Pancreatic Adenocarcinoma

Note: Consider Clinical Trials as treatment options for eligible patients

CLINICAL PRESENTATION

Clinical suspicion of pancreatic cancer (*e.g.*, jaundice) or evidence of dilated pancreatic duct and/or bile duct stricture

DIAGNOSTIC WORK-UP AND TISSUE ACQUISITION

- Pancreatic CT scan protocol[1,2]
- Obtain family history[3]
- Lifestyle risk assessment[4]

Mass in pancreas on imaging?

Yes

Metastases?

Yes → CT scan or ultrasound-guided biopsy of metastatic disease if accessible. Core needle biopsy is preferred to facilitate next generation sequencing (NGS).

No →
- Multidisciplinary planning presentation
- EUS with FNA
- Liver function tests, CA 19-9
- CT chest (preferred) or chest x-ray

No →
- Multidisciplinary planning presentation
- Liver function tests, CA 19-9
- CT chest (preferred) or chest x-ray
- EUS with FNA if mass visualized in pancreas
- ERCP with brushings as clinically indicated

Biopsy or brushings positive?

Yes

No → Surgical consult

For treatment based on tissue confirmation and clinical staging, see Pages 2-5

EUS = endoscopic ultrasound
FNA = fine needle aspiration
ERCP = endoscopic retrograde cholangiopancreatography

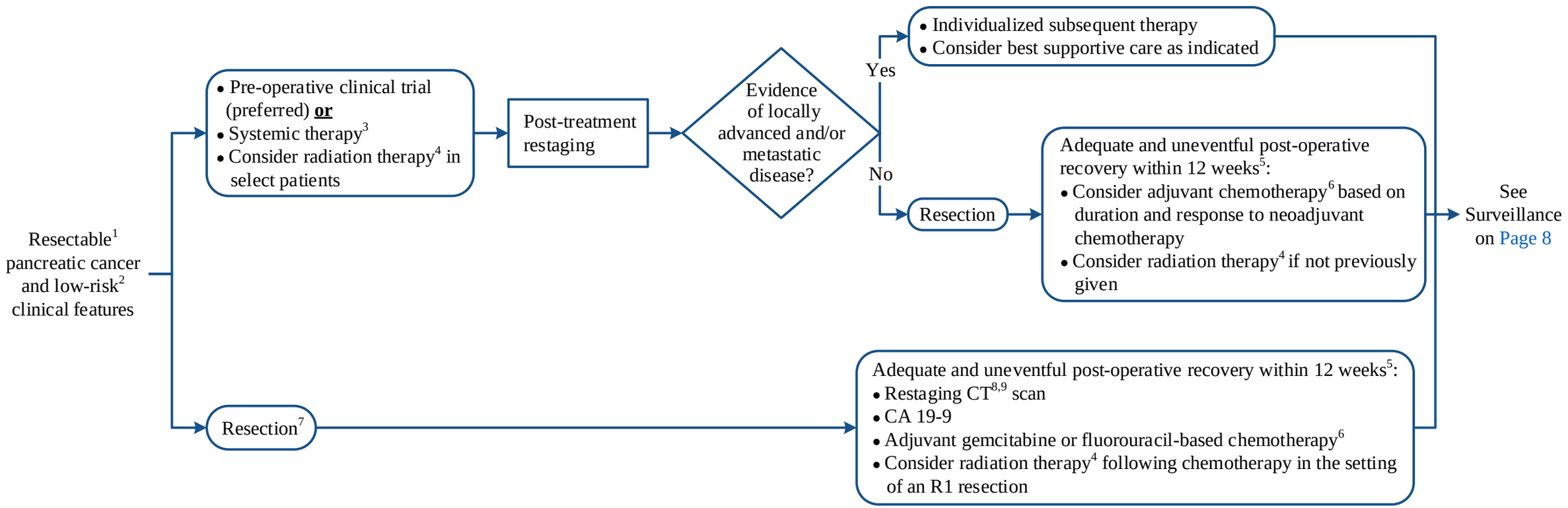
[1] Pancreatic CT scan protocol: multiphasic cross sectional imaging and thin slices; consider MRI, PET and/or EUS if CT results are equivocal
[2] For patients who cannot undergo contrast enhanced CT (allergy, renal issues, etc.) consider MRI as an alternative
[3] Consider referral for genetic counseling for patients with a family history of cancer. Universal gerrmline testing recommended for eligible patients.
[4] See Physical Activity, Nutrition, and Tobacco Cessation algorithms; ongoing reassessment of lifestyle risks should be a part of routine clinical practice

Department of Clinical Effectiveness V7
Approved by the Executive Committee of the Medical Staff on 10/19/2021

Pancreatic Adenocarcinoma

Note: Consider Clinical Trials as treatment options for eligible patients

PRESENTATION **TREATMENT** **POST-OPERATIVE**



[1] Resectable is defined as:
- Patent superior mesenteric vein-portal vein (SMV-PV) confluence
- No interface between tumor and superior mesenteric artery (SMA) or celiac
- No metastases

[2] Low-risk features:
- No suspicion of metastatic disease
- CA 19-9 ≤ 500 units/mL with normal bilirubin
- Manageable and optimized comorbidities

[3] Typically gemcitabine plus paclitaxel or FOLFIRINOX (see Appendix A – Chemotherapy Regimens)

[4] See Appendix B – Radiation Therapy

[5] If post-operative recovery is greater than 12 weeks, adjuvant therapy will be at the discretion of the treating provider

[6] Typically FOLFIRINOX or GemCape or single agent gemcitabine (see Appendix A – Chemotherapy Regimens)

[7] If patient exhibits all low-risk features and all other factors are favorable, primary resection can be considered

