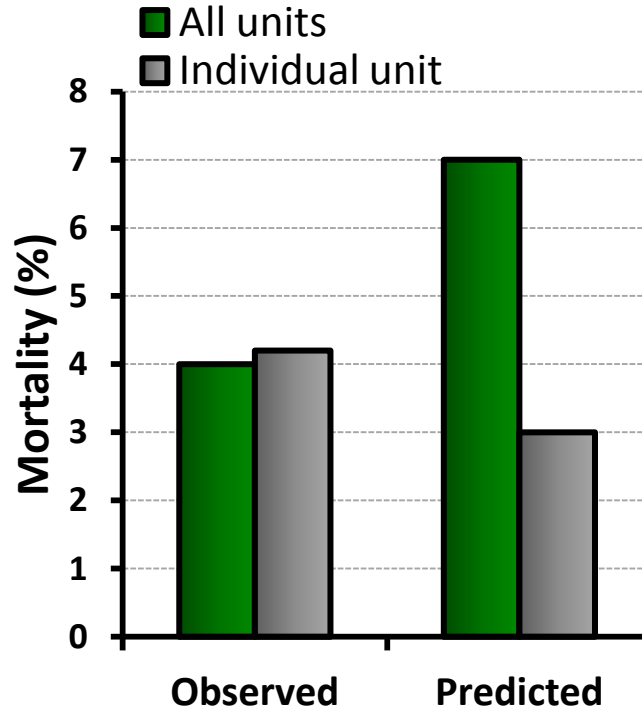
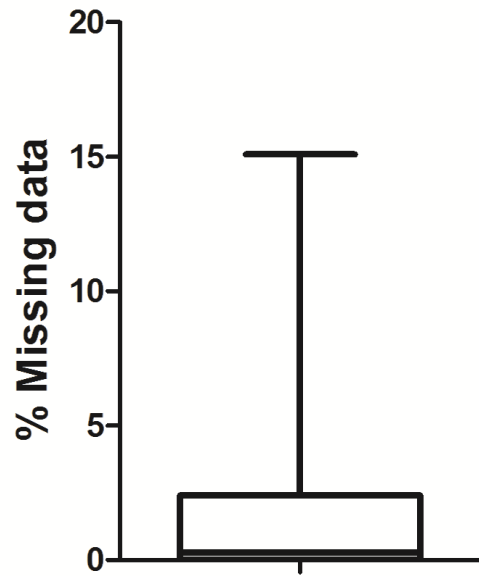
# Data completeness

