Medical Oncology, a subspecialty of Internal Medicine, involves the understanding, diagnosis and management of solid tumors. In contrast, the leukemias, lymphomas and multiple myeloma are part of Hematologic Oncology. Medical Oncology is built on a firm foundation of basic internal medicine principles, and requires the acquisition of a detailed understanding of the biology of normal and abnormal cellular growth and growth regulation, invasion and metastasis. Experience in medical oncology brings a familiarity with clinical trial design, biochemical pharmacology and molecular biology, as well as the clinical diagnosis and management of all forms of cancer as well as management of oncologic complications. Many oncology patients have associated histories of cigarette smoking, alcohol intake and industrial toxin exposure, so they frequently suffer from a variety of intercurrent medical disorders, resulting in a significant level of experience in general clinical medicine during Medical Oncology rotations. The emotional and social problems associated with advanced cancer require multidisciplinary management and a team approach, in addition to a detailed understanding of a range of psychosocial issues. Medical Oncology is a unique subspecialty that integrates traditional approaches to clinical medicine with biochemistry, molecular biology and clinical trial methodology. Part of the practice of oncology includes participation in clinical protocols during which novel anticancer treatments move from the laboratory to the bedside, and involvement in the discovery of the mechanisms by which newly discovered genes control the growth and spread of cancer.

After a rotation in Medical Oncology, the resident should have achieved the following objectives:

- Aspects of medical management of cancer patients (malignant pleural effusions, bowel obstruction, nutritional support, hyper-coagularity, vascular access)
- Understanding the importance of interdisciplinary planning for oncology care, involving pathology, radiology, surgery, radiation oncology, and medical oncology.
- Familiarity with the diagnosis and staging of common malignancies
- Understanding the difference in philosophy of treatment with chemotherapy in the adjuvant versus metastatic setting
- Familiarity with the foundations of standard regimens used for breast, colon, lung, and prostate cancer.
- Knowledge of the common toxicities of commonly used chemotherapy agents
- Ability to identify and treat oncologic emergencies, such as spinal cord compression, hypercalcemia, and neutropenic fever.
- Familiarity with the general concepts in the development of new anticancer agents, the basics of clinical trial design and interpretation of the cancer literature.
- Knowledge of the risk factors for developing the most common cancers, effectiveness of screening techniques, and evidence-based prevention for individuals at high risk
- Skilful employment of techniques for palliative care and symptom management for end of life issues.
- Review of MKSAP in Oncology with completion of pre and post tests.
Medical Oncology Education Curriculum:

The education program of the Division of Medical Oncology involves (a) specific training in Medical Oncology and (b) integrated multidisciplinary educational sessions with staff of the USC/Norris Comprehensive Cancer Center and of the other Departments and Divisions of the Schools of Medicine and Pharmacy.

(a) Specific Education in Medical Oncology:

- **Bedside/clinical teaching** that involves decisions in diagnosis and management of patients with cancer. At Norris Hospital, teaching is carried during rounds on Norris wards.

- **Formal small group teaching sessions:**
  - Monday at 8:00 a.m. at 7B Conference Room– Resident Didactic **required for consult and Norris residents and interns**
  - Wednesday 12:00 noon at NTT 3424 – targeted for fellows; residents welcome.
  - Friday 1:30 p.m. at NTT 3424 – targeted for fellows; residents welcome.

- **Protocol Meetings:** these sessions, held twice each month on the 1st and 3rd Fridays at 12:30pm in NTT 7409, involve presentations of novel treatment protocols by Oncology Fellows, in association with staff of the Clinical Investigation Support Office (including biostatisticians, research nurses and data managers). These sessions are designed to familiarize housestaff with current clinical trials available to patients at LAC-USC, explore issues in clinical trial design, and provide a glimpse into areas of emerging therapeutics in oncology. We encourage interns and residents to attend. (starts in September)

- **Grand Rounds at Norris Comprehensive Cancer Center,** Tuesday at noon, NRT-LG Aresty Auditorium. A formal presentation covering recent developments in tumor biology, molecular biology, clinical trial design, or new techniques in diagnosis and management. Speakers are drawn from the USC Medical Campus or from other cancer centers.

**Expectations of residents at the Norris Hospital**

1. Each new patient will have a complete H&P in the chart dictated promptly, and Oncology Consultation to be arranged.
2. All patients will have signed Progress Note everyday indicating reason for hospitalization. If this not clear to you it must be discussed at rounds with the Attending and Fellow.
3. All patients must have dictated DC Summary promptly. (within 24 hours of discharge)
4. Patients being discharged must have all necessary prescriptions and follow-up appointments with their Primary Oncologist.
5. Follow up on all scans. Preliminary results may be reviewed with Radiology Staff on the 2nd floor prior to rounds.
6. Absence from duty must be discussed with the attending physician.
7. All admissions need to be approved by Fellow.
8. In case of patient decompensation, fellow needs to be notified ASAP.
9. All consults and interventional radiology requests need to be run by Fellow prior to orders.

Phone numbers and pagers – (see attached list of pagers, and office numbers for Oncology Faculty, Fellows and Staff

The Oncology academic office is located at Norris – Topping Tower, 3rd floor, NTT 3440. The main office number is 323.865.3900.

Educational Resources
Textbook: DeVita et al. Cancer: Principles and Practice of Oncology (copies available on 4700 and 10th floor)
Journal of Clinical Oncology  www.jco.org
Websites: National Comprehensive Cancer Network  www.nccn.org (for each cancer type, goes through work-up and treatment for various stages. Text & reference list at the end of each section)
Adjuvant!  www.adjuvantonline.com (gives statistical approximation of the risk reduction an individual may receive from adjuvant chemotherapy for breast & colon cancer, using age/stage/pathologic features).
Google  www.google.com for chemotherapy agents, if you Google the brand name, you can often link to the full prescribing information, which summarizes the clinical trials that led to the drug’s approval as well as the major toxicities.
Memorandum

To: Faculty, Fellows, and Residents

From: Darcy V. Spicer, MD
Chief, Division of Medical Oncology

Date: July 1, 2016

Re: RESIDENT ORIENTATION – MKSAP QUESTIONS

The Oncology questions from the MKSAP are attached to your Orientation Packet. At the start of the rotation please answer the questions using the “Pre-Test” answer sheet. Please turn the answer sheet into the medical oncology attending or fellow within 48 hours of starting your rotation.

During the month you and your attending will be going over several of the questions each time you round.

At the end of the rotation please again complete the questions using the “Post-Test” answer sheet and turn that into the attending or fellow as soon as you have completed the test.
<table>
<thead>
<tr>
<th>Number</th>
<th>Date Test Taken</th>
<th>Name</th>
<th>Service</th>
<th>Attending</th>
<th>Fellow</th>
</tr>
</thead>
<tbody>
<tr>
<td>78</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>79</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>81</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>82</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>83</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>85</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>86</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>87</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>88</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>89</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>92</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>93</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>94</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>97</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>98</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>104</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>106</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>107</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>108</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>109</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>110</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>111</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>113</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATE TEST TAKEN</td>
<td>NAME</td>
<td>SERVICE</td>
<td>ATTENDING</td>
<td>FELLOW</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>------</td>
<td>---------</td>
<td>-----------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>78</td>
<td>114</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>79</td>
<td>115</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>116</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>81</td>
<td>117</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>82</td>
<td>118</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>83</td>
<td>119</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>84</td>
<td>120</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>85</td>
<td>121</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>122</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>123</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>88</td>
<td>124</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>89</td>
<td>125</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>126</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91</td>
<td>127</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>92</td>
<td>128</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>93</td>
<td>129</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>94</td>
<td>130</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>131</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96</td>
<td>132</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>97</td>
<td>133</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>98</td>
<td>134</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99</td>
<td>135</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>136</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>137</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102</td>
<td>138</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103</td>
<td>139</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>104</td>
<td>140</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105</td>
<td>141</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>106</td>
<td>142</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>107</td>
<td>143</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>108</td>
<td>144</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>109</td>
<td>145</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>110</td>
<td>146</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>111</td>
<td>147</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>112</td>
<td>148</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>113</td>
<td>149</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Oncology Questions

Item 78

A 28-year-old woman is evaluated in the emergency department for a 1-week history of progressive headache associated with nausea and vomiting. Medical history is significant for HIV infection. She is nonadherent to her antiretroviral therapy regimen and takes no other medications.

