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</table>
**Suspicious Testicular Mass**

**INITIAL EVALUATION**

- History and physical, including examination of genitalia
- Lifestyle risk assessment
- Scrotal ultrasound
- Serum tumor markers: alpha-fetoprotein (AFP), beta-hCG (quantitative), total LDH
- Testosterone
- CBC with Differential
- Basic metabolic panel, magnesium, total bilirubin, AST, ALT, alkaline phosphatase, albumin, calcium, uric acid, phosphorus
- Discuss Goal Concordant Care (GCC) with patient or if clinically indicated, with Patient Representative

---

**TREATMENT**

- Chest x-ray
- Discuss risk of hypogonadism and infertility
- Discuss sperm banking and fertility preservation options
  - See Fertility Preservation Prior to Cancer Treatment algorithm
  - Consider referral to Adolescent and Young Adult Oncology Program for patients age ≤ 39 years
- Discuss testicular prosthesis
- Radical inguinal orchiectomy

---

**TUMOR HISTOLOGY**

- Pure seminoma
  - See Page 3: Pure Seminoma: Workup and Clinical Stage
- Nonseminomatous germ cell tumor (NSGCT)
  - See Page 6: NSGCT: Workup and Clinical Stage
- Stromal cell testicular tumor
  - Management according to tumor type

---

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

---

1 See Physical Activity, Nutrition, and Tobacco Cessation Treatment algorithms; ongoing reassessment of lifestyle risks should be a part of routine clinical practice

2 GCC should be initiated by the Primary Oncologist. If Primary Oncologist is unavailable, Primary Team/Attending Physician to initiate GCC discussion and notify Primary Oncologist. Patients, or if clinically indicated, the Patient Representative should be informed of therapeutic and/or palliative options. GCC discussion should be consistent, timely, and re-evaluated as clinically indicated. The Advance Care Planning (ACP) note should be used to document GCC discussion. Refer to GCC home page (for internal use only).

3 Consider CT chest with contrast depending on clinical presentation, tumor size in patients with nonseminomatous germ cell tumor (NSGCT)

4 Some well selected patients may qualify for testis-sparing surgery

5 It is acceptable to administer emergency chemotherapy to selected patients with advanced metastatic NSGCT on the basis of clinical presentation before orchiectomy, and without a tissue diagnosis

---

Page 2 of 20

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.
HISTOLOGY AND FURTHER WORK-UP

1 GCC should be initiated by the Primary Oncologist. If Primary Oncologist is unavailable, Primary Team/Attending Physician to initiate GCC discussion and notify Primary Oncologist. Patients, or if clinically indicated, the Patient Representative should be informed of therapeutic and/or palliative options. GCC discussion should be consistent, timely, and re-evaluated as clinically indicated. The Advance Care Planning (ACP) note should be used to document GCC discussion. Refer to GCC home page (for internal use only).

2 For patients with atypical presentations, such as those with history of orchiopexy and hernia surgery, PET scan may be helpful to determine if metastatic disease is confined (e.g., to the inguinal lymph node) or more widely disseminated.

3 See Appendix A for International Classifications of Germ Cell Cancer.

Pure seminoma

- Repeat AFP, beta-hCG, and LDH
- CT abdomen and pelvis with contrast or MRI if CT is contraindicated
- CT chest if abnormal chest x-ray or involved lymph nodes on CT or MRI of abdomen/pelvis
- Bone scan if clinically indicated
- Brain imaging if clinically indicated
- Pulmonary function test (PFT) if bleomycin based treatment planned
- Consider audiology if cisplatin based treatment planned
- Discuss sperm banking
- Discuss GCC with patient or if clinically indicated, with Patient Representative

AFP within normal limits?

- Yes
  - Imaging negative for metastasis?
    - Yes
      - Elevated post-operative beta-hCG?
        - Yes
          - Stage I Good risk
        - No
          - See Page 4: Stage I Pure Seminoma: Post-orchiectomy Management
    - No
      - Non-pulmonary visceral or bone metastases?
        - Yes
          - See Page 6: NSGCT Workup and Clinical Stage
        - No
          - Suspect unrelated source of non-specific AFP?
            - Yes
              - Evaluate for hypogonadism and/or cannabinoid/marijuana use. If hypogonadism, administer testosterone and then repeat beta-hCG.
            - No
              - Consider PET scan.
              - Yes
                - Normalization of beta-hCG after administration of testosterone confirms diagnosis of hypogonadism
        - Good risk
          - See Page 4: Stage I Pure Seminoma: Post-orchiectomy Management