Missing data = treated as normal



Higher missing data = lower predicted mortality = higher SMR

# Data completeness



# Factors that influence an SMR

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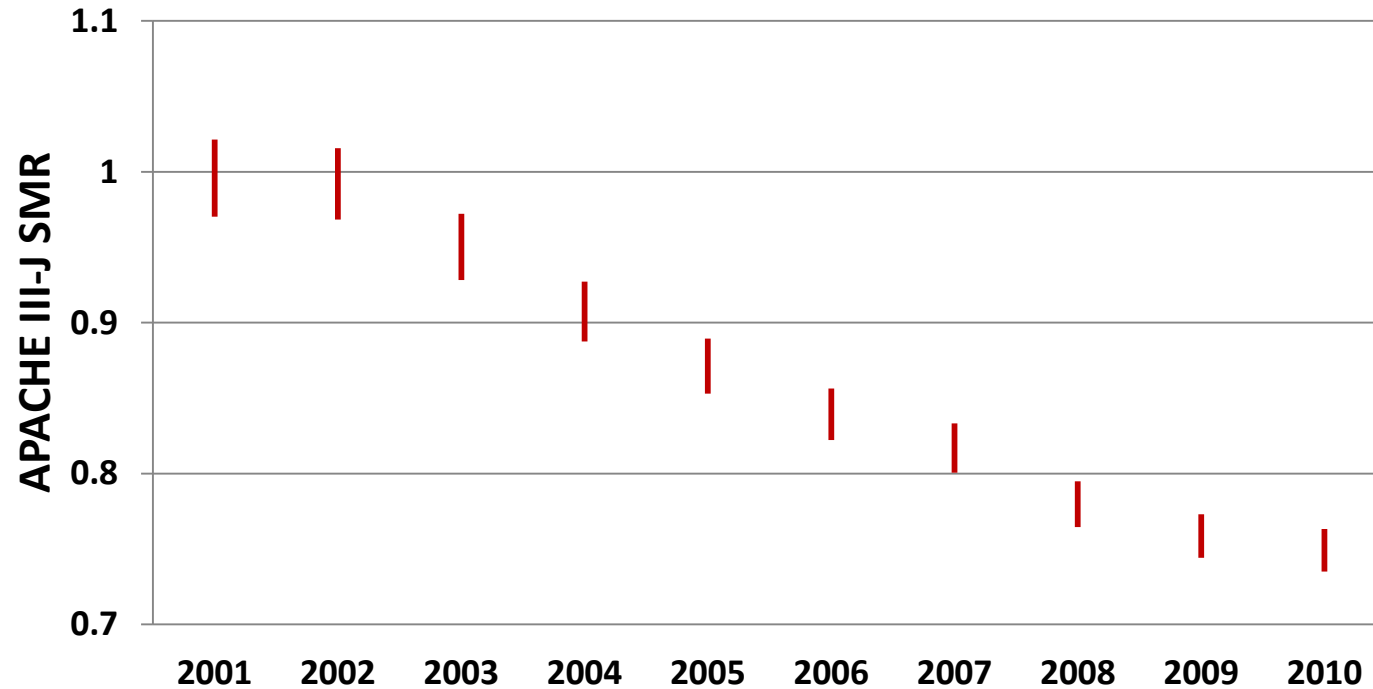
**Data  
reliability**