On physical examination, she is awake and oriented. The patient is afebrile, blood pressure is 130/80 mm Hg, pulse rate is 100/min, and respiration rate is 16/min. No enlarged lymph nodes are palpated. The liver and spleen are not enlarged. The remainder of her physical examination is unremarkable, and her neurologic examination shows papilledema but no other focal findings.

Results of a complete blood count and serum chemistry panel, including toxoplasmosis titer measured at the time of HIV diagnosis, are normal.

CT scan of the head is shown (see top of next column).

Which of the following is the most appropriate next step in management?

(A) Combination chemotherapy
(B) High-dose intravenous glucocorticoids
(C) Intracranial pressure monitoring
(D) Stereotactic radiation therapy

Item 79

A 68-year-old woman is evaluated in the emergency department for a 1-week history of polyuria, polydipsia, and progressive confusion. She has a 2-year history of multiple myeloma that was treated 1 year ago with chemotherapy. Her medical history is otherwise noncontributory, and she takes no medications.

On physical examination, the patient is afebrile, blood pressure is 100/60 mm Hg, pulse rate is 100/min, and respiration rate is 14/min. The patient’s skin and mucous membranes are dry. She appears confused, and her reflexes are hyporeactive. The remainder of her examination is unremarkable.

Laboratory studies:

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood urea nitrogen</td>
<td>60 mg/dL (21.4 mmol/L)</td>
</tr>
<tr>
<td>Calcium</td>
<td>14.5 mg/dL (3.6 mmol/L)</td>
</tr>
<tr>
<td>Creatinine</td>
<td>3.5 mg/dL (309.4 μmol/L) (baseline 1.2 mg/dL [106.1 μmol/L])</td>
</tr>
</tbody>
</table>

Intravenous high-volume normal saline and high-dose glucocorticoids are started.

Which of the following is the most appropriate next step in treatment?

(A) Cinacalcet
(B) Hemodialysis
(C) Intravenous bisphosphonate
(D) Multiagent chemotherapy
Item 80

A 58-year-old man undergoes follow-up evaluation for cancer of the ascending colon diagnosed 3 weeks ago. Colonoscopy at that time revealed a fungating mass in the ascending colon. Biopsy revealed adenocarcinoma, and additional studies showed no evidence of metastatic disease. Right hemicolecotomy was performed. The pathology report showed a 4-cm primary adenocarcinoma with clear margins at resection, full-thickness penetration through the colonic wall into pericolonic fat, and 4/21 lymph nodes involved (stage III). Medical history is otherwise unremarkable, and the patient takes no medications.

On physical examination, vital signs are normal. Examination of the abdomen shows well-healed surgical scars but is otherwise normal.

Which of the following is the most appropriate management at this time?

(A) Leucovorin, 5-fluorouracil, and oxaliplatin (FOLFOX)
(B) Radiation therapy
(C) Radiation therapy and capecitabine followed by capecitabine plus oxaliplatin (CAPOX)
(D) Observation

Item 81

A 70-year-old man is hospitalized for new-onset abdominal pain and nausea. He has had little to eat or drink for the past 24 hours. The patient had a cerebrovascular accident 1 year ago and since then has resided in a nursing home. He has long-standing congestive cardiomyopathy, hypertension, type 2 diabetes mellitus with peripheral neuropathy, and chronic kidney disease. He is mostly bedbound but is able to sit in a chair with assistance for several hours each day. Medications are amiodipine, enalapril, furosemide, insulin, and metoprolol.

On physical examination, the patient appears chronically ill. Temperature is 37.7 °C (99.9 °F), blood pressure is 150/85 mm Hg, pulse rate is 80/min, and respiration rate is 12/min. BMI is 21. The sclerae are icteric, and mucous membranes are dry. There are cracksles at the bilateral lung bases. Heart examination is significant for an S3 heart sound. The abdomen is moderately distended with diffuse mild tenderness but without rebound or guarding. The liver edge is palpable. There is bilateral pitting edema of the extremities.

The patient's Eastern Cooperative Oncology Group/World Health Organization performance status level is assessed to be 4 (completely disabled, totally confined to a bed or chair, and unable to do any self-care).

The serum albumin level is 2.8 g/dL (28 g/L), the serum total bilirubin level is 2.3 mg/dL (39.3 μmol/L), and the serum creatinine level is 2.6 mg/dL (229.8 μmol/L).

A CT scan of the abdomen without contrast shows hepatomegaly with multiple metastatic lesions, enlarged retroperitoneal lymph nodes, abdominal carcinomatosis, moderate ascites, and a nonobstructing mass lesion in the cecum. A diagnostic paracentesis is performed, and 2 liters of bloody ascitic fluid are removed; cytology samples are positive for adenocarcinoma.

Gentle intravenous hydration is begun, and the patient is given parenteral morphine, which provides adequate relief of pain.

Which of the following is the most appropriate management?

(A) Leucovorin, 5-fluorouracil, and oxaliplatin (FOLFOX)
(B) Single-agent, low-dose 5-fluorouracil
(C) Surgical resection of the cecal mass
(D) Supportive, comfort-oriented care

Item 82

A 55-year-old man is evaluated for a 3-month history of cough and unexplained weight loss and a 2-week history of shortness of breath. He has never smoked cigarettes.

On physical examination, vital signs are normal. Breath sounds are decreased, and there is dullness to percussion over the right lung field. Examination findings are otherwise unremarkable.

Chest radiograph shows a right pleural effusion and right hilar mass. CT scan of the chest reveals a large right pleural effusion, a right upper lobe mass with associated consolidation, hilar and mediastinal lymphadenopathy, and an irregular right adrenal mass. A CT-guided transthoracic biopsy of the right upper lobe mass shows adenocarcinoma.

Which of the following is the most appropriate management?

(A) EGFR mutation testing
(B) K-ras mutation testing
(C) PET scanning
(D) Surgical resection

Item 83

A 68-year-old woman is evaluated for a 1-month history of a painful lump underneath the tongue. She has a 45-pack/year smoking history and continues to smoke.

On physical examination, vital signs are normal. An ulcerated lesion measuring approximately 1 cm is seen on the anterior floor of the mouth.

The lesion is resected. Pathology specimens identify poorly differentiated squamous cell carcinoma with negative margins.

The patient is encouraged to stop smoking. Following discussion of the benefits and risks, she is enrolled in a lung cancer screening program utilizing low-dose CT scanning.

Which of the following surveillance tests should also be recommended for this patient?

(A) CT scans
(B) PET/CT scan
(C) Oral examinations and direct laryngoscopy
(D) No additional follow-up

Item 84

A 55-year-old woman is evaluated in the emergency department for a 3-day history of diarrhea. She reports
seven to eight stools daily without vomiting. She also notes abdominal cramping without vomiting and has been able to maintain adequate fluid intake. Medical history is significant for metastatic malignant melanoma, for which she recently completed the third of four planned doses of ipilimumab therapy. She has no history of inflammatory bowel disease, recent antibiotic use, recent travel, or consumption of uncooked foods. The remainder of the medical history is noncontributory, and she takes no other medications.

On physical examination, temperature is 37.5 °C (99.5 °F), blood pressure is 125/85 mm Hg, pulse rate is 90/min without orthostatic changes, and respiration rate is 14/min. The abdomen is soft and nontender with increased bowel sounds. The remainder of the physical examination is normal.

Laboratory studies:
- Hemoglobin: 12.2 g/dl (122 g/L)
- Leukocyte count: 9300/µl (9.3 x 10^9/L) with normal differential
- Alanine aminotransferase: 120 U/L
- Aspartate aminotransferase: 160 U/L
- Creatinine: 1.2 mg/dl (106.1 µmol/L)
- Fecal occult blood test: Negative

A chest radiograph is normal and abdominal films show nondilated bowel loops with no free air.

In addition to discontinuing the ipilimumab and providing supportive care, which of the following is the most appropriate next step in treatment?

(A) Broad-spectrum intravenous antibiotics
(B) Granulocyte-macrophage colony-stimulating factor
(C) High-dose intravenous glucocorticoids
(D) Observation

**Item 86**

A 68-year-old man is evaluated for a 4-month history of fatig, weight loss, and night sweats. He is a farmer and has been unable to work since his symptoms developed. Medical history is significant for hypertension, type 2 diabetes mellitus, and an anterior ST-elevation myocardial infarction. Medications are ramipril, glipizide, metoprolol, and low-dose aspirin.

On physical examination, the patient is afebrile, blood pressure is 140/88 mm Hg, pulse rate is 60/min, and respiration rate is 16/min. BMI is 30. Enlarged axillary lymph nodes are palpated.

