

Surgical Expert Systems:

POPF

Post-operative pancreatic fistula (POPF) is a common complication following hepatopancreatobiliary (HPB) surgery, and is associated with increased rates of sepsis, mortality and costs¹. A clinically relevant (CR)-POPF is defined as any drain fluid output with an amylase level more than 3 times the upper limit of normal serum amylase activity that is associated with a clinically relevant condition directly related to the postoperative pancreatic fistula². Risk factors for POPF include pancreatic duct diameter and pancreatic duct drainage³.

Postoperative pancreatic fistula (POPF) remains the main source of major morbidity and mortality after pancreatic resection, affecting between 13% and 41% of patients⁴.

POPF risk scores provided by Stream Care™ are selected based on a thorough and extensive review of existing literature, incorporating:

- ✓ 43 Peer Reviewed Papers
- ✓ 5 Systematic Reviews
- ✓ 3 Textbooks



Impact

Life-threatening POPF requiring a surgical re-intervention has an estimated incidence of 2% with mortality reaching 35%⁵. In HPB patients, incidence of POPF ranges from 1-30%⁶.

The occurrence of CR-POPF is associated with prolonged length of hospitalization and increased clinical workloads, as it warrants additional testing and procedures, which culminate in increased risk of further morbidities and even mortality³. For instance, POPF leads to increased resource use such as re-operations, emergency visits, intensive care, antibiotics, supplemental nutrition, percutaneous drainage and re-admissions⁷. Furthermore, the development of a POPF results in complicated inpatient care with a significant cost burden⁴. As such, increased costs range from \$6,788 to \$113,206 USD, or up to five times the cost for patients without POPF⁷.

Transforming postoperative care with automated POPF risk prediction.

Static Risk Scores

FRS

The Pancreatic Fistula Risk Score (FRS) **predicts postoperative pancreatic fistula**, based on intraoperative findings, starting **after pancreatic resection**⁸.

Source

FRS was developed by [Callery et al.](#) and validated by [Miller et al.](#) and [Angrisani et al.](#)

Patient Population

FRS was developed using patients who underwent pancreatoduodenectomy⁸.

Data Set

Beth Israel Deaconess Medical Center⁸

Sample Size

445⁸

Inputs

- Pathology
- Gland Texture
- Pancreatic Duct Diameter
- Blood Loss

Performance Metrics

Risk Score	Cited By	Reference	Validation Type	AUC	Specificity	Sensitivity	NPV	PPV
FRS	1,247	Callery et al.	Internal	0.942	-	-	-	-
		Miller et al.	External	0.716	-	-	-	-
		Angrisani et al.	External	0.738	-	-	-	-

References

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