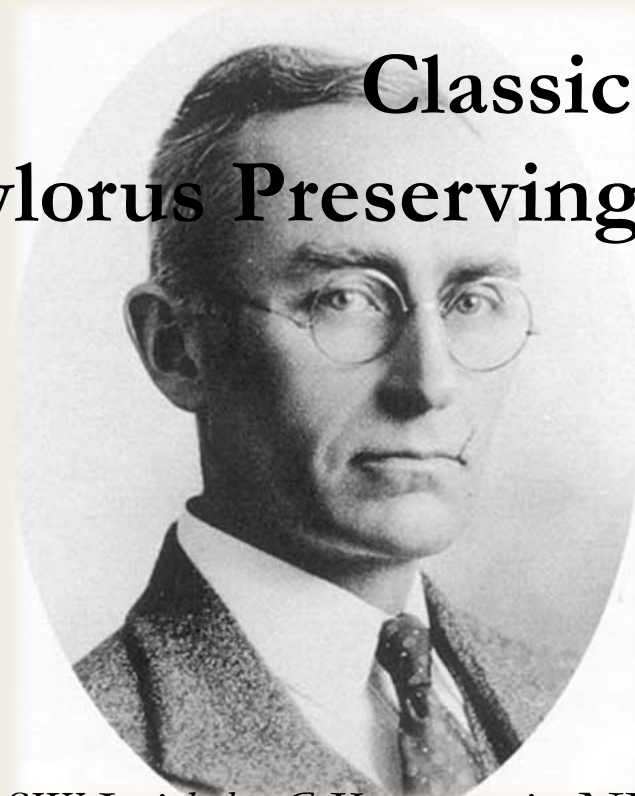


**2012 ACS NSQIP National Conference
Salt Lake City, UT, July 21 – 24, 2012**



Classic Whipple versus Pylorus Preserving Pancreaticoduodenectomy



SW Leichtle, C Kaoutzanis, NJ Mouawad, K Welch, V Hoshal Jr., E Kreske

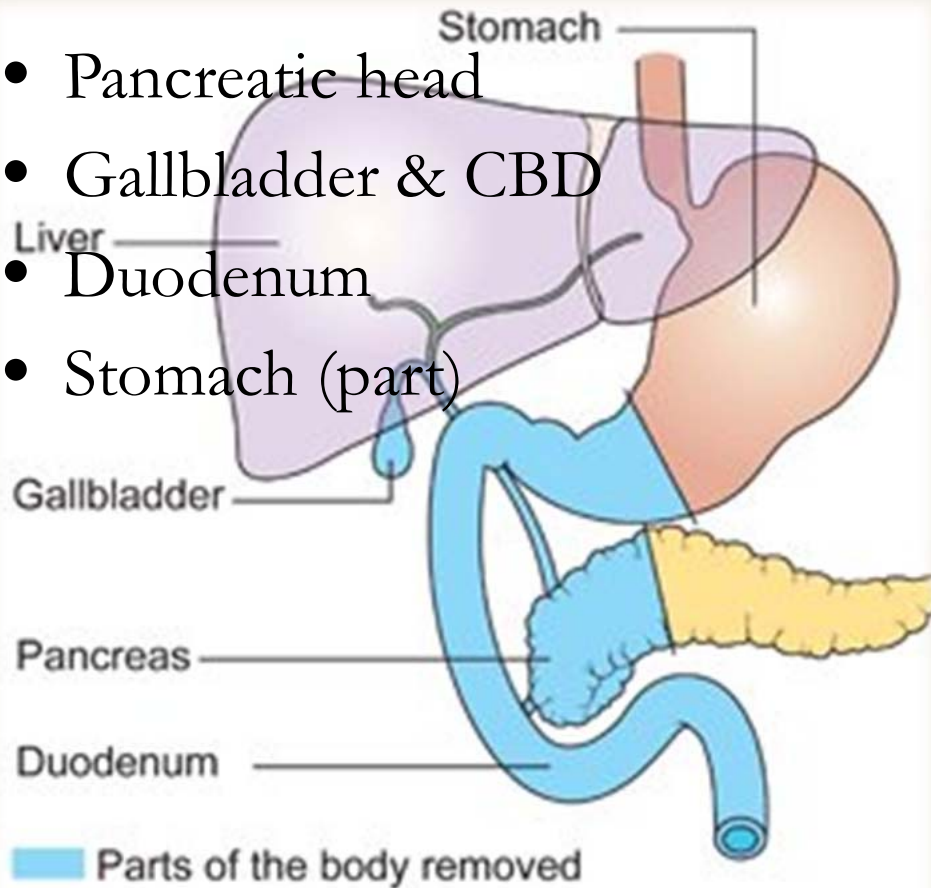
Department of Surgery, St. Joseph Mercy Health System Ann Arbor