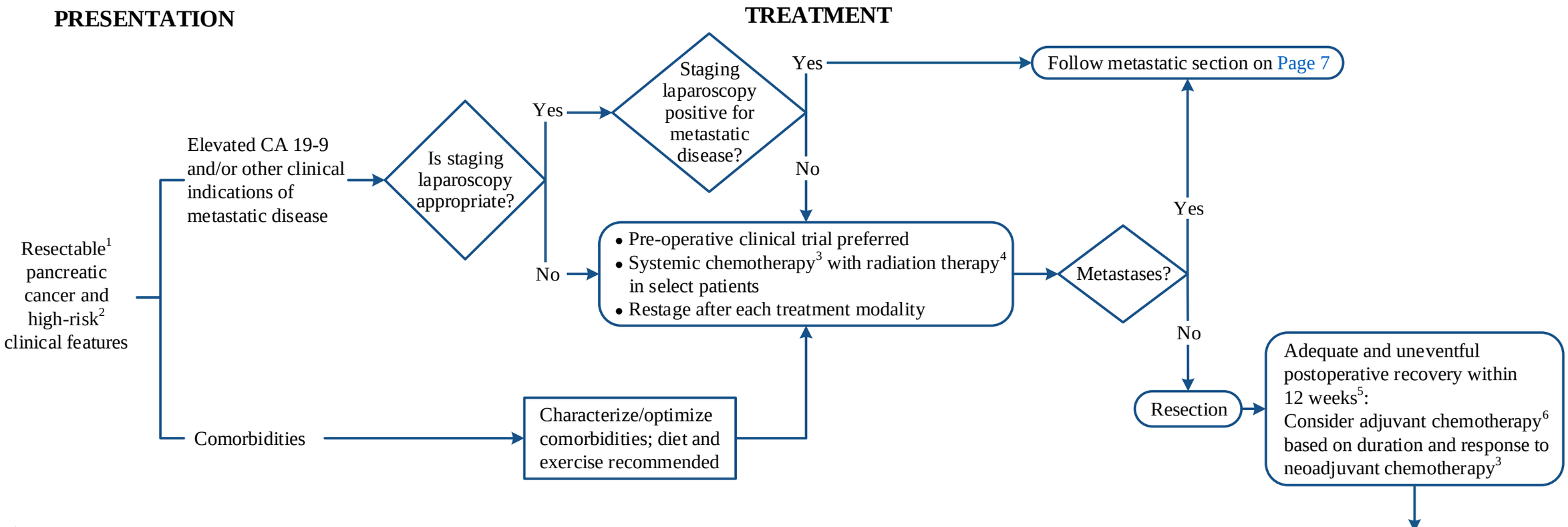
[8] For patients who cannot undergo contrast enhanced CT (allergy, renal issues, etc.) consider MRI as an alternative

[9] Pancreatic CT scan protocol: multiphasic cross sectional imaging and thin slices; consider MRI, PET and/or EUS if CT results are equivocal

Department of Clinical Effectiveness V7
Approved by the Executive Committee of the Medical Staff on 10/19/2021

Pancreatic Adenocarcinoma

Note: Consider Clinical Trials as treatment options for eligible patients



[1] Resectable is defined as:
- Patent superior mesenteric vein-portal vein (SMV-PV) confluence
- No interface between tumor and superior mesenteric artery (SMA) or celiac
- No metastases

[2] High-risk features:
- Suspicion of metastatic disease
- CA 19-9 > 500 units/mL with a normal bilirubin
- Reversible and optimizable comorbidities

[3] Typically gemcitabine plus paclitaxel or FOLFIRINOX (see Appendix A – Chemotherapy Regimens)

[4] See Appendix B – Radiation Therapy

[5] If post-operative recovery is greater than 12 weeks, adjuvant therapy will be at the discretion of the treating provider

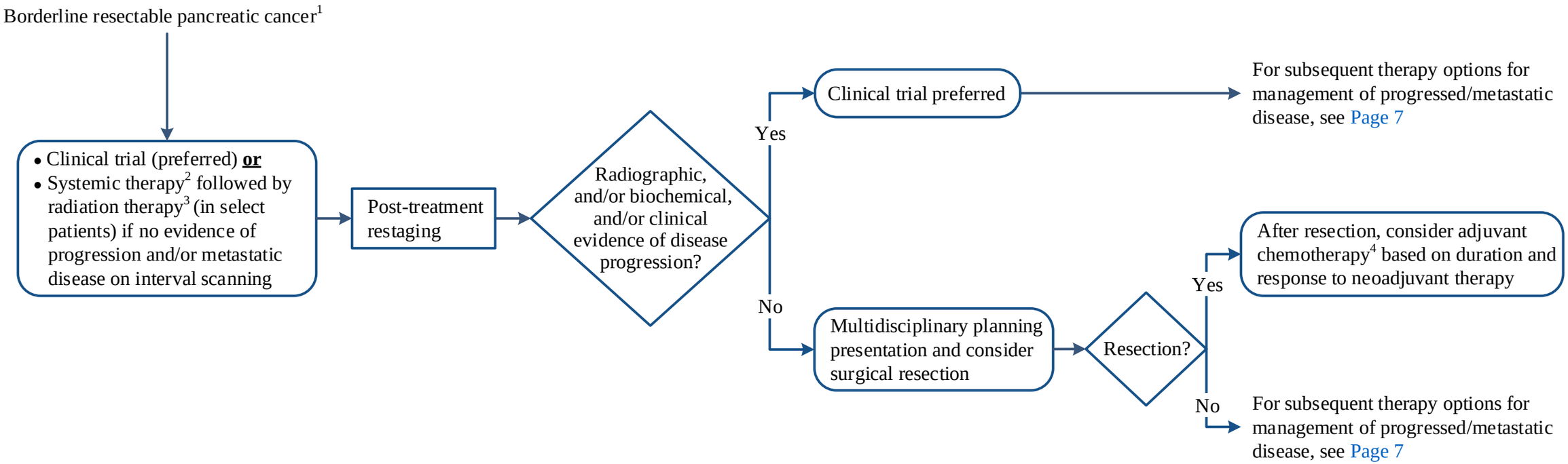
[6] Typically FOLFIRINOX or GemCape or single agent gemcitabine (see Appendix A – Chemotherapy Regimens)