**Data  
completeness**

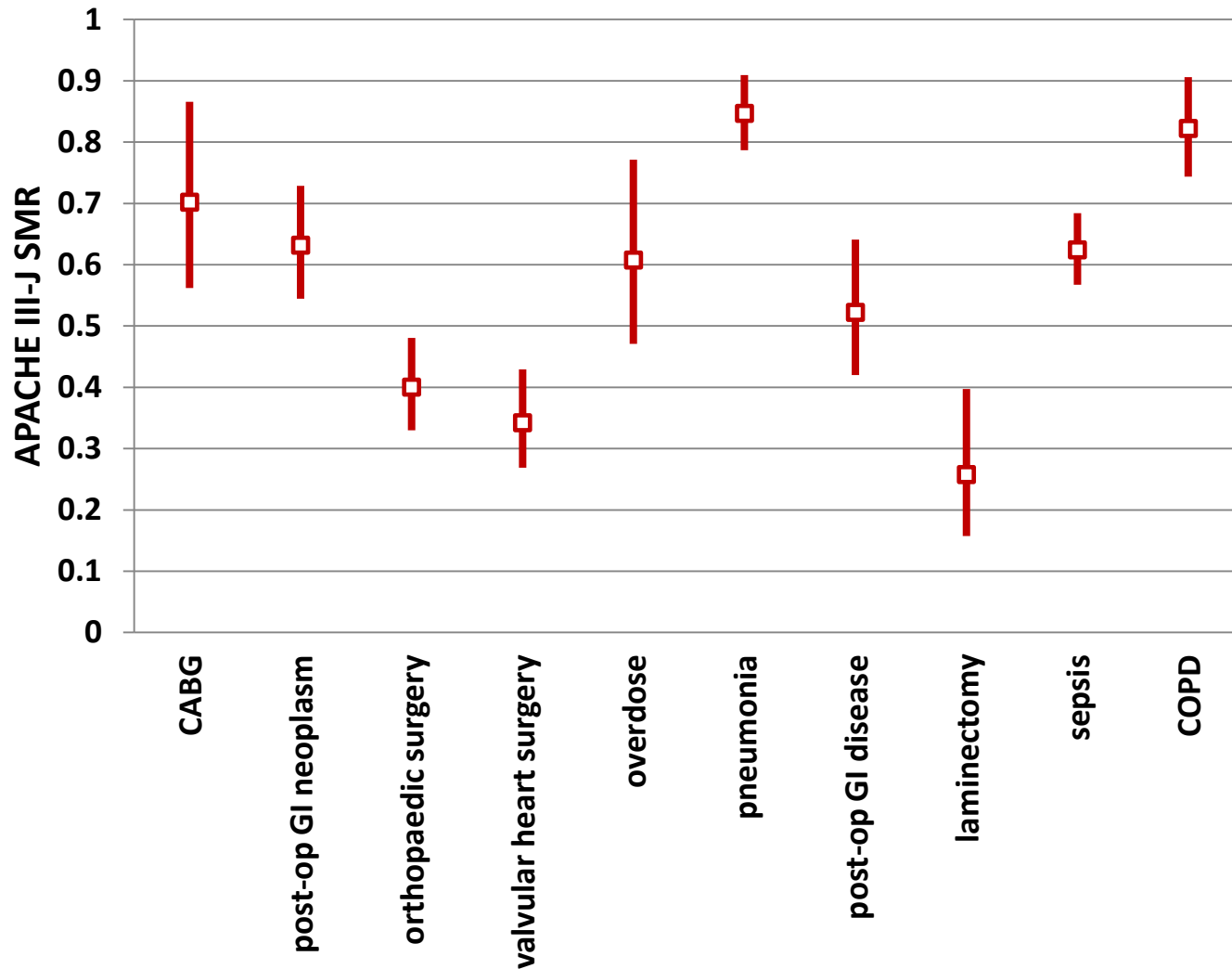
**Case mix**

# APACHE III-J SMR over