Pancreaticoduodenectomy



Resection

- Pancreatic head
- Gallbladder & CBD
- Duodenum
- Stomach (part)



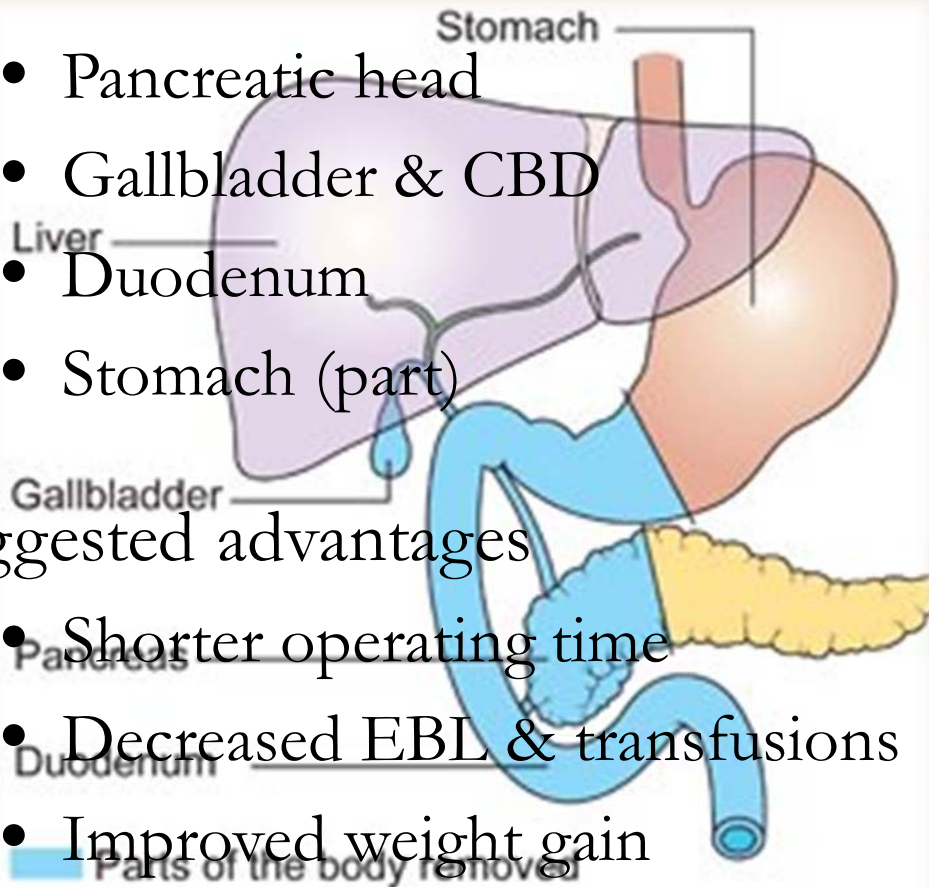
Classic Whipple

Pancreaticoduodenectomy



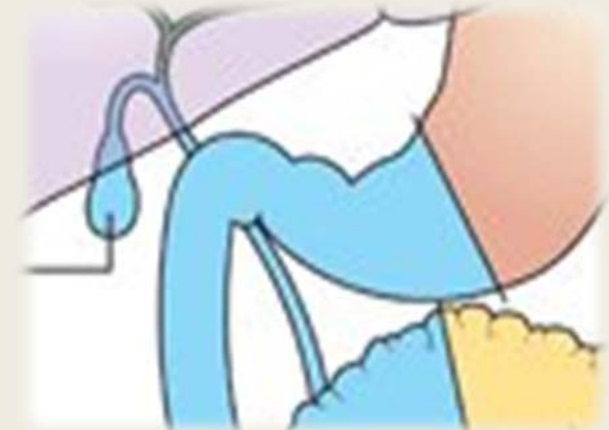
Resection

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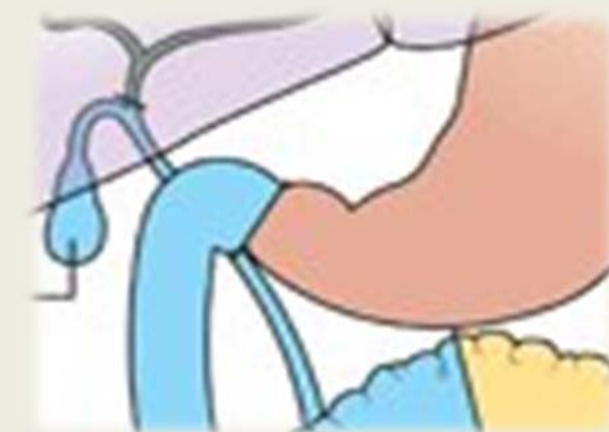


Suggested advantages

- Shorter operating time
- Decreased EBL & transfusions
- Improved weight gain