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

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Surveillance is preferred after orchiectomy for most patients with stage I seminoma. Adjuvant carboplatin-based chemotherapy is a less preferred alternative to surveillance which may be indicated for patients unable to maintain compliance with surveillance follow up.
Testicular Cancer

Advanced Seminoma: Management

CLINICAL STAGE/TREATMENT

Non-Bulky II A or IIB (lymph node ≤ 3 cm)
- Radiation therapy or
  - 30 Gy for IIA
  - 36 Gy for select non-bulky IIB
- Cisplatin-based chemotherapy or
- RPLND for patients who wish to avoid long-term toxicities from radiation therapy or chemotherapy

Bulky IIB (lymph node > 3 cm), IIC or III
- Good risk
  - EP for 4 cycles or BEP for 3 cycles
- Intermediate risk
  - BEP for 4 cycles or VIP for 4 cycles

RESPONSE TO TREATMENT

CT abdomen and pelvis with contrast or MRI abdomen pelvis with contrast
- Response with residual tumor ≤ 3 cm
  - FDG PET scan 6 weeks post-chemotherapy
  - FDG PET scan negative (SUV < 4)
- Response with residual tumor > 3 cm
  - FDG PET scan positive (SUV ≥ 4) or not feasible
  - Radiation therapy or
  - Biopsy or
  - Surveillance if residual tumor ≤ 3 cm

SURVEILLANCE

See Appendix D: Seminoma Clinical Stages IIA and Non-Bulky IIB: Surveillance after Radiation, RPLND, or Post-chemotherapy

See Appendix E: Seminoma Clinical Stages Bulky IIB, IIC, and III: Surveillance Post-chemotherapy

Progression
- See Page 11: Nonseminoma: Post-chemotherapy Recurrence

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.
Nonseminomatous Germ Cell Tumor (NSGCT): Workup and Clinical Stage

**HISTOLOGY**

- Repeat AFP, beta-hCG, and LDH
- CT chest, abdomen, and pelvis with contrast. If contraindication to iodinated contrast, obtain MRI abdomen and pelvis with and without contrast and CT chest without contrast
- Bone scan if clinically indicated
- Brain imaging if neurological symptoms are present or pure choriocarcinoma
- Discuss sperm banking
- Pulmonary function test (PFT) if bleomycin based treatment planned
- Consider audiometry if cisplatin based treatment planned
- Discuss GCC with patient or if clinically indicated, with Patient Representative

**FURTHER WORK-UP**

- Imaging negative for metastasis?
  - No
  - Symptomatic from metastases (brain, lung, retroperitoneal mass)?
    - No
      - Tumor markers normalize with appropriate half-life?
        - No
        - Stage IS
          - Consider emergency chemotherapy followed by treatment based on stage and prognosis
          - Yes
            - For Stages II – III, see Page 8: Stage II - III Nonseminoma: Post-orchiectomy Management
            - For Stage IIIC (Poor risk), see Page 9: Nonseminoma: Initial Management
    - Yes
      - See Page 7: Stage I Nonseminoma: Post-orchiectomy Management

**TREATMENT**

1. GCC should be initiated by the Primary Oncologist. If Primary Oncologist is unavailable, Primary Team/Attending Physician to initiate GCC discussion and notify Primary Oncologist. Patients, or if clinically indicated, the Patient Representative should be informed of therapeutic and/or palliative options. GCC discussion should be consistent, timely, and re-evaluated as clinically indicated. The Advance Care Planning (ACP) note should be used to document GCC discussion. Refer to GCC home page (for internal use only).

2. It is acceptable to administer emergency chemotherapy to selected patients with advanced metastatic NSGCT on the basis of clinical presentation before orchiectomy, and without a tissue diagnosis.
**TUMOR MARKERS AND STAGING**

- Any pT/Tx
- N0
- M0
- S1-3

**Stage IS:**
- Beta-hCG or AFP elevated and
- Metastatic workup negative

**Clinical trial if available (preferred) or**
- BEP for 3 cycles or
- EP for 4 cycles

**See Page 10: Nonseminoma: Post-chemotherapy Management**

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

---

**Stage I Nonseminoma: Post-orchiectomy Management**

- Clinical trial if available (preferred)
- BEP for 3 cycles
- EP for 4 cycles

**Consider management options:**
- BEP for 1 dose (preferred)
- Primary RPLND (if patient not a candidate for adjuvant chemotherapy)
- Surveillance (in pT1-2 compliant patients)