Pancreatic Adenocarcinoma

Note: Consider Clinical Trials as treatment options for eligible patients

PRESENTATION

TREATMENT



[1] MD Anderson Cancer Center's definition for **borderline resectable pancreatic cancer with or without high risk features:**
Based on anatomic considerations; a tumor abutment of less than or equal to 180° of circumference of superior mesenteric artery (SMA); short-segment encasement abutment of the common hepatic artery **or** gastroduodenal artery; short-segment occlusion of superior mesenteric vein (SMV) **or** superior mesenteric vein-portal vein (SMV-PV) and patent vessel above and below.
High-risk features:
- Suspicion of metastatic disease
- CA 19-9 greater than 500 units/mL with a normal bilirubin
- Reversible and optimizable comorbidities

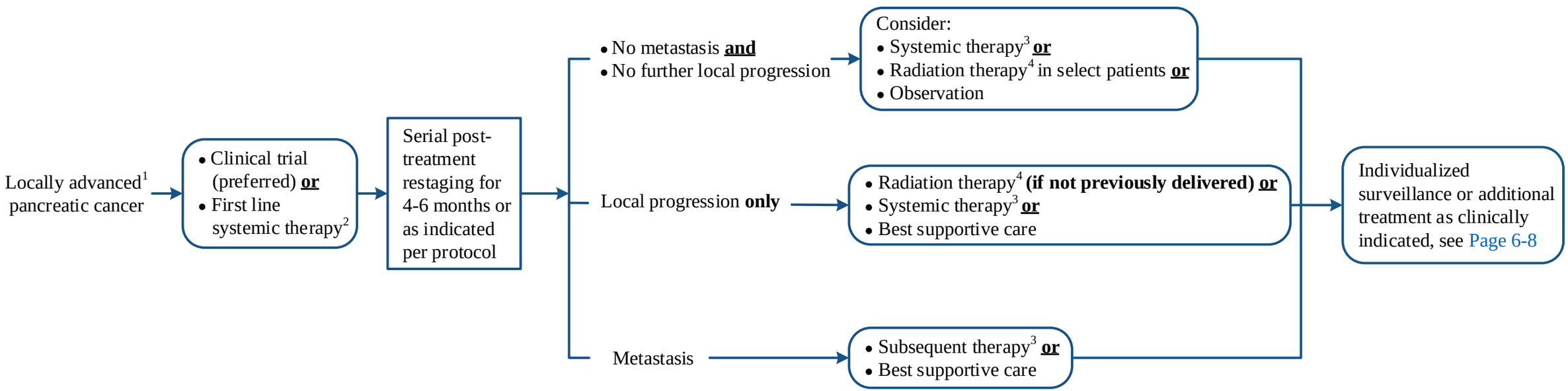
[2] Typically gemcitabine plus paclitaxel or FOLFIRINOX (see Appendix A – Chemotherapy Regimens)
[3] See Appendix B – Radiation Therapy
[4] Typically FOLFIRINOX or GemCape or single agent gemcitabine (see Appendix A – Chemotherapy Regimens)

Pancreatic Adenocarcinoma

Note: Consider Clinical Trials as treatment options for eligible patients

PRESENTATION

TREATMENT



[1] Locally advanced defined as:
- Interface between tumor and SMA or celiac greater than 180°
- Interface with aorta
- Unresectable venous occlusion

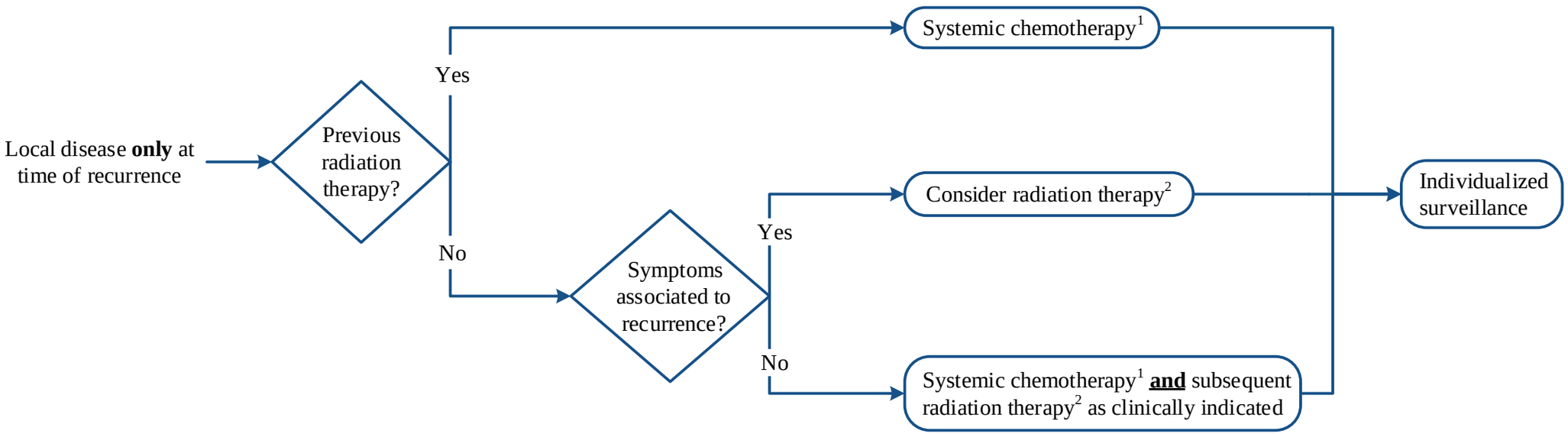
[2] Typically gemcitabine plus paclitaxel or FOLFIRINOX (see Appendix A – Chemotherapy Regimens)
[3] See Appendix A – Chemotherapy Regimens
[4] See Appendix B – Radiation Therapy

