Pancreatic Adenocarcinoma

CLINICAL PRESENTATION

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

- Pancreatic CT scan protocol
- Obtain family history
- Lifestyle risk assessment

DIAGNOSTIC WORK-UP AND TISSUE ACQUISITION

Mass in pancreas on imaging?

- CT scan or ultrasound-guided biopsy of metastatic disease if accessible
- Metastases?
  - Yes
  - Multidisciplinary planning presentation
  - EUS with FNA
  - Liver function tests, CA 19-9
  - CT chest (preferred) or chest x-ray
  - No
  - Multidisciplinary planning presentation
  - EUS with FNA if mass visualized in pancreas
  - ERCP with brushings as clinically indicated

Biopsy or brushings positive?

- Yes
- Surgical consult

Note: Consider Clinical Trials as treatment options for eligible patients

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson’s specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient’s care. This algorithm should not be used to treat pregnant women.

Note: For treatment based on tissue confirmation and clinical staging, see Pages 2-5
Pancreatic Adenocarcinoma

**PRESENTATION**

- Pre-operative clinical trial (preferred) or Systemic therapy in select patients

**TREATMENT**

- Post-treatment restaging

- Evidence of locally advanced and/or metastatic disease?
  - Yes
    - Individualized second line systemic therapy
    - Consider best supportive care as indicated
  - No
    - Resection
      - Adequate and uneventful post-operative recovery within 12 weeks:
        - Consider adjuvant chemotherapy based on duration and response to neoadjuvant chemotherapy
        - Consider chemoradiation if not previously given
    - See surveillance on Page 8

- Resectable pancreatic cancer and low-risk clinical features

**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
   - Low-risk features:
     - No suspicion of metastatic disease
     - CA 19-9 less than or equal to 500 units/mL with normal bilirubin
     - Manageable and optimized comorbidities

2. Low-risk features:
   - No suspicion of metastatic disease
   - CA 19-9 less than or equal to 500 units/mL with normal bilirubin

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

4. See Appendix B – Chemoradiation and Stereotactic Body Radiation Therapy Regimens

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

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

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

---

**Evidence of locally advanced and/or metastatic disease?**

- Yes
  - Individualized second line systemic therapy
  - Consider best supportive care as indicated
- No
  - Resection
    - Adequate and uneventful post-operative recovery within 12 weeks:
      - Consider adjuvant chemotherapy based on duration and response to neoadjuvant chemotherapy
      - Consider chemoradiation if not previously given
    - See surveillance on Page 8

---

**Disclaimer:** This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson’s specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient’s care. This algorithm should not be used to treat pregnant women.
Pancreatic Adenocarcinoma

Note: Consider Clinical Trials as treatment options for eligible patients.

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson’s specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.

PRESENTATION

Resectable pancreatic cancer and high-risk clinical features

Elevated CA 19-9 and/or other clinical indications of metastatic disease

Is staging laparoscopy appropriate?

Staging laparoscopy positive for metastatic disease?

Yes

Follow metastatic section of this algorithm on Page 7

No

Metastases?

Yes

Pre-operative clinical trial preferred
Systemic chemotherapy\(^3\) with chemoradiation\(^4\) or SBRT\(^4\) in select patients
Restage after each treatment modality

No

Resection

Yes

Characterize/optimize comorbidities; diet and exercise recommended

No

SBRT = stereotactic body radiation therapy

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 greater than 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 – Chemoradiation and Stereotactic Body Radiation Therapy Regimens

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)

See surveillance on Page 8

Department of Clinical Effectiveness V6
Approved by the Executive Committee of the Medical Staff on 09/17/2019
Pancreatic Adenocarcinoma

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson’s specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient’s care. This algorithm should not be used to treat pregnant women.

Note: Consider Clinical Trials as treatment options for eligible patients

PRESENTATION

Borderline resectable pancreatic cancer

- Clinical trial (preferred)
- Systemic therapy followed by chemoradiation or SBRT (in select patients) if no evidence of progression and/or metastatic disease on interval scanning

Post-treatment restaging

Radiographic, and/or biochemical, and/or clinical evidence of disease progression?

Yes

Clinical trial preferred

No

Multidisciplinary planning presentation and consider surgical resection

RESOLUTION

Resection?