---

**Stage IA/B Clinical Stage I With High-Recurrence Risk Factors:**
- Active Surveillance

**Stage IA/B Clinical Stage I Without High-Recurrence Risk Factors:**
- Active Surveillance

---

**Stage IA/B Clinical Stage IA/B: Surveillance After Adjuvant BEP x 1 Dose or Primary RPLND**

---

**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.
**Testicular Cancer**

**Stage II - III Nonseminoma: Post-orchiectomy Management**

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

**TUMOR MARKERS AND STAGING**

- **Stage IIA, IIB**
  - Any pT/Tx
  - N1-3
  - M0
  - S0-1

- **IIC, IIIA and IIIB**
  - Any pT/Tx
  - N1-3
  - M0
  - S0-1

**PRETREATMENT WORKUP**

- **Stage IIA, IIB and**
  - S0 (markers not elevated) and
  - Teratoma component in primary tumor and
  - Not embryonal carcinoma predominant tumor?

- **Stage IIC, IIIA**

- **Stage II - III Nonseminoma: Post-orchiectomy Management**

- **TREATMENT**

  **Stage pIIA**
  - Surgical option: RPLND

  **Stage pIIB**
  - EP for 2 cycles

  **Intermediate risk**
  - BEP for 4 cycles or
  - VIP for 4 cycles

  **Poor risk**
  - BEP for 4 cycles or
  - VIP for 4 cycles
  - For symptomatic high risk patients; see Page 9: Stage IIIC (Poor Risk) Nonseminoma: Initial Management

**S1**
- Total LDH < 1.5 times upper limit of normal and
- Beta-hCG < 5,000 mIU/mL and
- AFP < 1,000 ng/mL?

**S2**
- Total LDH 1.5-10 times upper limit of normal or
- Beta-hCG 5,000-50,000 mIU/mL or
- AFP 1,000-10,000 ng/mL

**S3**
- Total LDH > 10 times upper limit of normal or
- Beta-hCG > 50,000 mIU/mL or
- AFP > 10,000 ng/mL

EP = etoposide and cisplatin
BEP = bleomycin, etoposide, and cisplatin
VIP = etoposide, ifosfamide, and cisplatin

1 See Appendix A: International Classifications of Germ Cell Cancer

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approved by the Executive Committee of the Medical Staff on 07/16/2024
Testicular Cancer

Stage IIIC (Poor Risk) Nonseminoma: Initial Management

TUMOR MARKERS AND STAGING

IIIC, Poor Risk:
- Any pT/Tx, Any N, M1b, Any S
- Total LDH > 10 times upper limit of normal or
- Beta-hCG > 50,000 mIU/mL or
- AFP > 10,000 ng/mL

Patient with respiratory distress or symptomatic brain metastases?

Yes

- Vincristine and cisplatin or
- EP (limit to 3 days in unstable patient)

No

- BEP for 4 cycles or
- VIP for 4 cycles

Tumor markers normalized or plateau?

Yes

- See Page 10: Nonseminoma: Post-chemotherapy Management

No

Additional chemotherapy

Treatment

Continue for a minimum of 4 cycles:
- First line:
  - BEP or
  - VIP or
- Second line:
  - TIP or
  - High dose chemotherapy regimens or
  - Stem cell transplant or
  - Clinical trial (preferred)

To avoid delay in the start of chemotherapy, the diagnosis can be made on clinical grounds and orchiectomy can be deferred.

BEP = bleomycin, etoposide, and cisplatin
EP = etoposide and cisplatin
TIP = paclitaxel, ifosfamide, and cisplatin
VIP = etoposide, ifosfamide, and cisplatin

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.

Stage IIIC (Poor Risk) Nonseminoma: Initial Management

1 M1b - Distant metastases other than to lymph nodes and lungs
2 Plateau: The observed rate of decline in tumor markers should be compared to the expected serum half-lives of 5-7 days (AFP) and 2-3 days (beta-hCG). It is common to see a slower rate of decline after the second cycle of chemotherapy. A continued rate of decline that is much less than the expected half life and does not normalize should be interpreted as a plateau. The decision to stop chemotherapy should be based on clinical judgement, taking into consideration the clinical status of the patient, which of the markers are elevated, extent of elevation, and after ruling out potential sources of spurious elevation.