**Laboratory studies:**
- Hemoglobin: 10.5 g/dl (105 g/L)
- Lactate dehydrogenase: Elevated
- HIV: Negative
- Epstein-Barr virus: Negative
- Hepatitis B virus: Negative
- Hepatitis C virus: Negative

CT scans show axillary, mediastinal, and pelvic lymphadenopathy. Echocardiogram shows a left ventricular ejection fraction of 30%.

Lymph node and bone marrow biopsies reveal diffuse large B-cell lymphoma.

Which of the following factors most strongly correlates with overall survival in this patient after treatment?

(A) Revised International Prognostic Index score (B) Presence of anemia (C) Presence of B symptoms (D) Presence of type 2 diabetes mellitus

**Item 87**

A 42-year-old woman is evaluated for postcoital bleeding and intermittent pelvic pain. She otherwise feels well. The patient is premenopausal and has two children.

On physical examination, vital signs are normal. General examination is normal. An ulcerating 2-cm cervical mass is visible on speculum examination. Bimanual pelvic examination shows a bulky mass in the cervix that is fixed to the left pelvic side wall and is not mobile.

Results of complete blood count and serum chemistry panel are normal.

CT scan of the abdomen and pelvis shows a 4.5-cm mass involving the lower uterus and extending to the left pelvic side wall. Left hydronephrosis and hydronephrosis are present. No disease is detected outside the pelvis. Biopsy of the cervical mass shows poorly differentiated invasive squamous cell carcinoma. Chest CT is normal.

Which of the following is the most appropriate treatment?

(A) Radiation therapy  
(B) Radiation therapy with concurrent chemotherapy  
(C) Radical hysterectomy  
(D) Radical hysterectomy followed by chemotherapy  
(E) Simple hysterectomy with ovarian preservation
**Item 88**

A 70-year-old man is evaluated for a 3-month history of fatigue, weight loss, fever, and night sweats. He has a longstanding history of Crohn disease treated with infliximab.

On physical examination, temperature is 38.0 °C (100.4 °F), blood pressure is 110/60 mm Hg, pulse rate is 105/min, and respiration rate is 16/min. Fixed cervical, axillary, and inguinal lymphadenopathy is present on palpation. There is no splenomegaly. The remainder of the examination is unremarkable.

Chest radiograph is normal. CT scans show extensive cervical, axillary, abdominal, and pelvic lymphadenopathy; there is no mediastinal lymphadenopathy.

**Which of the following is the most likely diagnosis?**

(A) Non-Hodgkin lymphoma
(B) Sarcoidosis
(C) Testicular cancer
(D) Tuberculosis

**Item 89**

A 78-year-old man is hospitalized for a 1-week history of progressive and severe back pain and weakness in both legs. He describes a sense of “heaviness” in his legs and has had increasing difficulty climbing stairs and getting out of a chair. Medical history is significant for asymptomatic multiple myeloma that has been followed with periodic examinations and laboratory studies; his last assessment was 3 months ago and was stable.

On physical examination, vital signs are normal. He has point tenderness over the T10 and T11 vertebral bodies, decreased lower extremity muscle strength (3+/5), increased reflexes isolated to both lower extremities, and bilateral extensor plantar responses. The remainder of the physical examination is unremarkable.

Laboratory studies are significant for a serum hemoglobin level of 6.5 g/dL (65 g/L) and a serum calcium level of 13 mg/dL (3.2 mmol/L).

MRI of the thoracic and lumbar spine shows a vertebral body mass with extension into the epidural space at T12 and compression of the spinal cord.

**Which of the following is the most appropriate initial step in treatment?**

(A) Biopsy of the epidural mass
(B) Decompressive surgery
(C) Intravenous glucocorticoids
(D) Multidrug chemotherapy
(E) Radiation therapy

**Item 90**

A 55-year-old woman is evaluated for a mass in her left breast. She otherwise feels well. She is postmenopausal. Medical and family histories are otherwise negative and she takes no medications.

On physical examination, vital signs are normal. A firm, mobile mass measuring 2.5 × 2.0 cm is palpated in the upper outer quadrant of the left breast, adjacent to the areola. There is no right breast mass. The remainder of the examination is unremarkable.

Mammogram of the left breast shows a 2.9-cm speculated mass at the site of the palpable lesion. Ultrasound examination shows a 3.5-cm mass. Ultrasound-guided biopsy specimens reveal grade 3 invasive ductal carcinoma that is estrogen receptor negative, progesterone receptor negative, and HER2 positive. No lymphovascular invasion is noted.

A preoperative echocardiogram is normal; the left ventricular ejection fraction is 65%. The patient desires breast-conserving surgery, but the surgeon believes that the mass is too large to resect with a lumpectomy because of her small breast size, the moderately large size of the cancer, and its central location.

**Which of the following is the most appropriate management?**

(A) Mastectomy with postoperative chemotherapy
(B) Neoadjuvant anastrozole
(C) Neoadjuvant trastuzumab-based chemotherapy
(D) Staging CT and bone scans

**Item 91**

An 80-year-old woman is hospitalized after a mechanical fall. She has a history of stage I estrogen receptor-positive and progesterone receptor-positive left breast cancer diagnosed 13 years ago; HER2 testing was not done at that time. She was treated with breast-conserving surgery, primary breast radiation, and adjuvant tamoxifen for 5 years. She is not having any current bone pain or headaches.

On physical examination, vital signs are normal. A large palpable lesion is present over the left frontal skull. There is no lymphadenopathy. Examination of the left breast shows a healed incision with no masses. There are no right breast masses. The remainder of the examination is unremarkable.

Serum alkaline phosphatase level is elevated at 264 U/L (normal 36–92 U/L) and serum CA 15-3 level is 100.2 U/mL (normal <30 U/mL). Remaining laboratory studies, including serum calcium level, are normal.

CT scan of the head done in the emergency room shows a 3-cm lytic lesion in the left frontal skull. MRI of the brain confirms the presence of a large frontal skull lesion but shows no brain metastases. Bone and CT scans show lesions in the spine, skull, sternum, and bilateral ilium bones consistent with metastases. No visceral disease is present.

Biopsy of a lytic lesion in the right ilium shows metastic adenocarcinoma consistent with primary breast cancer (estrogen receptor positive, progesterone receptor positive, and HER2 negative).

**Which of the following is the most appropriate treatment?**

(A) Anastrozole
(B) Chemotherapy
(C) Radiation to areas of bone involvement
(D) Radium-223 isotope
Item 92
A 57-year-old woman undergoes follow-up evaluation. The patient underwent bilateral breast reduction surgery 3 months ago. The initial pathology report noted bilateral atypical ductal hyperplasia. Examination of additional pathology specimens showed no evidence of carcinoma. A mammogram obtained 2 months prior to the breast reduction surgery was normal.

The patient has been taking continuous conjugated estrogen and medroxyprogesterone hormone replacement therapy (HRT) since menopause at age 50 years. HRT has been tapered since the diagnosis of atypical ductal hyperplasia, and plans are to discontinue therapy in 1 month. There is no family history of breast or ovarian cancer.

On physical examination, vital signs are normal. Well-healed mastectomy incisions with mild induration are present. There are no breast masses. The remainder of the examination is unremarkable.

Which of the following is the most appropriate breast cancer prevention strategy?

(A) Begin antiestrogen chemoprevention therapy
(B) Begin vitamin D supplementation
(C) Bilateral prophylactic mastectomy
(D) Continue hormone replacement therapy

Item 93
A 70-year-old man undergoes follow-up evaluation for a recent diagnosis of colorectal cancer. He underwent left hemicolectomy and a bulky 8-cm tumor of the sigmoid colon was removed. Pathology reports revealed a poorly differentiated adenocarcinoma penetrating into pericolonic fat, with 1/22 resected lymph nodes involved with cancer (T3N1; stage III). The patient recovered well from surgery and completed 6 months of adjuvant chemotherapy.

Findings on physical examination today, including vital signs, are unremarkable.

The patient is scheduled to have physical examination and carcinoembryonic antigen monitoring every 3 to 6 months. Colonoscopy could not be performed preoperatively because of obstruction and is therefore scheduled to be done 6 months after surgery and repeated at 3- to 5-year intervals.

Which of the following surveillance imaging studies should also be done?