Yes

For management of progressed/metastatic disease for second line options, see Page 7

No

After resection, consider adjuvant chemotherapy based on duration and response to neoadjuvant therapy

For management of progressed/metastatic disease for second line options, see Page 7

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 – Chemoradiation and Stereotactic Body Radiation Therapy Regimens

4 Typically FOLFIRINOX or GemCape or single agent gemcitabine (see Appendix A – Chemotherapy Regimens)

Copyright 2019 The University of Texas MD Anderson Cancer Center

Department of Clinical Effectiveness V6
Approved by the Executive Committee of the Medical Staff on 09/17/2019
Pancreatic Adenocarcinoma

Locally advanced pancreatic cancer

- Clinical trial (preferred)
- First line systemic therapy

Serial post-treatment restaging for 4-6 months or as indicated per protocol

- No metastasis and
- No further local progression

Local progression only

- Chemoradiation or SBRT (if not previously delivered) or
- Systemic therapy or
- Best supportive care

Metastasis

- Second line systemic therapy or
- Best supportive care

Consider:
- Systemic therapy or Chemoradiation or SBRT in select patients or Observation

Individualized surveillance or additional treatment as clinically indicated, see Page 6-8

Note: Consider Clinical Trials as treatment options for eligible patients

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson’s specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient’s care. This algorithm should not be used to treat pregnant women.

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 – Chemoradiation and Stereotactic Body Radiation Therapy Regimens

Copyright 2019 The University of Texas MD Anderson Cancer Center

Approved by the Executive Committee of the Medical Staff on 09/17/2019
Pancreatic Adenocarcinoma

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson's specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.

Note: Consider Clinical Trials as treatment options for eligible patients

**RECURRENCE**

- Local disease **only** at time of recurrence?
  - Yes
    - Previous radiation therapy?
      - Yes
      - Systemic chemotherapy
      - No
      - Symptoms associated to recurrence?
        - Yes
        - Consider chemoradiation or SBRT
        - No
        - Systemic chemotherapy and subsequent chemoradiation or SBRT as clinically indicated
  - No

**TREATMENT**

- Systemic chemotherapy

1. See Appendix A – Chemotherapy Regimens
2. See Appendix B – Chemoradiation and Stereotactic Body Radiation Therapy Regimens
Pancreatic Adenocarcinoma

**PRESENTATION**

**Metastatic disease at presentation**
- Good performance status (ECOG 0-1)
  - Clinical trial (preferred)
  - FOLFIRINOX\(^1\) if ECOG performance status 0-1
  - Gemcitabine plus paclitaxel protein-bound\(^2\) if ECOG performance status 0-2\(^2\)
  - Other gemcitabine doublet\(^1\) if ECOG performance status 0-1
  - Olaparib\(^3\)

- Poor performance status (ECOG \(\geq 2\))
  - Best supportive care if ECOG performance status greater than 2 or
  - Gemcitabine alone with or without erlotinib\(^1\) if ECOG performance status 2

**Metastatic disease after primary treatment**
- Good performance status (ECOG 0-1)
  - Clinical trial (preferred)
  - After gemcitabine-based therapy\(^1\):
    - Liposomal irinotecan plus fluorouracil\(^1\) or
    - FOLFIRINOX\(^1\) or
    - mFOLFOX\(^6\) or XELOX\(^1\) or
    - Olaparib\(^3\)
  - After FOLFIRINOX-based therapy\(^1\):
    - Gemcitabine plus paclitaxel protein-bound\(^1\) or
    - other gemcitabine doublet\(^1\) except gemcitabine plus fluorouracil

- Poor performance status (ECOG \(\geq 2\))
  - Best supportive care

**TREATMENT**

**INDIVIDUALIZED SURVEILLANCE OR ADDITIONAL TREATMENT AS CLINICALLY INDICATED**

---

**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 > 16 weeks of first-line, platinum-based chemotherapy

---

Copyright 2019 The University of Texas MD Anderson Cancer Center

Approved by the Executive Committee of the Medical Staff on 09/17/2019
SURVEILLANCE
(For patients who had surgery as primary treatment)