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**CLINICAL STAGE**
- **IB**
- **IS**
- **IIA, IIB, IIC**
- **IIIA, IIIB, IIIC**

**RESPONSE TO CHEMOTHERAPY**
- **Markers negative, complete response**
- **Residual mass, markers negative or plateau¹**
- **Rising markers or clinical progression**
- **Markers negative, complete response**
- **Markers negative, Partial response**
- **Rising markers or clinical progression**

**TREATMENT**
- **RPLND**
- **Salvage treatment**
- **Orchiectomy if not already performed**
- **RPLND and resection of any other residual mass and Orchiectomy if not already performed**

**FOLLOW-UP/SURVEILLANCE**
- **See Appendix J: NSGCT Clinical Stages II-III: Surveillance After Complete Response to Chemotherapy with or without Post-chemotherapy RPLND**
- **See Appendix J: NSGCT Clinical Stages II-III: Surveillance After Complete Response to Chemotherapy with or without Post-chemotherapy RPLND**
- **See Page 11: Nonseminoma: Post-chemotherapy Recurrence**
- **See Page 11: Nonseminoma: Post-chemotherapy Recurrence**

¹ Plateau: The observed rate of decline in tumor markers should be compared to the expected serum half-lives of 5-7 days (AFP) and 2-3 days (beta-hCG). It is common to see a slower rate of decline after the second cycle of chemotherapy. A continued rate of decline that is much less than the expected half life and does not normalize should be interpreted as a plateau. The decision to stop chemotherapy should be based on clinical judgement, taking into consideration the clinical status of the patient, which of the markers are elevated, extent of elevation, and after ruling out potential sources of spurious elevation.

**Note:** Consider Clinical Trials as treatment options for eligible patients.
### Testicular Cancer

**Nonseminoma: Post-chemotherapy Recurrence**

**TREATMENT**

**Nonseminoma - Prior Chemotherapy**

- Incomplete response or first relapse
  - Salvage chemotherapy:
    - Preferred TIP or HDCT followed by autologous stem cell transplant
    - Discuss GCC with patient or if clinically indicated, with Patient Representative

**Incomplete response or first relapse**

- Incomplete response and anatomically resectable
  - Complete response and normalization of tumor markers
  - Resect all residual masses
  - Consider adjuvant chemotherapy if viable malignant tumor
  - Clinical trial (preferred)
  - Consider surgery if solitary site
  - Second or subsequent salvage chemotherapy:
    - Consider HDCT followed by autologous stem cell transplant for patients who received TIP or TIP or VeIP or ATP for patients who had TIP before or who could not tolerate TIP or POMB-ACE or Gemcitabine and oxaliplatin

- Incomplete response that is unresectable or second relapse
  - Palliative chemotherapy or radiation therapy
  - Best supportive care

**Response to Treatment**

- Incomplete response or first relapse
- Complete response and normalization of tumor markers
- Resect all residual masses
- Consider adjuvant chemotherapy if viable malignant tumor
- Clinical trial (preferred)
- Consider surgery if solitary site
- Second or subsequent salvage chemotherapy:
  - Consider HDCT followed by autologous stem cell transplant for patients who received TIP or TIP or VeIP or ATP for patients who had TIP before or who could not tolerate TIP or POMB-ACE or Gemcitabine and oxaliplatin

**Subsequent Treatment**

- Yes
- Potential for salvage?
- Palliative chemotherapy or radiation therapy
- Best supportive care

- No
- Third or subsequent relapse

**Follow-up/Surveillance**

- See Appendix K: NSGCT Pathologic Stage IIA/B: Surveillance After Primary RPLND and Adjuvant Chemotherapy or Appendix I: NSGCT Pathologic Stage IIA/B: Surveillance After Primary RPLND and did NOT Receive Adjuvant Chemotherapy

---

ATP = doxorubicin, paclitaxel, cisplatin

HDCT = high-dose chemotherapy

POMB-ACE = cisplatin, vincristine, methotrexate and bleomycin alternating with actinomycin-D, cyclophosphamide, and etoposide

TIP = paclitaxel, ifosfamide, cisplatin

VeIP = vinblastine, ifosfamide, cisplatin, mesna

GCC should be initiated by the Primary Oncologist. If Primary Oncologist is unavailable, Primary Team/Attending Physician to initiate GCC discussion and notify Primary Oncologist. Patients, or if clinically indicated, the Patient Representative should be informed of therapeutic and/or palliative options. GCC discussion should be consistent, timely, and re-evaluated as clinically indicated. The Advance Care Planning (ACP) note should be used to document GCC discussion. Refer to GCC home page (for internal use only).
# APPENDIX A: International Classifications for Germ Cell Cancers