(A) Chest/abdomen CT scans annually for 3 to 5 years
(B) Chest/abdomen CT scans annually for 10 years
(C) PET/CT scans annually for 5 years
(D) No additional imaging studies

Item 94
A 35-year-old man undergoes follow-up evaluation. The patient is asymptomatic. Testicular cancer was diagnosed recently and was treated with radical inguinal orchectomy and adjuvant bleomycin/etoposide/cisplatin chemotherapy. Treatment was completed 3 months ago. Medical history is otherwise noncontributory, and the patient takes no medications.

On physical examination, vital signs are normal. The remainder of the examination is unremarkable.

Which of the following treatment-related conditions is this patient most likely to develop?

(A) Gastric ulcer
(B) Metabolic syndrome
(C) Obstructive uropathy
(D) Soft-tissue sarcoma

Item 95
A 48-year-old woman is evaluated for a 6-week history of fatigue and an enlarged right cervical lymph node. She has no significant medical history and takes no medications.

On physical examination, vital signs are normal. A 4-cm firm, enlarged right cervical lymph node is palpated. There is no other lymphadenopathy and no splenomegaly. The remainder of the examination is unremarkable.

Laboratory studies, including complete blood count, erythrocyte sedimentation rate, serum lactate dehydrogenase level, and serum β₂-microglobulin level, are normal.

Lymph node biopsy reveals effacement of the normal architecture by sheets of atypical lymphoid cells. Flow cytometry results are positive for B antigens CD19, CD20, CD22, and CD79a, consistent with diffuse large B-cell lymphoma. CT scans of the chest, abdomen, and pelvis show an isolated enlarged right cervical lymph node but are otherwise normal.

Which of the following is the most appropriate treatment?

(A) Allogeneic hematopoietic stem cell transplantation
(B) Autologous hematopoietic stem cell transplantation
(C) Involved-field radiation therapy
(D) Rituximab plus cyclophosphamide, doxorubicin, vincristine, and prednisone (R-CHOP)

Item 96
A 62-year-old man is evaluated for a 1-month history of nausea, anorexia, right upper quadrant abdominal pain, and a 4.5-kg (10-lb) weight loss. A superficial spreading melanoma of the left thigh, 2.2 mm deep, with one positive sentinel lymph node was diagnosed 1 year ago. The patient declined adjuvant interferon alfa therapy.

On physical examination, vital signs are normal. There is a well-healed 4-cm incision on the upper left anterior thigh and a healed incision in the left inguinal area. Abdominal examination reveals mild right upper quadrant tenderness to palpation, and the liver is palpable 4 cm below the costochondral margin with a nodular, firm edge. The remainder of the examination is normal.

Laboratory studies are significant for alanine aminotransferase of 211 U/L, aspartate aminotransferase of 156 U/L, and serum bilirubin of 1.6 mg/dL (27.4 μmol/L). CT scan of the abdomen and pelvis shows an enlarged liver with five hypodense lesions in both lobes measuring up to 2.5 cm that are consistent with metastases. There are no ascites, abdominal lymphadenopathy, or splenomegaly.
Ultrasound-guided liver biopsy specimens show metastatic melanoma. CT scan of the chest is normal.

Which of the following is the most appropriate next step in management?
(A) BRAF V600 mutation analysis
(B) Dacarbazine-based chemotherapy
(C) High-dose interferon alfa
(D) Immunotherapy with ipilimumab

**Item 97**
A 61-year-old woman undergoes routine follow-up evaluation. Stage II colon cancer was diagnosed 3 years ago and was treated with surgical resection. The patient now feels well. She works full time and exercises regularly. Medical history is otherwise unremarkable, and she takes no medications.

Findings on physical examination, including vital signs, are normal. Routine surveillance CT scans of the chest and abdomen show three new hypodense lesions in the right lobe of the liver, ranging in size from 1 to 3 cm. No other abnormalities are seen.

Which of the following is the most appropriate management?
(A) CT-guided needle biopsy of a liver lesion
(B) Hepatic artery embolization
(C) Palliative systemic chemotherapy
(D) Radiation therapy to the liver
(E) Right hepatectomy

**Item 98**
A 62-year-old man is evaluated for a 4- to 6-week history of passing bright red blood stool. He has no other symptoms. Medical history is unremarkable, and he takes no medications.

On physical examination, vital signs are normal. Abdominal examination is normal; the liver and spleen are not enlarged. Digital rectal examination reveals brown stool that is positive for occult blood.

Colonoscopy reveals a nonobstructing polypoid mass in the sigmoid colon. The remainder of the colon, from the ileocecal valve to the anus, is normal. Biopsy of the mass shows adenocarcinoma.

Which of the following diagnostic studies should be performed next?
(A) Bone scan
(B) CT colonography
(C) CT of the chest, abdomen, and pelvis
(D) PET/CT

**Item 99**
A 27-year-old man is evaluated in the emergency department for a 1-week history of bruising and gingival bleeding with flossing. He has no significant medical history and takes no medications.

On physical examination, temperature is 37.5 °C (99.5 °F), blood pressure is 110/80 mm Hg, pulse rate is 80/min, and respiration rate is 14/min. Scattered ecchymoses and cutaneous petechiae are present. There is no lymphadenopathy or splenomegaly.

**Laboratory studies:**
- Leukocyte count: 150,000/μL (150 × 10^9/L)
- Platelet count: 20,000/μL (20 × 10^9/L)
- Creatinine: 4 mg/dL (353.6 μmol/L)
- Fibrinogen: Normal
- Phosphorus: 8 mg/dL (2.58 mmol/L)
- Urate: 12 mg/dL (0.71 mmol/L)

Peripheral blood smear shows 70% circulating myeloblasts.

Which of the following is the most appropriate treatment?
(A) Fresh frozen plasma
(B) High-volume normal saline hydration and rasburicase
(C) Multidose chemotherapy
(D) Platelet transfusion

**Item 100**
A 32-year-old woman undergoes postoperative follow-up evaluation. The patient was diagnosed with a 1.9-cm, stage II, estrogen receptor-positive, progesterone receptor-positive, HER2-positive grade 3 invasive ductal carcinoma of the left breast, with 2/6 positive lymph nodes. She underwent breast excision 2 weeks ago. Medical history is otherwise noncontributory. She and her husband have one child and wish to have additional children.

On physical examination, vital signs are normal. There is a healing left breast incision. There is no lymphadenopathy. The remainder of the examination is unremarkable. Laboratory studies are normal.

Which of the following is the most appropriate next step in the management of this patient?
(A) Begin adjuvant chemotherapy without trastuzumab
(B) Delay chemotherapy until after further childbearing
(C) Recommend embryo cryopreservation before chemotherapy
(D) Advise against further pregnancies

**Item 101**
A 64-year-old man is evaluated for a 2-month history of increasing abdominal discomfort, right upper quadrant abdominal pain, and decreased appetite. He has lost 2.5 kg (5.5 lb) during this time. Medical history is unremarkable, and he takes no medications.

On physical examination, vital signs are normal. BMI is 29. A 3-cm left supraclavicular lymph node is palpated. The abdomen is moderately distended, soft, and nontender. The liver is enlarged on palpation. Testicular examination is unremarkable. A digital rectal examination shows a normal rectum and moderately enlarged prostate without nodularity. A stool sample is negative for occult blood.
Laboratory studies are significant for a serum alkaline phosphatase level of 340 U/L, serum total bilirubin level of 1.3 mg/dL (22.2 μmol/L), and serum creatinine level of 0.7 mg/dL (61.9 μmol/L).

CT scans of the chest, abdomen, and pelvis show extensive metastases scattered throughout the liver, with enlarged periportal and retroperitoneal lymph nodes measuring up to 4 cm in diameter and no bony metastases. CT-guided needle biopsy of the liver shows moderately differentiated adenocarcinoma. Upper endoscopy and colonoscopy are normal.

Treatment for which of the following malignancies would be most appropriate?

(A) Gastrointestinal
(B) Germ cell (testicular)
(C) Lung
(D) Neuroendocrine
(E) Prostate

Item 102

A 60-year-old woman is evaluated for a 5-year history of asymptomatic, intermittently enlarged lymph nodes. She has no other significant medical history and takes no medications.

On physical examination, the patient is afebrile, blood pressure is 140/85 mm Hg, pulse rate is 76/min, and respiration rate is 12/min. Enlarged cervical, axillary, and epitrochlear lymph nodes are palpated. There is no splenomegaly. The remainder of the examination is unremarkable.

Complete blood count and peripheral blood smear are normal. Chest radiograph is normal. CT scans show no evidence of mediastinal, abdominal, or pelvic lymphadenopathy.