Pancreatic Adenocarcinoma

Note: Consider Clinical Trials as treatment options for eligible patients

RECURRENCE

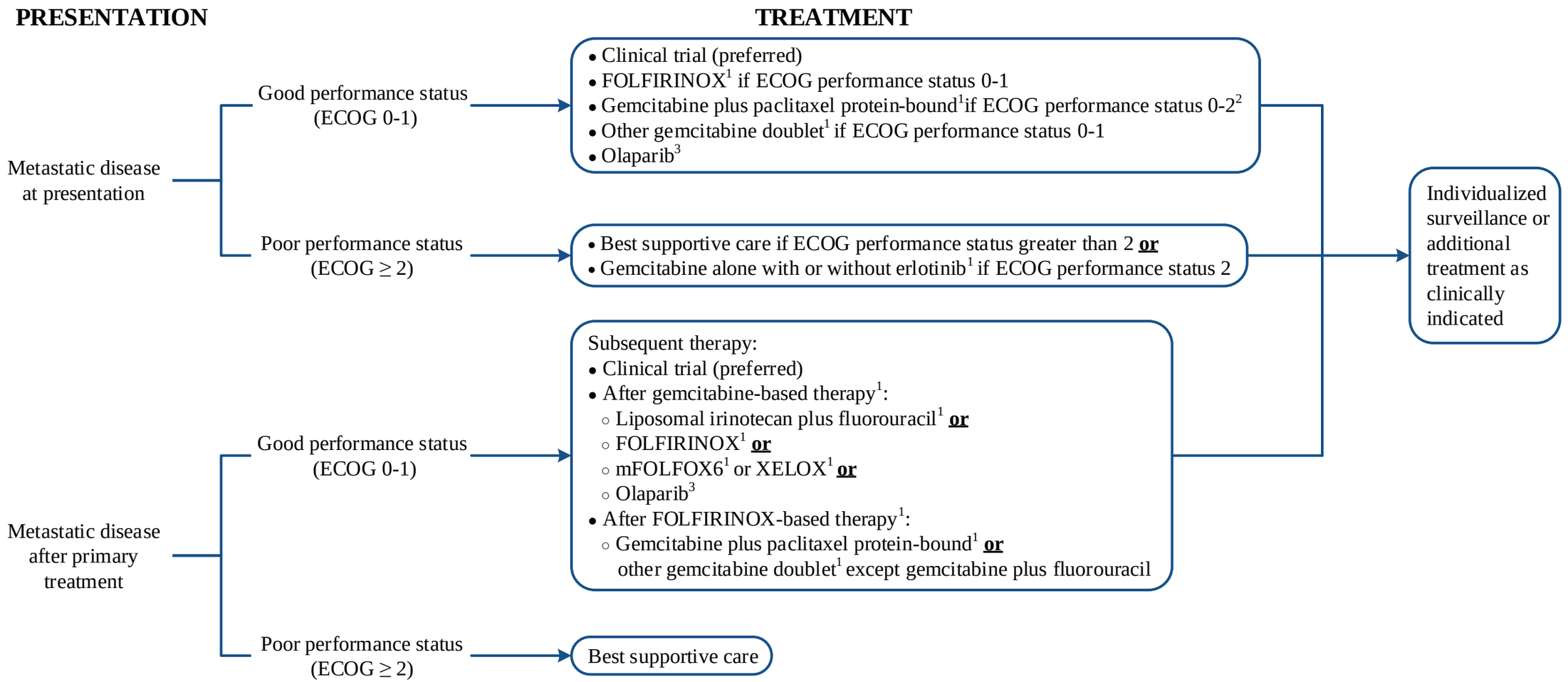
TREATMENT



[1] See Appendix A – Chemotherapy Regimens
[2] See Appendix B – Radiation Therapy

Pancreatic Adenocarcinoma

Note: Consider Clinical Trials as treatment options for eligible patients



ECOG = Eastern Cooperative Oncology Group

[1] See Appendix A – Chemotherapy Regimens

[2] For patient with ECOG performance status 2, modify dose as appropriate (refer to dosing for average performance status in Appendix A)

[3] Olaparib may be used as maintenance treatment in the setting of platinum sensitive tumors with BRCA family mutations and no disease progression during at least 16 weeks of first-line, platinum-based chemotherapy

SURVEILLANCE
(For patients who had surgery as primary treatment)

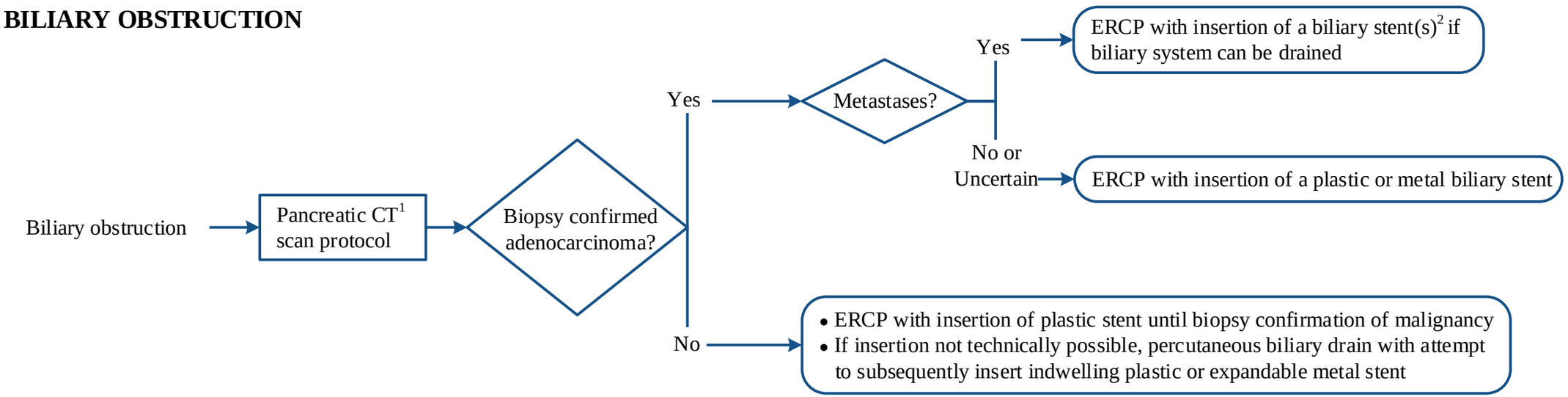
Physical Examination	Every 6 months for a total of 5 years, then annually for a total of 5 years
First 3 years: Perform every 6 months	• Surveillance (portal venous phase) CT[1,2] abdomen • Chest x-ray • CA 19-9
Years 4-5: Perform every 6 months	• Surveillance (portal venous phase) CT[1,2] abdomen • CT chest • CA 19-9
Years 6-10: Perform annually	• Surveillance (portal venous phase) CT[1,2] abdomen • CA 19-9