<table>
<thead>
<tr>
<th></th>
<th>Nonseminoma</th>
<th>Seminoma</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GOOD RISK</strong></td>
<td>Testes/retroperitoneal primary  <strong>and</strong>  No non-pulmonary visceral metastases  <strong>and</strong></td>
<td>Any primary site  <strong>and</strong>  No non-pulmonary visceral metastases  <strong>and</strong></td>
</tr>
<tr>
<td><strong>All Good Markers:</strong></td>
<td>• AFP  **&lt; 1,000 ng/mL  <strong>and</strong></td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>• Beta-hCG  **&lt; 5,000 IU/L  <strong>and</strong></td>
<td>Any value</td>
</tr>
<tr>
<td></td>
<td>• LDH  <strong>&lt; 1.5 times upper limit of normal</strong></td>
<td>Any value</td>
</tr>
<tr>
<td><strong>INTERMEDIATE</strong></td>
<td>Testes/retroperitoneal primary  <strong>and</strong>  No non-pulmonary visceral metastases  <strong>and</strong></td>
<td>Any primary site  <strong>and</strong>  Non-pulmonary visceral metastases  <strong>and</strong></td>
</tr>
<tr>
<td><strong>RISK</strong></td>
<td>• AFP  <strong>≥ 1,000 and ≤ 10,000 ng/mL</strong>  <strong>or</strong></td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>• Beta-hCG  <strong>≥ 5,000 IU/L and ≤ 50,000 IU/L</strong>  <strong>or</strong></td>
<td>Any value</td>
</tr>
<tr>
<td></td>
<td>• LDH  <strong>≥ 1.5 times upper limit of normal and ≤ 10 times upper limit of normal</strong></td>
<td>Any value</td>
</tr>
<tr>
<td><strong>POOR RISK</strong></td>
<td>Mediastinal primary  <strong>or</strong>  Non-pulmonary visceral metastases  <strong>or</strong></td>
<td>No patients classified as poor prognosis</td>
</tr>
<tr>
<td><strong>Markers any of:</strong></td>
<td>• AFP  <strong>&gt; 10,000 ng/mL</strong>  <strong>or</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Beta-hCG  <strong>&gt; 50,000 IU/L</strong>  <strong>or</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• LDH  <strong>&gt; 10 times upper limit of normal</strong></td>
<td></td>
</tr>
</tbody>
</table>

1 From the International Germ Cell Consensus Classification from the International Germ Cell Cancer Collaborative Group
### APPENDIX B: Seminoma Clinical Stage I: Surveillance after Orchiectomy

**Note:** Patients with history of seminoma Stage I are eligible for Survivorship when > 2 years from treatment completion and NED.

Refer to Survivorship – Testicular Cancer: Germ Cell algorithm or continue follow-up as indicated. Treat recurrence according to histology and stage at relapse.

<table>
<thead>
<tr>
<th>Year (at month intervals)</th>
<th>H&amp;P¹</th>
<th>CT Abdomen/Pelvis with contrast or MRI Abdomen/Pelvis</th>
<th>Chest x-ray (Consider CT chest if symptomatic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Every 3-6 months</td>
<td>Every 3-6 months</td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>2</td>
<td>Every 3-6 months</td>
<td>Every 3-6 months</td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>3</td>
<td>Every 6-12 months</td>
<td>Every 6-12 months</td>
<td>As clinically indicated</td>
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<td>4</td>
<td>Every 6-12 months</td>
<td>Every 6-12 months</td>
<td>As clinically indicated</td>
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<td>5</td>
<td>Every 6-12 months</td>
<td>Every 6-12 months</td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>6 and above</td>
<td>As clinically indicated</td>
<td>As clinically indicated</td>
<td>As clinically indicated</td>
</tr>
</tbody>
</table>

¹ Markers are optional

### APPENDIX C: Seminoma Clinical Stage I: Surveillance after Adjuvant Treatment

**Note:** Patients with history of seminoma Stage I are eligible for Survivorship when > 2 years from treatment completion and NED.

Refer to Survivorship – Testicular Cancer: Germ Cell algorithm or continue follow-up as indicated. Treat recurrence according to histology and stage at relapse.