A lymph node biopsy reveals a CD20-positive grade II follicular lymphoma, and a bone marrow biopsy shows infiltration with small CD20-positive lymphocytes representing 20% of the cellular elements. Fluorescence in situ hybridization analysis shows the presence of the BCL2 oncogene.

Which of the following is the most appropriate treatment?

(A) Lenalidomide
(B) Rituximab plus cyclophosphamide, doxorubicin, vincristine, and prednisone (R-CHOP)
(C) Rituximab
(D) Rituximab plus involved-field radiation therapy
(E) Observation

Item 103

A 44-year-old woman is evaluated for a 2-month history of a painless right neck mass. Medical history is unremarkable, and she takes no medications. She is a lifelong nonsmoker.

On physical examination, vital signs are normal. A 5-cm right anterior neck mass is palpated. The remainder of the examination is unremarkable.

An initial CT scan of the neck shows a 4.5-cm, partially necrotic, right-sided lymph node. Asymmetric thickening of the right base of the tongue is also seen. Subsequent laryngoscopy shows an ulcerated mass involving the right base of the tongue. Biopsy of the tongue mass identifies poorly differentiated invasive squamous cell carcinoma. PET/CT scans show no evidence of distant metastases.

Which of the following studies should be performed next?

(A) Bone scan
(B) Human papillomavirus immunohistochemistry testing
(C) MRI of the brain
(D) Right cervical lymph node biopsy

Item 104

A 72-year-old man is evaluated in the emergency department for a 3-week history of headache and facial swelling and a 2-week history of shortness of breath.

On physical examination, the patient is afebrile, blood pressure is normal, pulse rate is 104/min, and respiration rate is 22/min. Oxygen saturation is 90% on ambient air. Diffuse facial erythema is present, and neck veins are dilated bilaterally.

CT scan of the chest shows a 7-cm mediastinal left lung mass and bulky mediastinal lymphadenopathy. Superior vena cava compression with associated collateral vessels is also identified. MRI of the brain is negative.

Which of the following is the most appropriate management?

(A) Biopsy of the lung mass
(B) Immediate radiation therapy
(C) Placement of a superior vena cava stent
(D) Venography

Item 105

A 65-year-old woman is evaluated for aching pain in the bilateral hips, knees, and ankles.

Two years ago she was diagnosed with estrogen and progesterone receptor-positive, HER2-negative, stage IIIA cancer of the left breast, with 4 positive lymph nodes. She received adjuvant chemotherapy, breast radiation, and anastrozole. After eight months of anastrozole, she experienced severe arthralgia in her knees, hips, and ankles, worse in the morning and after sitting. Anastrozole was stopped for 3 weeks, and her symptoms markedly improved. Letrozole was then started. Now 4 months after beginning letrozole, her joint pains have recurred and are again debilitating. NSAIDs do not provide relief.

On physical examination, vital signs are normal. Well-healed bilateral mastectomy incisions are present without nodularity. There is no lymphadenopathy. The remainder of the physical examination is unremarkable.

In addition to discontinuing the letrozole, which of the following is the most appropriate management?

(A) Obtain PET scan
(B) Prednisone
(C) Restart anastrozole
(D) Start tamoxifen
Item 106
A 76-year-old woman is evaluated for a 3-month history of abdominal pain and weight loss. She has also had a nonproductive cough for several weeks. Medical history is unremarkable, and she takes no medications.
On physical examination, vital signs are normal. BMI is 22. A firm 3-cm left supraclavicular lymph node is palpated. Abdominal examination reveals a liver edge that is palpable 3 cm below the right costal margin. On digital rectal examination, a stool sample is positive for trace occult blood.
Contrast-enhanced CT scans of the chest and abdomen show multiple lung and liver metastases and a mass in the transverse colon. Biopsy of the mass obtained during colonoscopy reveals adenocarcinoma.

Which of the following diagnostic studies should be performed next?
(A) K-ras and N-ras genotyping of the tumor
(B) Measurement of serum dihydroxypropyridine dehydrogenase (DPD) level
(C) Measurement of serum UGT1A1 level
(D) Multigene array analysis of the tumor for prognostic markers

Item 107
A 68-year-old man requests evaluation for prostate cancer. He is asymptomatic. Following a discussion of the risks and benefits of prostate cancer screening, the patient decides to be screened.
Physical examination findings are normal. Digital rectal examination is normal.
Serum prostate-specific antigen level is 5.8 ng/mL (5.8 µg/L).
Transrectal ultrasound–guided prostate biopsy is done and shows adenocarcinoma in 2/12 cores, confined to the right lobe (Gleason score: 3+3 = 6).

Which of the following diagnostic imaging studies should be done next?
(A) Bone scan
(B) CT of the chest, abdomen, and pelvis
(C) Immunoscintigraphy
(D) PET/CT
(E) No imaging studies are needed

Item 108
A 38-year-old man is evaluated for a pigmented lesion on his upper left back. The lesion has been increasing in size over the past 2 months. He is otherwise asymptomatic. Medical history is unremarkable.
On physical examination, vital signs are normal. A 1.8-cm, irregular, dark, pigmented, slightly raised papule with irregular borders is present on his upper back. There are no adjacent lesions and no associated lymphadenopathy. The remainder of the examination is unremarkable.
Skin biopsy shows malignant melanoma, superficial spreading type, and measuring 1.4 mm in thickness, with invasion into the reticular dermis but not into the subcuta-
neous tissue. Dermal mitotic figures are not identified, and there is no lymphovascular invasion. Tumor extends to the lateral and deep margins of the excision. There is evidence of a vertical growth phase.

In addition to complete excision with a 2-cm margin, which of the following is the most appropriate treatment?
(A) Adjuvant chemotherapy
(B) Adjuvant interferon alfa
(C) Sentinel lymph node biopsy
(D) No further therapy

Item 109
A 69-year-old man undergoes follow-up evaluation. He was diagnosed with stage II colon cancer 3 years ago, and surgical resection was performed. The patient has been followed since then without additional treatment. He has no other medical problems and takes no medications.
Physical examination findings, including vital signs, are normal.
Follow-up contrast-enhanced CT scans of the chest and abdomen show two new hypodense lesions (6 cm and 4 cm) confined to the right lobe of the liver, with the larger lesion located close to hilum but without evidence of vascular invasion. No other metastases or additional abnormalities are identified.
The patient is evaluated by an experienced liver surgeon who believes that the larger lesion is unresectable due to its close proximity to the middle hepatic vein.
Laboratory studies, including measures of liver and kidney function, are normal.

Which of the following is the most appropriate approach to providing chemotherapy in this patient?
(A) Adjuvant chemotherapy
(B) Conversion chemotherapy
(C) Neoadjuvant chemotherapy
(D) Palliative chemotherapy
(E) No chemotherapy

Item 110
A 49-year-old woman is evaluated for a 3-month history of abdominal discomfort and fatigue. She has recently noted increasing abdominal girth despite a decreased appetite. Medical history is unremarkable, and she takes no medications.
On physical examination, vital signs are normal. BMI is 29. Cardiopulmonary examination is normal. The abdomen is moderately distended, soft, and nontender with shifting dullness consistent with ascites.
CT scans of the chest, abdomen, and pelvis are consistent with abdominal carcinomatosis with omental masses and ascites. No adnexal masses are seen.

Which of the following is the most appropriate management?
(A) Cytoreductive surgery followed by systemic chemotherapy
(B) Intraperitoneal chemotherapy
(O) Omental mass biopsy followed by pelvic radiation therapy and chemotherapy
(D) Ovarian biopsy followed by systemic chemotherapy
(E) Supportive comfort-oriented care

**Item 111**

A 70-year-old man undergoes follow-up evaluation to determine treatment options following a third occurrence of bladder cancer. High-grade transitional cell carcinoma of the bladder was initially diagnosed 7 months ago following cystoscopy to evaluate painless hematuria. Transurethral resection of the bladder tumor (TURBT) was performed followed by administration of intravesical bacillus Calmette-Guérin (BCG). Three months later, surveillance cystoscopy identified recurrent superficial high-grade transitional cell carcinoma in the same location that was again treated with TURBT and BCG. Now, 4 months following the second episode, high-grade transitional cell carcinoma is again diagnosed. This time, the cancer is in the same location with an additional focus near the trigone. No evidence of invasion into the muscle layer of the bladder has ever been identified.

Physical examination findings, including vital signs, are normal.

