

**Appendix 3 (as supplied by the authors): Algorithm for determination of resident operative role**

Trauma staff 1	Trauma staff 2	Trauma fellow	Other service staff surgeon*	Other service fellow	Most senior resident	Other resident	Most senior resident role <i>BEST</i>	Most senior resident role <i>WORST</i>	Other resident <i>BEST</i>	Other resident <i>WORST</i>
Y	N	N	N	N	Y	N	Operator	1 <sup>st</sup>	Missed	Missed
Y	Y	N	N	N	Y	N	1 <sup>st</sup>	2 <sup>nd</sup>	Missed	Missed
Y	N	N	N	N	Y	Y	Operator	1 <sup>st</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
Y	Y	N	N	N	Y	Y	1 <sup>st</sup>	2 <sup>nd</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
Y	N	N	N	N	N	N	Missed	Missed	Missed	Missed
Y	Y	N	N	N	N	N	Missed	Missed	Missed	Missed
Y	N	Y	N	N	Y	N	Operator	2 <sup>nd</sup>	Missed	Missed
Y	N	Y	N	N	Y	Y	Operator	2 <sup>nd</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
Y	Y	Y	N	N	Y	N	2 <sup>nd</sup>	3 <sup>rd</sup>	Missed	Missed
Y	Y	Y	N	N	Y	Y	2 <sup>nd</sup>	3 <sup>rd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Y	N	N	Y	N	N	N	Missed	Missed	Missed	Missed
Y	N	N	Y	N	Y	N	1 <sup>st</sup>	2 <sup>nd</sup>	Missed	Missed
Y	N	N	Y	N	Y	Y	1 <sup>st</sup>	2 <sup>nd</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
Y	Y	N	Y	N	Y	N	2 <sup>nd</sup>	3 <sup>rd</sup>	Missed	Missed
Y	Y	N	Y	N	Y	Y	2 <sup>nd</sup>	3 <sup>rd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>

Y	N	Y	Y	N	N	N	Missed	Missed	Missed	Missed
Y	N	Y	Y	N	Y	N	2 <sup>nd</sup>	3 <sup>rd</sup>	Missed	Missed
Y	N	Y	Y	N	Y	Y	2 <sup>nd</sup>	3 <sup>rd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Y	Y	Y	Y	N	N	N	Missed	Missed	Missed	Missed
Y	Y	Y	Y	N	Y	N	2 <sup>nd</sup>	4 <sup>th</sup>	Missed	Missed
Y	Y	Y	Y	N	Y	Y	2 <sup>nd</sup>	4 <sup>th</sup>	3 <sup>rd</sup>	5 <sup>th</sup>
Y	N	N	Y	Y	N	N	Missed	Missed	Missed	Missed
Y	N	N	Y	Y	Y	N				Missed
Y	N	N	Y	Y	Y	Y				
Y	N	N	N	Y	N	N	Missed	Missed	Missed	Missed
Y	N	N	N	Y	Y	N			Missed	Missed
Y	N	N	N	Y	Y	Y				
Y	Y	N	Y	Y	N	N			Missed	Missed
Y	Y	N	Y	Y	Y	N			Missed	Missed
Y	Y	N	Y	Y	Y	Y				
Y	Y	N	N	Y	N	N	Missed	Missed	Missed	Missed
Y	Y	N	N	Y	Y	N			Missed	Missed
Y	Y	N	N	Y	Y	Y				
Y	N	Y	Y	Y	N	N	Missed	Missed	Missed	Missed

Y	N	Y	Y	Y	Y	N			Missed	Missed
Y	N	Y	Y	Y	Y	Y				
Y	N	Y	N	Y	N	N	Missed	Missed	Missed	Missed
Y	N	Y	N	Y	Y	N			Missed	Missed
Y	N	Y	N	Y	Y	Y				
Y	Y	Y	Y	Y	N	N	Missed	Missed	Missed	Missed
Y	Y	Y	Y	Y	Y	N			Missed	Missed
Y	Y	Y	Y	Y	Y	Y				

Note: The resident's "operative role" is not directly known/explicitly documented in the medical record. The resident's "operative role" was inferred using this standardized algorithm that is based on the presence of other staff surgeons and other more senior residents being listed in the hospital chart or operative dictation. "Y" refers to when an individual was scrubbed/present during the operative case and "N" refers to when an individual was not scrubbed/absent. For example, if 2 trauma staff and the most senior resident (Trauma staff 1 = Y; Trauma staff 2 = Y; and Most senior resident = Y) were present during the operative case, it was inferred that the most senior resident's "BEST" role would be as a 1st assistant and the "WORST" role would be as a 2nd assistant.

\*Nontrauma surgeon staff (i.e., vascular surgery staff, cardiac surgery staff).