<table>
<thead>
<tr>
<th>Year (at month intervals)</th>
<th>H&amp;P¹</th>
<th>CT Abdomen/Pelvis with contrast or MRI Abdomen/Pelvis</th>
<th>Chest x-ray (Consider CT chest if symptomatic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Every 6-12 months</td>
<td>Annually</td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>2</td>
<td>Every 6-12 months</td>
<td>Annually</td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>3</td>
<td>Annually</td>
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<td>As clinically indicated</td>
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<tr>
<td>5</td>
<td>Annually</td>
<td>Annually</td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>6 and above</td>
<td>As clinically indicated</td>
<td>Annually</td>
<td>As clinically indicated</td>
</tr>
</tbody>
</table>

¹ Markers are optional
**APPENDIX D: Seminoma Clinical Stages IIA and Non-Bulky IIB: Surveillance after Radiation, RPLND, or Post-chemotherapy**

**Note:** Patients with history of Seminoma stages II – IIIC are eligible for Survivorship at 4-5 years after completion of treatment and NED. Refer to [Survivorship - Testicular Cancer: Germ Cell algorithm](#) or continue follow-up as indicated. Treat recurrence according to histology and stage at relapse.

<table>
<thead>
<tr>
<th>Year (at month intervals)</th>
<th>H&amp;P&lt;sup&gt;2&lt;/sup&gt;</th>
<th>CT Abdomen/Pelvis with contrast or MRI Abdomen/Pelvis &lt;sup&gt;3,4&lt;/sup&gt;</th>
<th>Chest x-ray (Consider CT chest if symptomatic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Every 3 months</td>
<td>At 3 months, then at 9 or 12 months</td>
<td>Every 6 months</td>
</tr>
<tr>
<td>2</td>
<td>Every 6 months</td>
<td>Annually</td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>3</td>
<td>Every 6 months</td>
<td>Annually</td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>4</td>
<td>Every 6 months</td>
<td>As clinically indicated</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Every 6 months</td>
<td>As clinically indicated</td>
<td></td>
</tr>
<tr>
<td>6 and above</td>
<td>As clinically indicated</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**APPENDIX E: Seminoma Clinical Stages Bulky IIB, IIC, and III: Surveillance Post-chemotherapy**

**Note:** Patients with history of Seminoma stages II – IIIC are eligible for Survivorship at 4-5 years after completion of treatment and NED. Refer to [Survivorship - Testicular Cancer: Germ Cell algorithm](#) or continue follow-up as indicated. Treat recurrence according to histology and stage at relapse.

<table>
<thead>
<tr>
<th>Year (at month intervals)</th>
<th>H&amp;P&lt;sup&gt;2&lt;/sup&gt;</th>
<th>CT Abdomen/Pelvis with contrast&lt;sup&gt;3,4&lt;/sup&gt; or MRI Abdomen/Pelvis&lt;sup&gt;3,4&lt;/sup&gt;</th>
<th>Chest x-ray (Consider CT chest if symptomatic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Every 4 months</td>
<td>Every 4 months</td>
<td>Every 4 months</td>
</tr>
<tr>
<td>2</td>
<td>Every 6 months</td>
<td>Every 6 months</td>
<td>Every 6 months</td>
</tr>
<tr>
<td>3</td>
<td>Annually</td>
<td>Annually</td>
<td>Annually</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 and above</td>
<td>As clinically indicated</td>
<td></td>
<td>As clinically indicated</td>
</tr>
</tbody>
</table>

<sup>1</sup> For patients with no residual mass or residual mass ≤ 3 cm and normal tumor markers

<sup>2</sup> Markers are optional

<sup>3</sup> Patients with residual masses may require more frequent imaging based on clinical judgment

<sup>4</sup> FDG-PET/CT of skull base to mid-thigh as clinically indicated
**APPENDIX F: NSGCT Clinical Stage IA/B: Surveillance After Adjuvant BEP x 1 Dose or Primary RPLND**

**Note:** Patients with history of NSGCT Clinical Stage IA/B are eligible for Survivorship when > 2 years from treatment and NED after completion and/or post-RPLND and/or adjuvant chemotherapy. Refer to Survivorship – Testicular Cancer: Germ Cell algorithm or continue follow-up as indicated. Treat recurrence according to histology and stage at relapse.