CT scans of the abdomen and pelvis (done at the time of the second recurrence) identified no evidence of significant bladder wall thickening, regional lymphadenopathy, or evidence of metastatic disease.

**Which of the following is the most appropriate treatment at this time?**

(A) Chemotherapy
(B) Cystectomy
(C) External-beam radiation therapy
(D) TURBT followed by intravesical BCG

**Item 112**

A 48-year-old man is evaluated for a 3-month history of dyspepsia, increasing episodes of nausea, and fatigue. He is maintaining adequate caloric intake and is continuing to work and participate in all routine daily activities, albeit with some increased fatigue.

On physical examination, the patient is afebrile, blood pressure is 115/70 mm Hg, pulse rate is 72/min, and respiration rate is 10/min. BMI is 26. A firm liver edge is palpated 5 cm below the right costal margin. The remainder of the examination is unremarkable.

Upper endoscopy reveals a mass arising in the wall of the proximal stomach just below the gastroesophageal junction. Biopsy of the mass reveals adenocarcinoma. CT scans of the chest and abdomen show multiple liver metastases and evidence of peritoneal carcinomatosis.

Before selecting a systemic chemotherapy regimen, which of the following information about the tumor biopsy specimen would be most helpful?

(A) BRAF mutational status
(B) Estrogen and progesterone receptor status
(C) HER2 expression status
(D) K-ras mutational status

**Item 113**

A 34-year-old woman is evaluated for a 4-week history of tenderness in her left lower breast. Her paternal grandmother died of ovarian cancer at age 54 years. There is no family history of breast cancer. She has a 2-cm palpable left lower outer breast mass on exam. The remainder of the examination is unremarkable.

Results of complete blood count and serum chemistry panel are normal. A mammogram shows increased density and calcifications at the site of the palpable mass. Ultrasound examination reveals a 1.9-cm hypoechoic mass. Ultrasound-guided needle biopsy specimens show a high-grade invasive ductal carcinoma, estrogen receptor-negative, progesterone receptor-negative, and negative for HER2 amplification.

**Which of the following is the most appropriate initial management?**

(A) Bilateral mastectomy
(B) BRCA1/2 testing
(C) Left mastectomy
(D) Lumpectomy with sentinel lymph node biopsy

**Item 114**

A 54-year-old woman undergoes an examination. She feels well and is asymptomatic. The patient asks to be screened for ovarian cancer. She is postmenopausal and has two children. She used oral contraceptives from age 20 to 35 years. There is no family history of breast, ovarian, colon, endometrial, or gastric cancer.

On physical examination, vital signs are normal. Other findings on physical examination, including pelvic and rectal examinations, are normal.

**Which of the following is the most appropriate ovarian cancer screening option for this patient?**

(A) Serum CA-125 testing
(B) Transvaginal ultrasound
(C) Transvaginal ultrasound and serum CA-125 testing
(D) No screening studies are indicated

**Item 115**

A 60-year-old woman is evaluated for right-sided flank pain. Medical history is unremarkable.

Findings on physical examination, including vital signs, are normal.

CT scan of the abdomen and pelvis identifies a 6-cm right upper pole kidney mass. The lesion is resected with negative margins. Pathology specimens show clear cell carcinoma with evidence of renal vein involvement.

**Which of the following is the most appropriate management after surgery?**

(A) Adjuvant sunitinib
(B) Adjuvant temsirolimus
(C) Radiation therapy
(D) Observation
**Item 116**

A 52-year-old woman is evaluated for a 3-month history of enlarged bilateral axillary lymph nodes. She has also recently developed fever, weight loss, and night sweats. Medical history is unremarkable, and she takes no medications.

On physical examination, temperature is 38.5 °C (101.3 °F), blood pressure is 100/60 mm Hg, pulse rate is 90/min, and respiration rate is 14/min. Firm bilateral axillary lymph nodes are palpable. Splenomegaly is present. The remainder of the examination is unremarkable.

**Laboratory studies:**
- Hemoglobin: 9.0 g/dL (90 g/L)
- Leukocyte count: 18,000/µL (18 x 10^9/L)
- Platelet count: 70,000/µL (70 x 10^9/L)
- Lactate dehydrogenase: Elevated
- β₂-microglobulin: Elevated

CT scans of the chest, abdomen, and pelvis show bilateral enlarged axillary and intra-abdominal lymph nodes and an enlarged spleen. Axillary lymph node excisional biopsy reveals diffuse infiltration with small monoclonal lymphoid cells with CD20+ and cyclin D1 overexpression. Subsequent colonoscopy is performed, and biopsy indicates mucosal infiltration with lymphoid cells expressing B-cell markers.

**Which of the following is the most likely diagnosis?**
(A) Diffuse large B-cell lymphoma
(B) Follicular lymphoma
(C) Hodgkin lymphoma
(D) Mantle cell lymphoma

**Item 117**

A 62-year-old woman undergoes follow-up evaluation. Stage II ovarian cancer was diagnosed 5 months ago. No residual cancer was identified after debulking surgery. Postoperative chemotherapy was given and resulted in complete remission. The patient currently reports feeling well.

Medical history includes stage I endometrial cancer diagnosed at age 42 years for which the patient underwent hysterectomy without bilateral salpingo-oophorectomy. Family history is significant for endometrial cancer in her maternal grandmother and colon cancer in her mother and maternal uncle.

On physical examination, vital signs are normal. A well-healed abdominal midline incision is present. Remaining examination findings are unremarkable.

Results of complete blood count, serum chemistry panel, and serum CA-125 level are normal.

**Which of the following studies should be done next?**
(A) BRCA1/2 testing
(B) Serial CT scans of abdomen and pelvis
(C) Serum CA-125 monitoring
(D) Testing for Lynch syndrome

**Item 118**

A 48-year-old man is evaluated for a 7-year history of spreading plaques associated with dry, itchy skin. He has no other significant medical history and takes no medications.

On physical examination, vital signs are normal. Skin lesions are present on the arms, back, and legs. Representative skin findings on the back are shown.

There is no lymphadenopathy or hepatosplenomegaly. The remainder of the examination is unremarkable. Results of complete blood count and serum chemistry panel are normal.

Chest radiograph is normal. Skin biopsy reveals infiltration with CD4-positive T cells with cerebriform appearing nuclei consistent with mycosis fungoides.

**Which of the following is the most appropriate management?**
(A) Cyclophosphamide, doxorubicin, vincristine, and prednisone (CHOP) chemotherapy
(B) Psoralen plus ultraviolet A (PUVA) therapy
(C) Topical glucocorticoids
(D) Rituximab

**Item 119**

A 69-year-old woman is evaluated for a 3-month history of intermittent rectal bleeding and increasing fatigue. Medical history is unremarkable, and she takes no medications. Her father died of metastatic colon cancer at age 78 years.

On physical examination, vital signs are normal. The abdomen is soft and nontender. Bowel sounds are normal, and the liver and spleen are not enlarged. Digital rectal examination discloses blood-streaked stool.

Colonoscopy reveals a nonobstructing 4-cm mass in the mid rectum, approximately 8 cm from the anal verge. Biopsy findings show adenocarcinoma. Pelvic MRI shows tumor penetration into, but not through, the rectal wall (TNM stage T2); no abnormal lymph nodes are seen (TNM stage N0). Contrast-enhanced CT scans of the chest and abdomen are normal.
Which of the following is the most appropriate treatment at this time?

(A) Chemotherapy  
(B) Radiation plus chemotherapy  
(C) Radiation plus chemotherapy followed by surgical resection  
(D) Surgical resection

**Item 120**

A 58-year-old woman is undergoing a routine cervical cancer screening examination. She is asymptomatic. The patient is postmenopausal and has two children. Medical history is unremarkable. Her mother was diagnosed with breast cancer at age 72 years.

On physical examination, vital signs are normal. An ovarian mass, measuring approximately 8 cm, is palpated on pelvic examination. Remaining examination findings are unremarkable.

Laboratory studies show a normal complete blood count, chemistry panel, and serum CA-125 level.

Transvaginal ultrasound shows a 12.8-cm complex mass in the cul de sac extending to both adnexa. No ascites are present. CT scan of the pelvis shows a 13.4-cm complex left pelvic mass and a 5.8-cm right pelvic mass but no liver lesions, ascites, peritoneal masses, or pleural effusions. Chest radiograph and chest CT scans are normal.

Which of the following is the most appropriate management?