time

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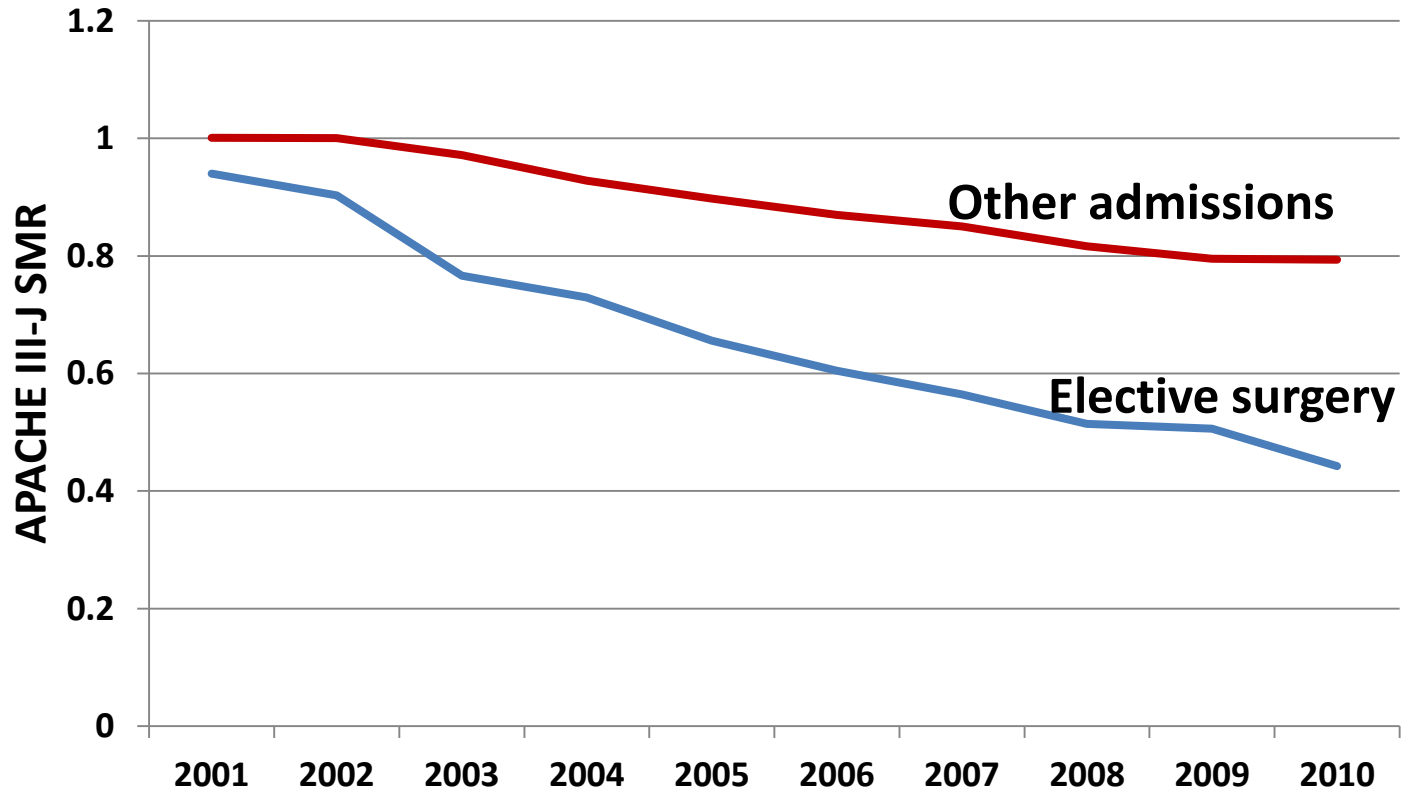