- Higher quality of life



Classic Whipple



Pylorus Preservation

Study Methodology

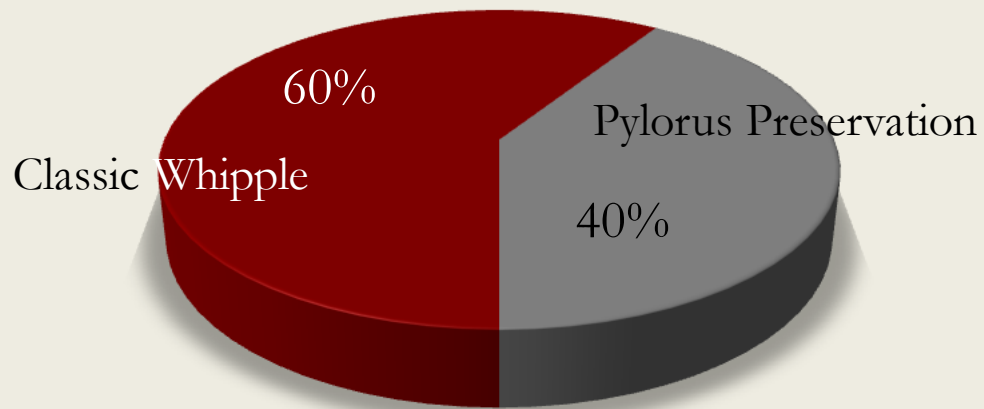


- CPT codes & ICD-9 codes, 2005 – 2010
 - Classic Whipple vs. pylorus preservation
 - Pancreatic cancer vs. other disease
- Outcomes of interest
 - Mortality, operative time, blood transfusions, major organ system complications, length of stay
- Propensity score model including 28 covariates to adjust for differences in patient groups