[1] Consider dedicated pancreatic CT protocol, MRI, PET and/or EUS if surveillance CT results are equivocal, *e.g.*, suspicion of recurrence within pancreatic remnant, extrapancreatic local recurrence, question of liver metastases, etc.
[2] For patients who cannot undergo contrast enhanced CT (allergy, renal issues, etc.) consider MRI as an alternative

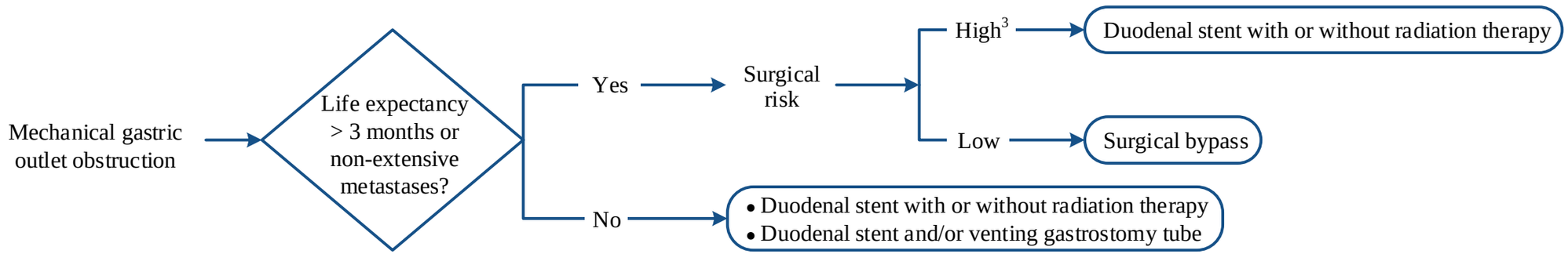
Pancreatic Adenocarcinoma

Note: Consider Clinical Trials as treatment options for eligible patients

BILIARY OBSTRUCTION



MECHANICAL GASTRIC OUTLET OBSTRUCTION



ERCP = endoscopic retrograde cholangiopancreatography

[1] For patients who cannot undergo contrast enhanced CT (allergy, renal issues, etc.) consider MRI as an alternative

[2] Biliary stent(s) may be metal or plastic

[3] Presence of comorbidities and malnutrition

Pancreatic Adenocarcinoma

APPENDIX A: Chemotherapy Regimens

Gemcitabine-based regimens[1,2,3]:

Gemcitabine[4]
- Gemcitabine 600-750 mg/m^2 IV on Days 1, 8, 15 (fixed dose infusion rate of 10 mg/m^2/minute preferred)
- **With or without** erlotinib 100 mg PO daily
- Repeat every 28 days

GemCis - gemcitabine and cisplatin[5]
- Gemcitabine 600-750 mg/m^2 IV on Day 1 (fixed dose infusion rate of 10 mg/m^2/min preferred)
- Cisplatin 30 mg/m^2 IV over 60 minutes on Day 1
- Repeat every 14 days

GemCape - gemcitabine and capecitabine[4]
- Gemcitabine 600-750 mg/m^2 IV on Days 1 and 8 (fixed dose infusion rate of 10 mg/m^2/minute preferred)
- Capecitabine 1,500-1,800 mg/m^2/day PO divided twice daily on Days 1-14
- Repeat every 21 days

GemCape - gemcitabine and capecitabine[4]
(dosing from ESPAC 4 in the adjuvant setting)
- Gemcitabine 1,000 mg/m^2 IV over 30 minutes weekly on Days 1, 8, and 15[6]
- Capecitabine 1,660 mg/m^2/day PO in divided doses on Days 1-21
- Repeat every 28 days

Gemcitabine plus paclitaxel protein bound (Abraxane®)[7]
Good performance status:
- Paclitaxel protein-bound 100-125 mg/m^2 IV on Days 1, 8, 15
- Gemcitabine 600-750 mg/m^2 IV on Days 1, 8, 15 (fixed dose infusion rate of 10 mg/m^2/min preferred)
- Repeat every 28 days

Average performance status:
- Paclitaxel protein-bound 125-175 mg/m^2 IV on Day 1
- Gemcitabine 600-750 mg/m^2 IV on Day 1 (fixed dose infusion rate of 10 mg/m^2/min preferred)
- Repeat every 14 days

GTX
- Gemcitabine 300-400 mg/m^2 IV on Days 4 and 11 (fixed dose infusion rate of 10 mg/m^2/minute preferred)
- Docetaxel 30-40 mg/m^2 IV on Days 4 and 11
- Capecitabine 1,000 mg/m^2/day PO divided twice daily on Days 1-14
- Repeat every 21 days

GemOx - gemcitabine and oxaliplatin
- Gemcitabine 600-750 mg/m^2 IV on Day 1 (fixed dose infusion rate of 10 mg/m^2/minute preferred)
- Oxaliplatin 85 mg/m^2 IV over 2 hours on Day 1
- Repeat every 14 days

