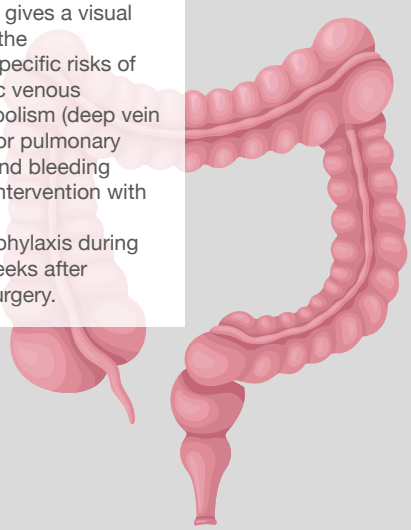
Risk of thrombosis and bleeding in Colorectal surgery

Produced by ROTBIGGS and CLUE Working Group

This graphic gives a visual overview of the procedure-specific risks of symptomatic venous thromboembolism (deep vein thrombosis or pulmonary embolism) and bleeding requiring reintervention with and without thromboprophylaxis during the first 4 weeks after colorectal surgery.



Establishing risk of venous thromboembolism (VTE)

Risk factors

- Age 75+
- BMI 35+ kg/m²
- VTE in first-degree relative
  - Parent, full sibling, or child

0 risk factors	1 risk factor	2+ risk factors or prior VTE
Low risk	Med. risk	High risk
x1	x2	x4

Harms vs benefits

Pharmacological thromboprophylaxis reduces the risk of VTE but increases the risk of bleeding

	VTE risk	Bleed risk
Without prophylaxis	10%	2%
	-50%	+50%
With prophylaxis	5%	3%

With prophylaxis ← → Without prophylaxis

Without prophylaxis → With prophylaxis

Evidence certainty

- ★★★★ High
- ★★★☆ Moderate
- ★★☆☆ Low
- ★☆☆☆ Very low

		Low (0% 10% 20%)	Medium (0% 10% 20%)	High (0% 10% 20%)	Bleed risk (0% 1.5% 3%)	Evidence certainty: VTE	Evidence certainty: Bleeds
Abdominoperineal resection	Laparoscopic	0.4 0.9	0.8 1.8	1.7 3.6	NR NR	★★★☆	
	Open	1.1 2.4	2.3 4.9	4.5 9.8	NR NR	★★★☆	
Anterior resection	Minimally-invasive	0.4 0.8	0.7 1.6	1.5 3.2	1.6 2.4	★★☆☆	★☆☆☆
	Open	0.5 1.0	0.9 2.0	1.8 4.0	NR NR	★★☆☆	
Rectopexy	Laparoscopic	0.1 0.3	0.2 0.5	0.5 1.0	NR NR	★★★☆	
	Open	0.2 0.4	0.4 0.8	0.7 1.6	NR NR	★★★☆	
	Perineal	0.3 0.6	0.5 1.1	1.1 2.3	0.4 0.6	★★★☆	★☆☆☆
Colectomy	Minimally-invasive	0.6 1.2	1.1 2.4	2.2 4.7	1.0 1.5	★★☆☆	★★★☆
	Benign	0.1 0.3	0.3 0.6	0.6 1.2	0.1 0.2	★★★☆	★★★☆
	Malignant	0.5 1.1	1.0 2.2	2.0 4.4	1.3 2.0	★★★☆	★★☆☆
	IBD*	0.8 1.8	1.7 3.6	3.4 7.3	0.3 0.5	★★☆☆	★☆☆☆
	Emergency	1.5 3.3	3.1 6.7	6.2 13.4	NR NR	★★★☆	
	Left	0.6 1.3	1.2 2.5	2.3 5.1	1.1 1.7	★★★☆	★☆☆☆
	Right	0.4 0.9	0.9 1.9	1.7 3.8	1.5 2.3	★★★☆	★☆☆☆
	Sigmoid	0.1 0.2	0.2 0.4	0.4 0.9	0.1 0.2	★★☆☆	★★★☆
	Open	1.4 3.1	2.9 6.2	5.7 12.4	0.8 1.2	★★☆☆	★☆☆☆
	Benign	0.7 1.5	1.4 3.1	2.9 6.2	NR NR	★☆☆☆	
	Malignant	0.9 2.0	1.8 3.9	3.6 7.8	NR NR	★★☆☆	
	IBD†	1.6 3.5	3.2 6.9	6.3 13.8	NR NR	★★★☆	
	Emergency	2.1 4.6	4.2 9.1	8.4 18.3	NR NR	★★★☆	
	Left	1.2 2.6	2.4 5.2	4.8 10.4	NR NR	★★★☆	
	Right	1.0 2.2	2.0 4.3	4.0 8.6	NR NR	★★★☆	
	Sigmoid	0.6 1.3	1.2 2.6	2.4 5.2	NR NR	★☆☆☆	
Total proctocolectomy	Laparoscopic	2.0 4.3	4.0 8.6	8.0 17.3	0.3 0.5	★★☆☆	★☆☆☆
	Open	2.1 4.5	4.1 9.0	8.3 18.0	NR NR	★★★☆	

* IBD = inflammatory bowel disease

Procedure-specific risks are first stratified by surgical approach (such as laparoscopic and open; including all indications and urgency levels). Subsequently risks are stratified by indication (such as benign and/or malignant) and/or urgency levels (elective or emergency) when possible

Visual summary by **Will Stahl-Timmins**