Results: N (2005 – 2010) = 7,869



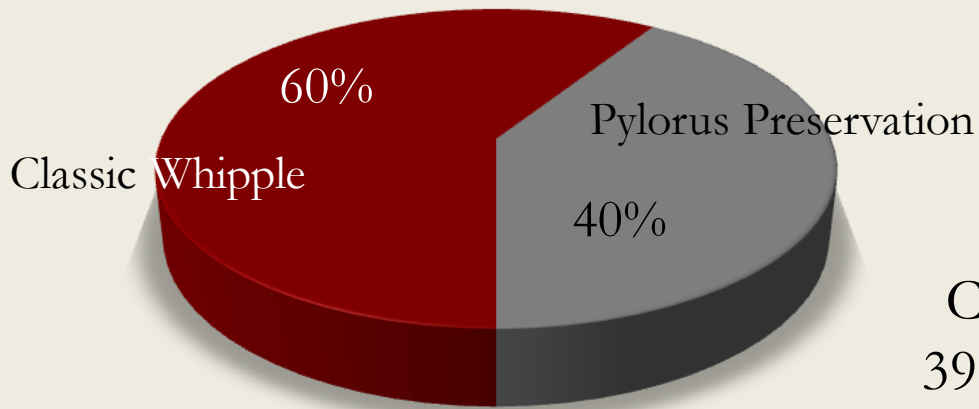
N (Pancreatic cancer) = 4,206



Results: N (2005 – 2010) = 7,869



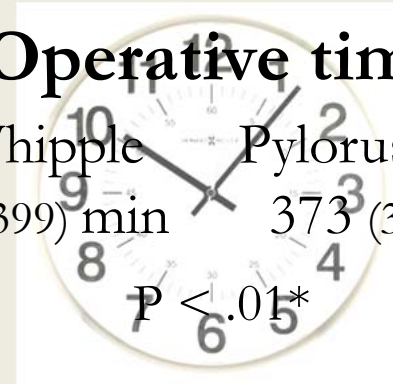
N (Pancreatic cancer) = 4,206



Operative time*

Procedure	Operative Time (min)
Classic Whipple	394 (389 – 399)
Pylorus Preservation	373 (367 – 379)

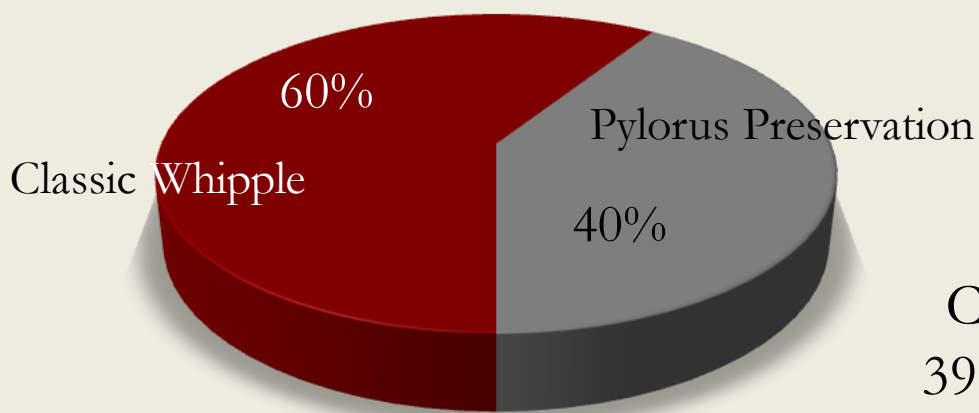
P < .01*



Results: N (2005 – 2010) = 7,869

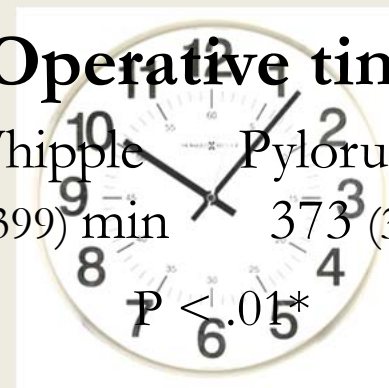


N (Pancreatic cancer) = 4,206



Operative time*

Procedure	Operative Time (min)
Classic Whipple	394 (389 – 399)
Pylorus Preservation	373 (367 – 379)