Fluoropyrimidine-based regimens[1,2]:

mFOLFOX 6
- Oxaliplatin 85 mg/m^2 IV over 2 hours on Day 1
- Leucovorin 400 mg/m^2 IV over 2 hours on Day 1[8]
- Fluorouracil 400 mg/m^2 IV bolus on Day 1[8], then fluorouracil 2,400 mg/m^2 IV continuous infusion over 46 hours
- Repeat every 14 days

XELOX or CapeOx
- Capecitabine 1,500-1,800 mg/m^2 PO divided twice daily on Days 1-14, then
- Oxaliplatin 85-100 mg/m^2 IV over 2 hours on Day 1
- Repeat every 21 days

FOLFIRINOX[4,7]
- Oxaliplatin 75-85 mg/m^2 IV over 2 hours on Day 1
- Irinotecan 125-180 mg/m^2 IV over 90 minutes on Day 1
- Leucovorin 400 mg/m^2 IV over 2 hours on Day 1[7]
  Fluorouracil 400 mg/m^2 IV bolus on Day 1[7], then fluorouracil 2,400 mg/m^2 IV continuous infusion over 46 hours
- Repeat every 14 days

Liposomal irinotecan (Onivyde®) plus 5-fluorouracil[9]
- Liposomal irinotecan 70 mg/m^2 IV over 90 minutes on Day 1[10]
- Leucovorin 400 mg/m^2 IV over 2 hours on Day 1[7]
- Fluorouracil 400 mg/m^2 IV bolus on Day 1[7], then
- Fluorouracil 2,400 mg/m^2 IV continuous infusion over 46 hours
- Repeat every 14 days

[1] For gemcitabine-based and fluorouracil-based regimen, combination chemotherapy is preferred over monotherapy in the preoperative setting
[2] Dosing should be started at the lower level and modified as patient tolerates
[3] If fixed dose infusion rate not utilized, administer gemcitabine 1,000 mg/m^2 over 30 minutes
[4] Typical post-operative adjuvant regimens: FOLFIRINOX or GemCape or single-agent gemcitabine (depending on response and recovery)
[5] The preferred doublet for tumors with germline BRCA mutations
[6] Many MD Anderson GI Oncologists omit Day 15
[7] Typical pre-operative neoadjuvant regimens: gemcitabine plus paclitaxel or FOLFIRINOX
[8] Many MD Anderson GI Oncologists omit the bolus of fluorouracil/leucovorin
[9] FDA approved for the treatment of metastatic adenocarcinoma of the pancreas in combination with fluorouracil and leucovorin
[10] For patients with known homozygous *UGT1A1*28* allele reduce the initial starting dose to 50 mg/m^2

APPENDIX B: Radiation Therapy

Chemoradiation Regimens
Long course chemoradiation • Total dose 50 Gy in 25 fractions **or** 50.4 Gy in 28 fractions • Concurrent capecitabine[1] 1,650 mg/m^2 PO in two divided doses on each day of radiation **or** • Concurrent gemcitabine 300-400 mg/m^2 IV given at fixed dose infusion once weekly[2]
Short course chemoradiation • Total dose 30 Gy in 10 fractions • Concurrent capecitabine[1] 1,650 mg/m^2 PO in two divided doses on each day of radiation **or** • Concurrent gemcitabine 300-400 mg/m^2 IV given at fixed rate dose infusion once weekly[2]
Hypofractionated chemoradiation • Total dose 60-67.5 Gy in 15 fractions • Concurrent capecitabine[1] 1,650 mg/m^2 PO in two divided doses on each day of radiation • Requires image guidance
Stereotactic Body Radiation Therapy
• Total dose 33-40 Gy in 5 fractions • Usually requires fiducials • Requires daily image guidance

[1] Infusional fluorouracil may be used instead
[2] If fixed dose infusion rate of 10 mg/m^2/minute not utilized, administer gemcitabine over 30 minutes

SUGGESTED READINGS

Balaban, E. P., Mangu, P. B., Khorana, A. A., Shah, M. A., Mukherjee, S., Crane, C.. H., … Yee, N. (2016). Locally advanced, unresectable pancreatic cancer: American Society of Clinical Oncology Clinical Practice Guideline. *Journal of Clinical Oncology, 34*(22), 2654-2668. doi:10.1200/JCO.2016.67.5561

Chaya, C., Nealon, W. H., & Bhutani, M. S. (2006). EUS or percutaneous CT/US-guided FNA for suspected pancreatic cancer: When tissue is the issue. *Gastrointestinal Endoscopy, 63*(7), 976-978. doi:10.1016/j.gie.2005.12.012

Conroy, T., Desseigne, F., Ychou, M., Ducreux, M., Bouche, O., Guimbaud, R., … FNCLCC-FFCD PRODIGE Group. (2010). Randomized phase III trial comparing FOLFIRINOX (F: 5FU/ leucovorin [LV], irinotecan [I], and oxaliplatin [O]) versus gemcitabine (G) as first-line treatment for metastatic pancreatic adenocarcinoma (MPA): Preplanned interim analysis results of the PRODIGE 4/ACCORD 11 trial. *Journal of Clinical Oncology, 28*(15_suppl), 4010. doi:10.1200/JCO.2010.28.15_suppl.4010

Evans, D. B., Varadhachary, G. R., Crane, C. H., Sun, C. C., Lee, J. E., Pisters, P. W., … Wolff, R. A. (2008). Preoperative gemcitabine-based chemoradiation for patients with resectable adenocarcinoma of the pancreatic head. *Journal of Clinical Oncology, 26*(21), 3496-3502. doi:10.1200/JCO.2007.15.8634

Fornari, F., Civardi, G., Cavanna, L., Di Stasi, M., Rossi, S., Sbolli, G., & Buscarini, L. (1989). Complications of ultrasonically guided fine-needle abdominal biopsy: Results of a multicenter Italian study and review of the literature. *Scandinavian Journal of Gastroenterology*, *24*(8), 949-955. doi:10.3109/00365528909089239