<table>
<thead>
<tr>
<th>Year (at month intervals)</th>
<th>H&amp;P and Markers</th>
<th>CT Abdomen/Pelvis with contrast or MRI Abdomen/Pelvis</th>
<th>Chest x-ray (Consider CT chest if symptomatic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Every 2 months</td>
<td>Every 4 months</td>
<td>Every 4 months</td>
</tr>
<tr>
<td>2</td>
<td>Every 3 months</td>
<td>Every 4-6 months</td>
<td>Every 4-6 months</td>
</tr>
<tr>
<td>3</td>
<td>Every 4-6 months</td>
<td>Every 6 months</td>
<td>Every 6 months</td>
</tr>
<tr>
<td>4</td>
<td>Every 6 months</td>
<td>Annually</td>
<td>Annually</td>
</tr>
<tr>
<td>5</td>
<td>Annually</td>
<td>As clinically indicated</td>
<td></td>
</tr>
<tr>
<td>6 and above</td>
<td>As clinically indicated</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**APPENDIX G: NSGCT Clinical Stage I With High-Recurrence Risk Factors\(^1\): Active Surveillance**

**Note:** Patients with history of NSGCT stage I are eligible for Survivorship when > 2 years from treatment and NED after completion and/or post-RPLND and/or adjuvant chemotherapy. Refer to Survivorship – Testicular Cancer: Germ Cell algorithm or continue follow-up as indicated. Treat recurrence according to histology and stage at relapse.

<table>
<thead>
<tr>
<th>Year (at month intervals)</th>
<th>H&amp;P and Markers</th>
<th>CT Abdomen/Pelvis with contrast or MRI Abdomen/Pelvis</th>
<th>Chest x-ray (Consider CT chest if symptomatic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Every 2 months</td>
<td>Every 4 months</td>
<td>Every 4 months</td>
</tr>
<tr>
<td>2</td>
<td>Every 3 months</td>
<td>Every 4-6 months</td>
<td>Every 4-6 months</td>
</tr>
<tr>
<td>3</td>
<td>Every 4-6 months</td>
<td>Every 6 months</td>
<td>Every 6 months</td>
</tr>
<tr>
<td>4</td>
<td>Every 6 months</td>
<td>Annually</td>
<td>Annually</td>
</tr>
<tr>
<td>5</td>
<td>Annually</td>
<td>As clinically indicated</td>
<td></td>
</tr>
<tr>
<td>6 and above</td>
<td>As clinically indicated</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) High recurrence risk features (in the primary tumor): lymphovascular invasion, invasion of spermatic cord or scrotum (pT3-4), invasion of tunica vaginalis, embryonal carcinoma predominant (> 50% embryonal histology in orchiectomy specimen)
# Testicular Cancer

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.

## APPENDIX H: NSGCT Clinical Stage I Without High-Recurrence Risk Factors: Active Surveillance

**Note:** Patients with history of NSGCT stage I are eligible for Survivorship when > 2 years from treatment and NED after completion and/or post-RPLND and/or adjuvant chemotherapy. Refer to Survivorship – Testicular Cancer: Germ Cell algorithm or continue follow-up as indicated. Treat recurrence according to histology and stage at relapse.

<table>
<thead>
<tr>
<th>Year (at month intervals)</th>
<th>H&amp;P and Markers</th>
<th>CT Abdomen/Pelvis with contrast or MRI Abdomen/Pelvis</th>
<th>Chest x-ray (Consider CT chest if symptomatic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Every 2 months</td>
<td>At 4-6 months</td>
<td>At 4-6 months and 12 months</td>
</tr>
<tr>
<td>2</td>
<td>Every 3 months</td>
<td>Every 6 months</td>
<td>Annually</td>
</tr>
<tr>
<td>3</td>
<td>Every 4-6 months</td>
<td>Annually</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Every 6 months</td>
<td>As clinically indicated</td>
<td>Annually</td>
</tr>
<tr>
<td>5</td>
<td>Annually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 and above</td>
<td>As clinically indicated</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 High recurrence risk features (in the primary tumor): lymphovascular invasion, invasion of spermatic cord or scrotum (pT3-4), invasion of tunica vaginalis, embryonal carcinoma predominant ( > 50% embryonal histology in orchiectomy specimen)

## APPENDIX I: NSGCT Pathologic Stage IIA/B: Surveillance After Primary RPLND and did NOT Receive Adjuvant Chemotherapy

**Note:** Patients with history of NSGCT stages II – IIIC are eligible for Survivorship at 4-5 years after completion of treatment and NED. Refer to Survivorship – Testicular Cancer: Germ Cell algorithm or continue follow-up as indicated. Treat recurrence according to histology and stage at relapse.