<table>
<thead>
<tr>
<th>Physical Examination</th>
<th>Every 6 months for a total of 5 years, then annually for a total of 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 3 years:</td>
<td>• Surveillance (portal venous phase) CT1-2 abdomen</td>
</tr>
<tr>
<td>Perform every 6 months</td>
<td>• Chest x-ray</td>
</tr>
<tr>
<td></td>
<td>• CA 19-9</td>
</tr>
<tr>
<td>Years 4-5:</td>
<td>• Surveillance (portal venous phase) CT1-2 abdomen</td>
</tr>
<tr>
<td>Perform every 6 months</td>
<td>• CT chest</td>
</tr>
<tr>
<td></td>
<td>• CA 19-9</td>
</tr>
<tr>
<td>Years 6-10:</td>
<td>• Surveillance (portal venous phase) CT1-2 abdomen</td>
</tr>
<tr>
<td>Perform annually</td>
<td>• CA 19-9</td>
</tr>
</tbody>
</table>

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

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson’s specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient’s care. This algorithm should not be used to treat pregnant women.
BILIARY OBSTRUCTION

- Metastases?
  - Yes
    - ERCP with insertion of a biliary stent(s) if biliary system can be drained
  - No or Uncertain
    - ERCP with insertion of a plastic or metal biliary stent

- Biopsy confirmed adenocarcinoma?
  - Yes
    - ERCP with insertion of a biliary stent(s) if biliary system can be drained
  - No
    - ERCP with insertion of plastic stent until biopsy confirmation of malignancy
    - If insertion not technically possible, percutaneous biliary drain with attempt to subsequently insert indwelling plastic or expandable metal stent

MECHANICAL GASTRIC OUTLET OBSTRUCTION

- Mechanical gastric outlet obstruction
  - Life expectancy > 3 months or non-extensive metastases?
    - Yes
      - Surgical risk
    - No
      - Surgical bypass

- Surgical risk
  - High
    - Duodenal stent with or without radiation therapy
  - Low
    - Duodenal stent with or without radiation therapy
    - Duodenal stent and/or venting gastrostomy tube

---

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

Note: Consider Clinical Trials as treatment options for eligible patients

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson’s specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient’s care. This algorithm should not be used to treat pregnant women.
APPENDIX A: Chemotherapy Regimens

### Gemcitabine-based regimens$^{1,2,3}$:

<table>
<thead>
<tr>
<th>Gemcitabine$^3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Gemcitabine 600-750 mg/m² IV on Days 1, 8, 15</td>
</tr>
<tr>
<td>(fixed dose infusion rate of 10 mg/m²/minute preferred)</td>
</tr>
<tr>
<td>• With or without erlotinib 100 mg PO daily</td>
</tr>
<tr>
<td>• Repeat every 28 days</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GemCis - gemcitabine and cisplatin</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Gemcitabine 600-750 mg/m² IV on Day 1 (fixed dose infusion rate of 10 mg/m²/minute preferred)</td>
</tr>
<tr>
<td>• Cisplatin 30 mg/m² IV over 60 minutes on Day 1</td>
</tr>
<tr>
<td>• Repeat every 14 days</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GemCape - gemcitabine and capecitabine$^4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Gemcitabine 600-750 mg/m² IV on Days 1 and 8 (fixed dose infusion rate of 10 mg/m²/minute preferred)</td>
</tr>
<tr>
<td>• Capecitabine 1,500-1,800 mg/m²/day PO divided twice daily on Days 1-14</td>
</tr>
<tr>
<td>• Repeat every 21 days</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GemCap - gemcitabine and capcitabine$^5$ (dosing from EPCAP 4 in the adjuvant setting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Gemcitabine 1,000 mg/m² IV on at most 30 minutes weekly on Days 1, 8, and 15 (fixed dose infusion rate of 10 mg/m²/minute preferred)</td>
</tr>
<tr>
<td>• Capcitabine 1,660 mg/m²/day PO in divided dosed on Days 1-21</td>
</tr>
<tr>
<td>• Repeat every 28 days</td>
</tr>
</tbody>
</table>