Mortality


Procedure	Mortality (%)
Classic Whipple	2.20%
Pylorus Preservation	2.90%

OR = 0.72, 95% CI, 0.48 - 1.07, P = 0.10

Pancreatic Cancer



Blood transfusions



Classic Whipple Pylorus Preservation
1.0 (0.9 – 1.1) units 0.9 (0.8 – 1.0) units
OR = 1.12 (95% CI, 0.97 – 1.31), P = .08

Pancreatic Cancer



Blood transfusions

Classic Whipple Pylorus Preservation
1.0 (0.9 – 1.1) units 0.9 (0.8 – 1.0) units
OR = 1.12 (95% CI, 0.97 – 1.31), P = .08



Complications

Wound	0.62
Cardiovascular	0.10
Pulmonary	.06
Renal	0.83
Infectious	0.59

Pancreatic Cancer



Blood transfusions



Classic Whipple Pylorus Preservation
1.0 (0.9 – 1.1) units 0.9 (0.8 – 1.0) units
OR = 1.12 (95% CI, 0.97 – 1.31), P = .08

Complications

Wound	0.62
Cardiovascular	0.10
Pulmonary	.06
Renal	0.83
Infectious	0.59



Length of stay*

Classic Whipple Pylorus Preservation
12.8 (12.5 – 13.1) days 11.8 (11.5 – 12.2) days
P < .01*

Other Disease



Blood transfusions*

Classic Whipple Pylorus Preservation
0.8 (0.7 – 0.9) units 0.5 (0.4 – 0.6) units

OR = 1.56, 95% CI, 1.30 – 1.88, **P < .01**



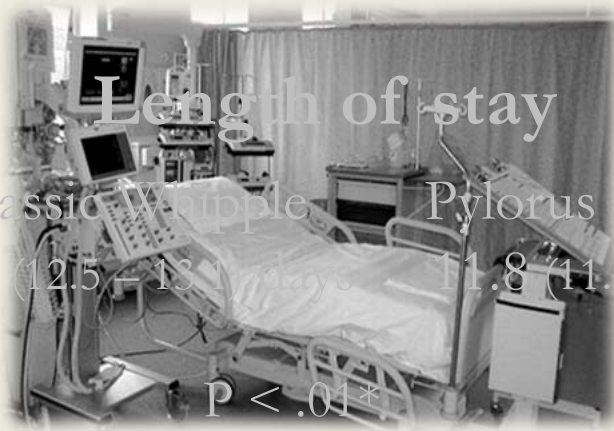
Complication

Wound	0.62
Cardiovascular	0.10
Pulmonary	.06
Renal	0.83
Infectious	0.59

Length of stay

Classic Whipple Pylorus Preservation
12.8 (12.5 – 13.1) days 11.8 (11.5 – 12.2) days

P < .01*



Discussion



Patient Cohort

- NSQIP: 7,869 patients
- Most observational studies/RCTs: ≤ 200 pts
- Meta-analyses of clinical trials: ≤ 500 pts

Mortality

- Historically: 20 – 30%
- Contemporary studies: ~3 to 7% for both techniques

Operative time

- Reduction with pylorus preservation up to 1 hour
- Wide range: 4 – 14 hours

Discussion / Study Model



Blood transfusions

- Possibly higher blood loss with classic Whipple
- No difference in transfusion requirements

Length of stay

- Both techniques: 12 – 20 days (up to half year)

Discussion / Study Model



Blood transfusions

- Possibly higher blood loss with classic Whipple
- No difference in transfusion requirements

Length of stay

- Both techniques: 19 – 20 days (up to half year)

Strengths

- Question difficult to answer in RCT
- Relatively large patient cohort
- NSQIP
- Propensity score model

Limitations

- Procedure/disease specific outcomes not available, e.g. GI motility, oncologic outcome
- Intraoperative decision making not known

Conclusions



- NSQIP hospitals achieved excellent short-term outcomes after classic and pylorus preserving pancreaticoduodenectomy
- No significant differences between both techniques for postoperative mortality or major complications
- Small but significant advantages in resource and blood utilization with pylorus preservation