(A) CT-guided biopsy of the mass  
(B) Exploratory surgery  
(C) MRI of the abdomen and pelvis  
(D) BRCA1/2 testing

**Item 121**

A 54-year-old man is evaluated for a 3-month history of worsening dyspepsia, gastric bloating, and abdominal discomfort. His dyspepsia has so far been treated with ranitidine. The patient is allergic to penicillin.

On physical examination, the patient is afebrile, blood pressure is 112/70 mm Hg, pulse rate is 83/min, and respiration rate is 14/min. BMI is 25. No palpable lymphadenopathy is present. Abdominal examination reveals mild epigastric tenderness. The remainder of the examination is unremarkable.

The hemoglobin level is 11.5 g/dL (115 g/L). Complete blood count and differential are otherwise normal. Results of fecal occult blood testing are positive.

Upper endoscopy shows several small gastric ulcers. Histopathologic studies reveal evidence of Helicobacter pylori infection and small clonal mucosa-associated B cells expressing the CD20 antigen consistent with mucosa-associated lymphoid tissue lymphoma. A CT scan of the abdomen shows no evidence of lymphadenopathy.

Ranitidine is discontinued.

Which of the following is the most appropriate management?

(A) Begin omeprazole, metronidazole, and clarithromycin  
(B) Begin rituximab  
(C) Obtain bone marrow biopsy  
(D) Obtain PET/CT scan

**Item 122**

A 61-year-old man is evaluated in follow-up after surgical resection of a tongue base tumor.

A neck CT showed asymmetric thickening of the left tongue base and a 2-cm lymph node on the left. Biopsy identified moderately differentiated invasive squamous cell carcinoma. Preoperative PET/CT showed no distant metastatic disease. At surgery, the mass was resected with one positive margin; left modified radical neck dissection identified 3/31 positive lymph nodes, with one lymph node with extracapsular extension.

On physical examination, vital signs are normal. The tongue base resection is well healed and the oral cavity is otherwise normal. The neck incisions are clean and dry, and no lymphadenopathy is detected.

Which of the following is the most appropriate postsurgical management?

(A) Cetuximab alone  
(B) Chemotherapy alone  
(C) Chemotherapy and radiation therapy  
(D) Radiation therapy followed by chemotherapy  
(E) Observation

**Item 123**

A 24-year-old man is evaluated after he felt a mass in his right testicle. The patient is asymptomatic and is otherwise healthy.

On physical examination, vital signs are normal. A 2- to 3-cm solid mass is palpated in the right testicle. The remainder of the examination is unremarkable.

Serum α-fetoprotein level is normal, serum lactate dehydrogenase (LDH) level is 450 U/L, and serum β-human chorionic gonadotropin level is less than 5 U/L.

Testicular ultrasound confirms the presence of a hypoechoic solid right testicular mass.

Right radical inguinal orchietomy is performed, and pathological examination reveals seminoma. Subsequent CT scan of the abdomen and pelvis shows no lymphadenopathy or evidence of metastatic disease. The tumor is stage I based on surgical and radiographic findings and tumor marker studies. LDH is normal following orchietomy.

Which of the following is the most appropriate management for this patient?

(A) Active surveillance  
(B) Hematopoietic stem cell transplantation  
(C) Platinum-based chemotherapy  
(D) Retroperitoneal lymph node dissection
Self-Assessment Test

Item 124
A 59-year-old woman undergoes follow-up evaluation for management of limited-stage small cell lung cancer diagnosed during care for an episode of pneumonia.

The patient was treated with a course of chemotherapy and radiation therapy. CT scan of the chest following treatment showed near-complete resolution of the lung mass and lymphadenopathy.

On physical examination, vital signs are normal. Auscultation of the chest is unremarkable, and the remainder of her examination is normal.

Which of the following is the most appropriate next step in the management of this patient?

(A) Maintenance chemotherapy
(B) PET/CT scan
(C) Prophylactic cranial irradiation
(D) Surgical removal of the residual lung mass

On physical examination, vital signs are normal. BMI has remained stable at 22.4. Well-healed left breast and left axilla incisions are present. There are no breast masses or lymphadenopathy. The remainder of the examination is unremarkable.

Results of a bilateral mammogram obtained 1 month ago were normal.

Which of the following is the most appropriate next step in the management of this patient?

(A) Bilateral breast MRI
(B) Complete blood count, liver chemistry studies, and CEA and CA 15-3 measurement
(C) CT of the chest, abdomen, and pelvis and bone scan
(D) No diagnostic studies at this time

Item 125
A 68-year-old man undergoes follow-up evaluation. The patient has stage IIIB nodular sclerosing Hodgkin lymphoma that was initially diagnosed 3 years ago. Complete remission was achieved following administration of six cycles of doxorubicin, bleomycin, vinblastine, and dacarbazine (ABVD) chemotherapy. Two months ago, stage IIIB Hodgkin lymphoma was again diagnosed. Salvage chemotherapy was initiated with dexamethasone, ifosfamide, cisplatin, and etoposide (DICE). The patient has now completed two cycles of DICE chemotherapy.

On physical examination, the patient is afebrile, blood pressure is 142/80 mm Hg, pulse rate is 80/min, and respiratory rate is 12/min. There is no palpable lymphadenopathy. The remainder of the examination is unremarkable. Results of a complete blood count and serum chemistry panel are normal.

PET/CT imaging shows no residual disease.

Which of the following is the most appropriate treatment at this time?

(A) Allogeneic hematopoietic stem cell transplantation
(B) Autologous hematopoietic stem cell transplantation
(C) Continued salvage DICE chemotherapy
(D) Involved-field radiation therapy

Item 126
A 44-year-old woman undergoes follow-up evaluation. Stage I cancer of the left breast was diagnosed 3 years ago (1.4-cm, grade 2 invasive ductal carcinoma, estrogen receptor positive, progesterone receptor positive, HER2 negative, 0/2 positive sentinel lymph nodes, and a low score on 21-gene recurrence score testing). BRCA1/2 testing results were negative. She underwent breast-conserving surgery and radiation therapy and then started tamoxifen. The patient is concerned about her risk of recurrence. Menses are irregular. She has occasional hot flushes and night sweats on tamoxifen but otherwise feels well. There is no family history of breast or ovarian cancer.

On physical examination, vital signs are normal. The patient recently required surgery for stage 1 cancer of the right breast confirmed as a grade 3 invasive ductal carcinoma that was estrogen receptor negative, progesterone receptor negative, and HER2 negative. Sentinel lymph nodes were negative. The patient currently states that she feels well. Medical history is otherwise unremarkable, and she is perimenopausal.

On physical examination, vital signs are normal. Healed incisions of the right breast and right axilla are present. There are no masses in either breast and no lymphadenopathy. The remainder of the examination is unremarkable.

In addition to a bishphosphonate, which of the following is the most appropriate treatment?

(A) Bilateral orchietomy
(B) Estrogen therapy
(C) External-beam radiation to the lumbar spine
(D) Radium-223

Item 128
A 51-year-old woman undergoes a follow-up evaluation. The patient recently required surgery for stage 1 cancer of the right breast confirmed as a grade 3 invasive ductal carcinoma that was estrogen receptor negative, progesterone receptor negative, and HER2 negative. Sentinel lymph nodes were negative. The patient currently states that she feels well. Medical history is otherwise unremarkable, and she is perimenopausal.

On physical examination, vital signs are normal. Healed incisions of the right breast and right axilla are present. There are no masses in either breast and no lymphadenopathy. The remainder of the examination is unremarkable.
Which of the following is the most appropriate next step in management?

(A) Anastrozole  
(B) Anthracycline-based chemotherapy  
(C) Autologous hematopoietic stem cell transplantation  
(D) Bevacizumab

**Item 129**

A 38-year-old woman undergoes routine follow-up evaluation. The patient was treated with mantle irradiation for stage IIA Hodgkin lymphoma at age 19 years. She has done well and has no evidence of recurrence. Personal and family medical histories are noncontributory.

On physical examination, vital signs are normal. A healed incision from a previous lymph node biopsy is present in the right supraclavicular area. There is no lymphadenopathy, and breast examination is normal. The remainder of the examination is unremarkable.

No recent imaging studies have been obtained.

Which of the following is the recommended cancer screening program for this patient?

(A) Begin annual mammograms now  
(B) Begin annual mammogram and breast MRIs now  
(C) Begin annual mammograms at age 40 years  
(D) Begin monthly breast self-examination now

**Item 130**

A 55-year-old woman undergoes follow-up evaluation for a recent diagnosis of lung cancer. Initial evaluation included a plain chest radiograph that showed a right middle lobe mass confirmed as a 3-cm spiculated mass on chest CT. PET/CT identified hypermetabolic uptake in the mass but was otherwise normal.