### Gemcitabine plus paclitaxel protein bound (Abraxane$^6$) $^{6}$

<table>
<thead>
<tr>
<th>Gemcitabine plus paclitaxel protein bound (Abraxane$^6$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Paclitaxel protein-bound 100-125 mg/m² IV on Days 1, 8, 15</td>
</tr>
<tr>
<td>• Gemcitabine 600-750 mg/m² IV on Days 1, 8, 15</td>
</tr>
<tr>
<td>(fixed dose infusion rate of 10 mg/m²/minute preferred)</td>
</tr>
<tr>
<td>• Repeat every 28 days</td>
</tr>
<tr>
<td>Average performance status:</td>
</tr>
<tr>
<td>• Paclitaxel protein-bound 125-175 mg/m² IV on Day 1</td>
</tr>
<tr>
<td>• Gemcitabine 600-750 mg/m² IV on Day 1</td>
</tr>
<tr>
<td>(fixed dose infusion rate of 10 mg/m²/minute preferred)</td>
</tr>
<tr>
<td>• Repeat every 14 days</td>
</tr>
</tbody>
</table>

### GTX

<table>
<thead>
<tr>
<th>GTX</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Gemcitabine 300-400 mg/m² IV on Days 4 and 11 (fixed dose infusion rate of 10 mg/m²/minute preferred)</td>
</tr>
<tr>
<td>• Docetaxel 30-40 mg/m² IV on Days 4 and 11</td>
</tr>
<tr>
<td>• Capecitabine 1,000 mg/m²/day PO divided twice daily on Days 1-14</td>
</tr>
<tr>
<td>• Repeat every 21 days</td>
</tr>
</tbody>
</table>

### GemOx - gemcitabine and oxaliplatin

<table>
<thead>
<tr>
<th>GemOx - gemcitabine and oxaliplatin</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Gemcitabine 600-750 mg/m² IV on Day 1 (fixed dose infusion rate of 10 mg/m²/minute preferred)</td>
</tr>
<tr>
<td>• Oxaliplatin 85 mg/m² IV over 2 hours on Day 1</td>
</tr>
<tr>
<td>• Repeat every 14 days</td>
</tr>
</tbody>
</table>

### Fluopyrimidine-based regimens$^{1,2}$:

#### mFOLFOX 6

<table>
<thead>
<tr>
<th>mFOLFOX 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Oxaliplatin 85 mg/m² IV over 2 hours on Day 1</td>
</tr>
<tr>
<td>• Leucovorin 400 mg/m² IV over 2 hours on Day 1 $^7$</td>
</tr>
<tr>
<td>• Fluorouracil 400 mg/m² IV bolus on Day 1 $^7$, then fluorouracil 2,400 mg/m² IV continuous infusion over 46 hours</td>
</tr>
<tr>
<td>• Repeat every 14 days</td>
</tr>
</tbody>
</table>

#### XELOX or CapeOx

<table>
<thead>
<tr>
<th>XELOX or CapeOx</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Capecitabine 1,500-1,800 mg/m² PO divided twice daily on Days 1-14, then</td>
</tr>
<tr>
<td>• Oxaliplatin 85-100 mg/m² IV over 2 hours on Day 1</td>
</tr>
<tr>
<td>• Repeat every 21 days</td>
</tr>
</tbody>
</table>

#### FOLFIRINOX$^{4,6}$

<table>
<thead>
<tr>
<th>FOLFIRINOX$^{4,6}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Oxaliplatin 75-85 mg/m² IV over 2 hours on Day 1</td>
</tr>
<tr>
<td>• Irinotecan 125-180 mg/m² IV over 90 minutes on Day 1</td>
</tr>
<tr>
<td>• Leucovorin 400 mg/m² IV over 2 hours on Day 1 $^7$</td>
</tr>
<tr>
<td>• Fluorouracil 400 mg/m² IV bolus on Day 1 $^7$, then fluorouracil 2,400 mg/m² IV continuous infusion over 46 hours</td>
</tr>
<tr>
<td>• Repeat every 14 days</td>
</tr>
</tbody>
</table>

#### Liposomal irinotecan (Onivyde$^5$) plus 5-fluorouracil$^8$

<table>
<thead>
<tr>
<th>Liposomal irinotecan (Onivyde$^5$) plus 5-fluorouracil$^8$</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Liposomal irinotecan 70 mg/m² IV over 90 minutes on Day 1</td>
</tr>
<tr>
<td>• Leucovorin 400 mg/m² IV over 2 hours on Day 1 $^7$</td>
</tr>
<tr>
<td>• Fluorouracil 400 mg/m² IV bolus on Day 1 $^7$, then fluorouracil 2,400 mg/m² IV continuous infusion over 46 hours</td>
</tr>
<tr>
<td>• Repeat every 14 days</td>
</tr>
</tbody>
</table>

---

$^1$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/m² over 30 minutes.