<table>
<thead>
<tr>
<th>Year (at month intervals)</th>
<th>H&amp;P and Markers</th>
<th>CT Abdomen/Pelvis (with and without contrast) or MRI Abdomen/Pelvis with contrast</th>
<th>Chest x-ray (Consider CT chest if symptomatic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Every 2 months</td>
<td>At 3-4 months</td>
<td>Every 2-4 months</td>
</tr>
<tr>
<td>2</td>
<td>Every 3 months</td>
<td>Annually</td>
<td>Every 3-6 months</td>
</tr>
<tr>
<td>3</td>
<td>Every 4 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Every 6 months</td>
<td>As clinically indicated</td>
<td>Annually</td>
</tr>
<tr>
<td>5</td>
<td>Annually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 and above</td>
<td>As clinically indicated</td>
<td></td>
<td>As clinically indicated</td>
</tr>
</tbody>
</table>
APPENDIX J: NSGCT Clinical Stages II-III: Surveillance After Complete Response to Chemotherapy with or without Post-chemotherapy RPLND

Note: Patients with history of NSGCT Stages II – III are eligible for Survivorship at 4-5 years after completion of treatment and NED.

Refer to Survivorship - Testicular Cancer: Germ Cell algorithm or continue follow-up as indicated. Treat recurrence according to histology and stage at relapse.

<table>
<thead>
<tr>
<th>Year (at month intervals)</th>
<th>H&amp;P and Markers</th>
<th>CT Abdomen/Pelvis with contrast or MRI Abdomen/Pelvis</th>
<th>Chest x-ray (Consider CT chest if symptomatic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Every 2 months</td>
<td>Every 6 months</td>
<td>Every 6 months</td>
</tr>
<tr>
<td>2</td>
<td>Every 3 months</td>
<td>Every 6-12 months</td>
<td>Every 6 months</td>
</tr>
<tr>
<td>3</td>
<td>Every 6 months</td>
<td>Annually</td>
<td>Annually</td>
</tr>
<tr>
<td>4</td>
<td>Every 6 months</td>
<td>As clinically indicated</td>
<td>Annually</td>
</tr>
<tr>
<td>5</td>
<td>Every 6 months</td>
<td>As clinically indicated</td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>6 and above</td>
<td>As clinically indicated</td>
<td>As clinically indicated</td>
<td>As clinically indicated</td>
</tr>
</tbody>
</table>

1 Patients who have an incomplete response to chemotherapy require more frequent imaging as clinically indicated
2 Patients with clinical stage II treated with chemotherapy who undergo post-chemotherapy RPLND and are found to have pN0 disease or pN1 pure teratoma require only one post-operative CT or MRI at month 3-4 and then as clinically indicated

APPENDIX K: NSGCT Pathologic Stage IIA/B: Surveillance After Primary RPLND and Adjuvant Chemotherapy

Note: Patients with history of NSGCT stages II – IIIIC are eligible for Survivorship at 4-5 years after completion of treatment and NED.

Refer to Survivorship – Testicular Cancer: Germ Cell algorithm or continue follow-up as indicated. Treat recurrence according to histology and stage at relapse.

<table>
<thead>
<tr>
<th>Year (at month intervals)</th>
<th>H&amp;P and Markers</th>
<th>CT Abdomen/Pelvis with contrast or MRI Abdomen/Pelvis</th>
<th>Chest x-ray (Consider CT chest if symptomatic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Every 6 months</td>
<td>4 months after RPLND</td>
<td>Every 6 months</td>
</tr>
<tr>
<td>2</td>
<td>Every 6 months</td>
<td>As clinically indicated</td>
<td>Annually</td>
</tr>
<tr>
<td>3</td>
<td>Annually</td>
<td>As clinically indicated</td>
<td>Annually</td>
</tr>
<tr>
<td>4</td>
<td>Annually</td>
<td>As clinically indicated</td>
<td>Annually</td>
</tr>
<tr>
<td>5</td>
<td>Annually</td>
<td>As clinically indicated</td>
<td>As clinically indicated</td>
</tr>
<tr>
<td>6 and above</td>
<td>As clinically indicated</td>
<td>As clinically indicated</td>
<td>As clinically indicated</td>
</tr>
</tbody>
</table>
SUGGESTED READINGS


Continued on next page
SUGGESTED READINGS - continued

MD Anderson Institutional Policy #CLN1202 - Advance Care Planning Policy Advance Care Planning (ACP) Conversation Workflow (ATT1925)


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

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♦ Clinical Effectiveness Development Team