Heinemann, V., Boeck, S., Hinke, A., Labianca, R., & Louvet, C. (2008). Meta-analysis of randomized trials: Evaluation of benefit from gemcitabine-based combination chemotherapy applied in advanced pancreatic cancer. *BMC Cancer, 8*, 82. doi:10.1186/1471-2407-8-82

Karachristos, A., Scarmeas, N., & Hoffman, J. P. (2005). CA 19-9 levels predict results of staging laparoscopy in pancreatic cancer. *Journal of Gastrointestinal Surgery, 9*(9), 1286-1292. doi:10.1016/j.gassur.2005.06.008

Katz, M. H., Pisters, P. W., Evans, D. B., Sun, C. C., Lee, J. E., Fleming, J. B., … Hwang, R. F. (2008). Borderline resectable pancreatic cancer: The importance of this emerging stage of disease. *Journal of the American College of Surgeons, 206*(5), 833-846. doi:10.1016/j.jamcollsurg.2007.12.020

Khorana, A. A., Mangu, P. B., Berlin, J., Engebretson, A., Hong, T. S., Maitra, A., … Katz, M. H. G., (2016). Potentially curable pancreatic cancer: American Society of Clinical Oncology Clinical Practice Guideline. *Journal of Clinical Oncology*, *34*(21), 2541-2556. doi:10.1200/JCO.2016.67.5553

Khorana, A. A., Mangu, P. B., Berlin, J., Engebretson, A., Hong, T. S., Maitra, A., … Katz, M. H. G., (2017). Potentially curable pancreatic cancer: American Society of Clinical Oncology Clinical Practice Guideline update. *Journal of Clinical Oncology*, *35*(20), 2324-2328. doi:10.1200/JCO.2017.72.4948

Khorana, A. A., McKernin, S. E., Berlin, J., Hong, T. S., Maitra, A., Moravek, C. … Katz, M. H. G., (2019). Potentially curable pancreatic cancer: ASCO Clinical Practice Guideline update. *Journal of Clinical Oncology*, *37*(23), 2082-2088. doi:10.1200/JCO.19.00946

Kindler, H. L.. Hammel, P., Reni, M., Cutsem, E. V., Mercade, T. M., Hall, M. J., … Golan, T. (2019). Olaparib as maintencance treatment following first-line platinum-based chemotherapy (PBC) in patients (pts) with a germline BRCA mutation and metastatic pancreatic cancer (mPC0: Phase III POLO trial. Paper presented at the 2019 ASCO Annual Meeting, Chicago, IL. Retrieved from https://abstracts.asco.org/239/AbstView_239_249933.html

Ko, A. H., Quivey, J. M., Venook, A. P., Bergsland, E. K., Dito, E., Schillinger, B., & Tempero, M. A. (2007). A phase II study of fixed-dose rate gemcitabine plus low-dose cisplatin followed by consolidative chemoradiation for locally advanced pancreatic cancer. *International Journal of Radiation Oncology, Biology, Physics, 68*(3), 809-816. doi:10.1016/j.ijrobp.2007.01.005

Continued on next page

SUGGESTED READINGS - continued

Krishnan, S., Rana, V., Janjan, N. A., Varadhachary, G. R., Abbruzzese, J. L., Das, P., … Crane, C. H. (2007). Induction chemotherapy selects patients with locally advanced, unresectable pancreatic cancer for optimal benefit from consolidative chemoradiation therapy. *Cancer*, *110*(1), 47-55. doi:10.1002/cncr.22735

Moore, M. J., Goldstein, D., Hamm, J., Figer, A., Hecht, J. R., Gallinger, S., … Parulekar, W. (2007). Erlotinib plus gemcitabine compared with gemcitabine alone in patients with advanced pancreatic cancer: A phase III trial of the National Cancer Institute of Canada Clinical Trials Group. *Journal of Clinical Oncology*, *25*(15), 1960-1966. doi:10.1200/JCO.2006.07.9525

National Comprehensive Cancer Network. (2021). *Pancreatic Adenocarcinoma* (NCCN Guideline Version 2.2021). Retrieved from https://www.nccn.org/professionals/physician_gls/pdf/pancreatic.pdf

Neoptolemos, J., Palmer, D., Ghaneh, P., Psarelli, E., Valle, J. W., Halloran, C. M., … Buchler, M. W. (2017). Comparison of adjuvant gemcitabine and capecitabine with gemcitabine monotherapy in patients with resected pancreatic cancer (ESPAC-4): A multicentre, open-label, randomised, phase 3 trial. *The Lancet*, *389*(10073), 1011-1024. doi:10.1016/S0140-6736(16)32409-6

Neuhaus, P., Riess, H., Post, S., Gellert, K., Ridwelski, K., Schramm, H., … Oettle, H. (2008). CONKO-001: Final results of the randomized, prospective, multi-center phase III trial of adjuvant chemotherapy with gemcitabine versus observation in patients with resected pancreatic cancer (PC). *Journal of Clinical Oncology, 26*(15), LBA4504. doi:101200JCO.. 2008. 26.15_ suppl .lba4504

Pelzer, U., Kubica, K., Stieler, J., Schwaner, I., Heil, G., Gorner, M., … Oettle, H. (2008). A randomized trial in patients with gemcitabine refractory pancreatic cancer. Final results of the CONKO 003 study. *Journal of Clinical Oncology*, *26*(15_suppl), 4508. doi:10.1200/JCO.2008.26.15_suppl.4508

Raut, C. P., Grau, A. M., Staerkel, G. A., Kaw, M., Tamm, E. P., Wolff, R. A., … Evans, D. B. (2003). Diagnostic accuracy of endoscopic ultrasound-guided fine-needle aspiration in patients with presumed pancreatic cancer. *Journal of Gastrointestinal Surgery, 7*(1), 118-128. doi:10.1016/S1091-255X(02)00150-6