$^4$Typical post-operative adjuvant regimens: FOLFIRINOX or GemCape or single-agent gemcitabine (depending on response and recovery).

$^5$Many MD Anderson GI Oncologists omit the bolus of fluorouracil/leucovorin.

$^6$Typical pre-operative neoadjuvant regimens: gemcitabine plus paclitaxel or FOLFIRINOX.

$^7$FDA approved for the treatment of metastatic adenocarcinoma of the pancreas in combination with fluorouracil and leucovorin.

---

Department of Clinical Effectiveness V6
Approved by the Executive Committee of the Medical Staff on 09/17/2019

Copyright 2019 The University of Texas MD Anderson Cancer Center
### APPENDIX B: Chemoradiation and Stereotactic Body Radiation Therapy (SBRT)

<table>
<thead>
<tr>
<th>Chemoradiation Regimens</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Long course chemoradiation</strong></td>
</tr>
<tr>
<td>● Total dose 50 Gy in 25 fractions or 50.4 Gy in 28 fractions</td>
</tr>
<tr>
<td>● Concurrent capecitabine(^1) 1,650 mg/m(^2) PO in two divided doses on each day of radiation or</td>
</tr>
<tr>
<td>● Concurrent gemcitabine 300-400 mg/m(^2) IV given at fixed dose infusion once weekly(^2)</td>
</tr>
<tr>
<td><strong>Short course chemoradiation</strong></td>
</tr>
<tr>
<td>● Total dose 30 Gy in 10 fractions</td>
</tr>
<tr>
<td>● Concurrent capecitabine(^1) 1,650 mg/m(^2) PO in two divided doses on each day of radiation or</td>
</tr>
<tr>
<td>● Concurrent gemcitabine 300-400 mg/m(^2) IV given at fixed rate dose infusion once weekly(^2)</td>
</tr>
<tr>
<td><strong>Hypofractionated chemoradiation</strong></td>
</tr>
<tr>
<td>● Total dose 60-67.5 Gy in 15 fractions</td>
</tr>
<tr>
<td>● Concurrent capecitabine(^1) 1,650 mg/m(^2) PO in two divided doses on each day of radiation</td>
</tr>
<tr>
<td>● Requires image guidance</td>
</tr>
</tbody>
</table>

| SBRT |
| ● Total dose 33 – 40 Gy in five 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


Continued on next page
SUGGESTED READINGS - continued


Pancreatic Adenocarcinoma

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson's specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.

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 (Radiation Oncology Department)†
- David Fogelman, MD (GI Medical Oncology)
- Joseph M. Herman, MD (Radiation Oncology)
- Linus Ho, MD, MPH (GI Medical Oncology)
- Milind Javle, MD, MBBS (GI Medical Oncology)
- Ahmed Kaseb, MD, MBBS (GI Medical Oncology)
- Matthew Katz, MD (Surgical Oncology)‡
- Thoa Kazantsev, BSN, RN, OCN*
- Michael Kim, MD (Surgical Oncology)
- Eugene Koay, MD (Radiation Oncology)†
- Sunil Krishnan, MD (Radiation Oncology)†
- Jeffrey E. Lee, MD (Surgical Oncology)†
- Jeffrey H. Lee, MD, MBA (Gastroenterology Hepat & Nutr)†
- Van Nguyen, PharmD, BCOP (Pharmacy Clinical Programs)
- Michael James Overman, MD (GI Medical Oncology)
- Amy Pai, PharmD
- William Ross, MD (Gastroenterology Hepat & Nutr)
- Eric P. Tamm, MD (Diagnostic Radiology - Body Imaging)
- Gauri R. Varadhachary, MD, MBBS (GI Medical Oncology)‡
- Robert A. Wolff, MD (GI Medical Oncology)†

† Core Development Team
* Clinical Effectiveness Development Team