# Top 10 APACHE III-J diagnoses for 2010

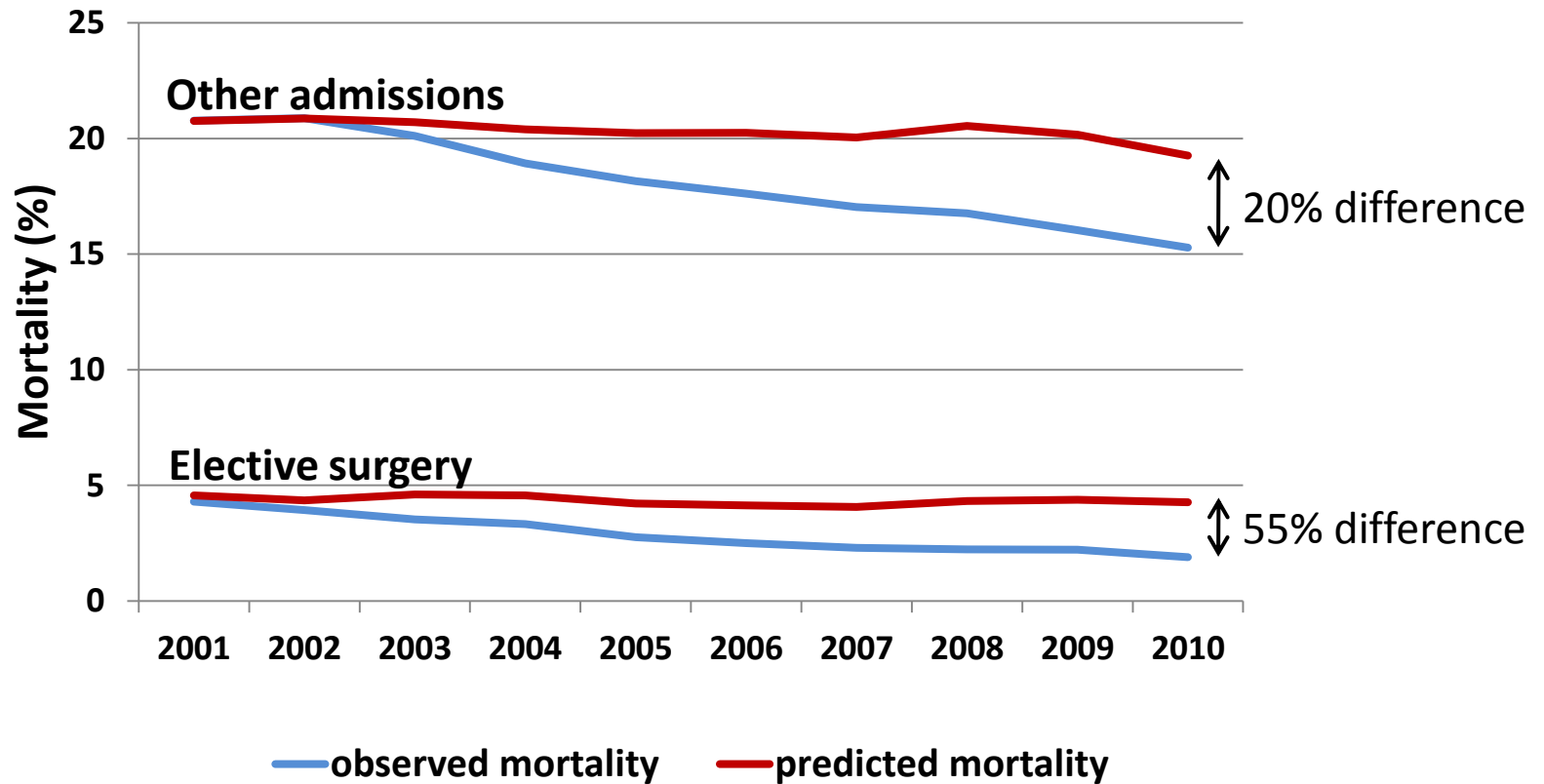


# Elective surgical patients

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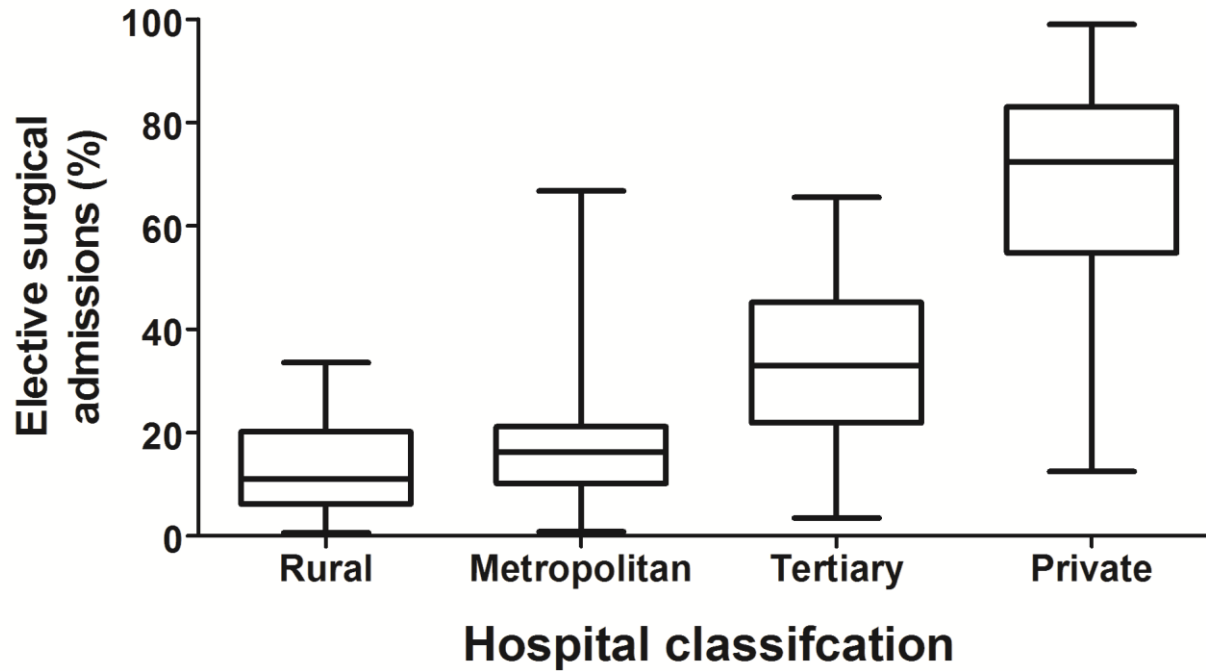


# Elective surgical patients



# Elective surgical patients

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# Conclusions

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Multiple factors should be considered when interpreting SMRs

Data Quality

Reliability of data submitted

Data Completeness

Case mix

Diagnosis

Elective surgical

# Moving forward

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Data Quality      Redevelopment of APD data dictionary  
Increased training  
Data audit program

New Risk adjusted model

New reporting system      admission type  
diagnostic group  
Move beyond risk-adjusted mortality:  
length of stay  
occupancy  
after hours discharge rates

# Acknowledgements

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All participating units

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ANZICS CORE

Gail Adams  
ANZICS CORE

David Pilcher  
ANZICS CORE