Regine, W. F., Winter, K. A., Abrams, R. A., Safran, H., Hoffman, J. P., Konski, A., … Rich, T. A. (2008). Fluorouracil vs gemcitabine chemotherapy before and after fluorouracil-based chemoradiation following resection of pancreatic adenocarcinoma: A randomized controlled trial. *JAMA*, *299*(9), 1019-1026. doi:10.1001/jama.299.9.1019

Sohal, D. P. S., Kennedy, E. B., Cinar, P., Conroy, T., Copur, M. S., Crane, C. H., … Laheru, D. (2020). Metastatic pancreatic cancer: ASCO Guideline update. *Journal of Clinical Oncology*, *38*(27), 3217-3230. doi:10.1200/JCO.20.01364

Sohal, D. P. S., Kennedy, E. B., Khorana, A., Copur, M. S., Crane, C. H., Garrido-Laguna, I., … Laheru, D. (2018). Metastatic pancreatic cancer: ASCO Clinical Practice Guideline update. *Journal of Clinical Oncology*, *36*(24), 2545-2556. doi:10.1200/JCO.2018.78.9636

Sohal, D. P. S., Mangu, P. B., Khorana, A. A., Shah, M. A., Philip, P. A., O'Reilly, E. M., … Laheru, D. (2016). Metastatic pancreatic cancer: American Society of Clinical Oncology Clinical Practice Guideline. *Journal of Clinical Oncology*, *34*(23), 2784-2796. doi:10.1200/JCO.2016.67.1412

Varadhachary, G. R., Wolff, R. A., Crane, C. H., Sun, C. C., Lee, J. E., Pisters, P. W., … Evans, D. B. (2008). Preoperative gemcitabine and cisplatin followed by gemcitabine-based chemoradiation for resectable adenocarcinoma of the pancreatic head. *Journal of Clinical Oncology*, *26*(21), 3487-3495. doi:10.1200/JCO.2007.15.8642

Varadhachary, G. R., Tamm, E. P., Abbruzzese, J. L., Xiong, H. Q., Crane, C. H., Wang, H., … Wolff, R. A. (2006). Borderline resectable pancreatic cancer: Definitions, management, and role of preoperative therapy. *Annals of Surgical Oncology*, *13*(8), 1035-1046. doi:10.1245/ASO.2006.08.011

Continued on next page

SUGGESTED READINGS - continued

Versteijne, E., Suker, M., Groothuis, K., Akkermans-Vogelaar, J. M., Besselink, M. G., Bonsing, B. A., … Van Tienhoven, G. (2020). Preoperative chemoradiotherapy versus immediate surgery for resectable and borderline resectable pancreatic cancer: Results of the Dutch randomized phase III PREOPANC trial. *Journal of Clinical Oncology, 38*(16), 1763-1773. doi:10.1200/JCO.19.02274

Von Hoff, D. D., Ervin, T., Arena, F. P., Chiorean, E. G., Infante, J., Moore, M., … Renschler, M. F. (2013). Increased survival in pancreatic cancer with nab-paclitaxel plus gemcitabine. *New England Journal of Medicine, 369*(18), 1691-1703. doi:10.1056/NEJMoa1304369

Wang-Gillam, A., Li, C., Bodoky, G., Dean, A., Shan, Y., Jameson, G., … Chen, L.T. (2016). Nanoliposomal irinotecan with fluorouracil and folinic acid in metastatic pancreatic cancer after previous gemcitabine-based therapy (NAPOLI-1): A global, randomised, open-label, phase 3 trial. *The Lancet, 387*(10018), 545-557. doi:10.1016/S0140-6736(15)00986-1

Wolff, R. A., Varadhachary, G. R., & Evans, D. B. (2008). Adjuvant therapy for adenocarcinoma of the pancreas: Analysis of reported trials and recommendations for future progress. *Annals of Surgical Oncology, 15*(10), 2773-2786. doi:10.1245/s10434-008-0002-3

Xiong, H. Q., Varadhachary, G. R., Blais, J. C., Hess, K. R., Abbruzzese, J. L., & Wolff, R. A. (2008). Phase 2 trial of oxaliplatin plus capecitabine (XELOX) as second-line therapy for patients with advanced pancreatic cancer. *Cancer, 113*(8), 2046-2052. doi:10.1002/cncr.23810

DEVELOPMENT CREDITS

This practice algorithm is based on majority expert opinion of the Gastrointestinal Center Faculty at the University of Texas MD Anderson Cancer Center. It was developed using a multidisciplinary approach that included input from the following:

Prajnan Das, MD (GI Radiation Oncology)[Ŧ]
Olga N. Fleckenstein, BS[♦]
Emma Holliday, MD (GI Radiation Oncology)
Milind Javle, MD, MBBS (GI Medical Oncology)
Ahmed Kaseb, MD, MBBS (GI Medical Oncology)
Matthew Katz, MD (Surgical Oncology)[Ŧ]
Thoa Kazantsev, MSN, RN, OCN[♦]
Michael Kim, MD (Surgical Oncology)
Eugene Koay, MD, PhD (GI Radiation Oncology)[Ŧ]
Albert Koong, MD, PhD (Radiation Oncology – Clinical)
Jeffrey E. Lee, MD (Surgical Oncology)[Ŧ]
Jeffrey H. Lee, MD, MBA (Gastroenterology Hepatology & Nutrition)[Ŧ]
Ethan Ludmir, MD (GI Radiation Oncology)
Bruce Minsky, MD (GI Radiation Oncology)
Van Nguyen, PharmD, BCOP (Pharmacy Clinical Programs)
Michael James Overman, MD (GI Medical Oncology)
William Ross, MD (Gastroenterology Hepat & Nutr)
Brandon G. Smaglo, MD (GI Medical Oncology)
Grace Smith, MD, PhD (GI Radiation Oncology)
Eric P. Tamm, MD (Diagnostic Radiology - Body Imaging)
Cullen Taniguchi, MD, PhD (GI Radiation Oncology)
Robert A. Wolff, MD (GI Medical Oncology)[Ŧ]

[Ŧ] Core Development Team
[♦] Clinical Effectiveness Development Team