On surgical resection, the tumor was identified as an intermediate-grade adenocarcinoma with clear margins and was negative for molecular genetic abnormalities. One hilar lymph node was positive, and 10/10 mediastinal lymph nodes were negative for tumor.

She has never smoked. Medical history is otherwise negative, and she takes no medications.

On physical examination, vital signs are normal. Her right thoracic surgical incisions are clean and dry. The lung fields are clear. The remainder of her examination is unremarkable.

Which of the following is the most appropriate next step in this patient’s management?

(A) Chemotherapy  
(B) Erlotinib  
(C) Radiation therapy  
(D) Observation

**Item 131**

A 58-year-old woman is evaluated for a 6-month history of progressive lymphadenopathy. She is otherwise asymptomatic. Medical history is unremarkable, and she takes no medications.

On physical examination, vital signs are normal. Cervical and axillary lymphadenopathy is palpated. Abdominal examination reveals splenomegaly; the liver is not enlarged. The remainder of the examination is unremarkable.

Laboratory studies indicate a leukocyte count of 12,000/µL (12.0 x 10^9/L), with 65% lymphocytes.

CT scans show diffuse cervical, axillary, abdominal, and pelvic lymphadenopathy and splenomegaly.

Which of the following diagnostic studies should be performed next?

(A) Bone marrow biopsy  
(B) Excisional biopsy of an enlarged lymph node  
(C) Fine-needle lymph node biopsy  
(D) Lumbar puncture  
(E) PET/CT scan

**Item 132**

A 79-year-old man is evaluated for a recent diagnosis of prostate cancer following detection of a left-sided prostate nodule during evaluation for worsening prostatic hyperplasia symptoms. Biopsy of the prostate nodule showed adenocarcinoma with a Gleason score of 3+4=7; additional core samples were negative for cancer. Medical history is also significant for myocardial Infarction and heart failure. The patient has been hospitalized three times in the past 12 months because of exacerbations of heart failure. Medications are carvedilol, lisinopril, metoprolol, aspirin, furosemide, tamsulosin, and finasteride.

On physical examination, vital signs are normal. Mild bibasilar crackles are auscultated and there is trace lower extremity edema. The remainder of the physical examination is unremarkable.

Serum prostate-specific antigen level prior to biopsy was 4.9 ng/ml (4.9 µg/L).

Which of the following is the most appropriate management?

(A) Active surveillance  
(B) Cryotherapy  
(C) External-beam radiation therapy  
(D) Radical prostatectomy  
(E) Observation

**Item 133**

A 77-year-old woman is evaluated for new-onset fatigue and anemia. She otherwise feels well. Medical history is unremarkable, and she takes no medications.

Physical examination findings, including vital signs, are normal. BMI is 22.

Colonoscopy identifies a 7-cm mass in the transverse colon. Biopsy of the mass shows poorly differentiated adenocarcinoma. Contrast-enhanced CT scans of the chest, abdomen, and pelvis show the mass, but no other abnormalities are identified.
Which of the following is likely to be the most important factor in determining this patient's prognosis?

(A) Degree of differentiation of the tumor
(B) Patient's performance status
(C) Size of the tumor
(D) Stage of the tumor

On physical examination, vital signs are normal. The remainder of the examination is unremarkable except for the palpable liver edge.

Laboratory studies:
- Alkaline phosphatase: 115 U/L
- Alanine aminotransferase: Normal
- Aspartate aminotransferase: Normal
- Total bilirubin: Normal
- Serotonin: Normal

Which of the following is the most appropriate management?

(A) Hepatic artery embolization
(B) Octreotide therapy
(C) Radiofrequency ablation of the liver lesions
(D) Repeat abdominal imaging in 3 to 4 months
(E) Systemic chemotherapy

Item 135

A 62-year-old man undergoes follow-up evaluation. The patient received an examination 2 weeks ago following a minor bicycle accident during which a firm, nontender, palpable liver edge 2 cm below the right costal margin was found incidentally. Examination findings were otherwise unremarkable.

A contrast-enhanced CT scan of the abdomen showed a slightly enlarged liver with numerous (>10) hypodense lesions ranging in size from 0.5 to 1.5 cm. Needle biopsy of a liver lesion showed a low-grade, well-differentiated neuroendocrine tumor with fewer than 2 mitoses per 50×hpf. An Indium-111 pentetreotide scan (radiolabeled octreotide scan) confirmed the presence of multiple small-volume liver lesions, as well as an approximately 1-cm area of increased avidity in the mesentery consistent with a small bowel carcinoid primary tumor.

Medical history is otherwise unremarkable. He has not had diarrhea, constipation, flushing of the skin, or wheezing. He takes no medications.

A 55-year-old man is evaluated for a 1-year history of postprandial indigestion. Associated symptoms are nausea, oily stools, and a 4.5-kg (10-lb) weight loss over the past 6 months. His medical history is significant for a recent diagnosis of prediabetes. His current medications are ibuprofen, acetaminophen, and omeprazole.

On physical examination, vital signs are normal; BMI is 25. Scleral icterus is present. Abdominal examination reveals epigastric abdominal pain without guarding or rebound. The remainder of the examination is normal.

Upper endoscopy is normal. Contrast-enhanced CT scan shows a solid 2.5-cm hypovascular lesion suspicious for pancreatic adenocarcinoma confined to the head of the pancreas. Dilation of the upstream pancreatic duct and common bile duct is noted. There is no regional lymphadenopathy. The liver parenchyma appears normal.

Which of the following is the most appropriate management?

(A) Endoscopic ultrasound-guided fine needle aspiration
(B) Measurement of CA 19-9
(C) Percutaneous needle biopsy
(D) Surgical resection of the pancreatic mass

Item 137

A 63-year-old woman is evaluated for a 2-month history of pain in her right chest and right ribs as well as right upper abdominal discomfort. Medical history is significant for stage II cancer of the right breast diagnosed 4 years ago and identified as an estrogen receptor-positive, progesterone receptor-negative, HER2-negative invasive ductal carcinoma with negative sentinel lymph nodes. She was treated with breast-conserving therapy, primary breast radiation therapy, and adjuvant chemotherapy and has been receiving adjuvant anastrozole since completing radiation.
On physical examination, vital signs are normal. There is tenderness present over the anterior lower right ribs, but no mass or bone defects are present. There are no breast masses or lymphadenopathy. Abdominal examination shows no epigastric mass or tenderness. The liver and spleen are not palpable.

Chest and rib radiographs are normal. CT scans of the abdomen and pelvis show two liver lesions and lytic bone lesions in the spine and pelvis consistent with metastases.

Which of the following is the most appropriate management?

(A) Anthracycline-based chemotherapy
(B) Biopsy of a liver lesion
(C) Exemestane combined with everolimus
(D) PET/CT scan

Item 138

A 70-year-old woman is hospitalized for worsening generalized weakness, anorexia for several days associated with weight loss, and back pain responsive to NSAID administration. The patient recently completed chemotherapy for poorly differentiated adenocarcinoma of the right lung and metastasis-related pathologic compression of the L3 vertebral body without cord compression. Her Eastern Cooperative Oncology Group/World Health Organization performance status is 3 (confined to bed or chair more than 50% of waking hours).

At the time of diagnosis, the patient was treated with four cycles of carboplatin/paclitaxel chemotherapy. CT scans after completing chemotherapy showed an increase in the right lung mass, a new right pleural effusion, increased size of hilar and mediastinal lymph nodes, and new lesions in the liver, consistent with metastases.

On physical examination, the patient is afebrile, blood pressure is 95/57 mm Hg, pulse rate is 90/min, and respiration rate is 20/min. Oxygen saturation is 94% on ambient air. Decreased breath sounds are auscultated over the right lower lung field. There is tenderness over the lumbosacral area. Neurological examination is normal.

Which of the following is the most appropriate next step in management?

(A) Comprehensive palliative care assessment
(B) Initiation of a different chemotherapy regimen
(C) Initiation of artificial nutrition support
(D) Placement of a thoracostomy tube
(E) Radiation therapy to the L3 vertebral body

On physical examination, blood pressure is 150/95 mm Hg; other vital signs are normal. Oxygen saturation is 99% on ambient air. Facial plethora is present. There is no hepatosplenohegaly. The remainder of the examination is unremarkable.

Laboratory studies:
- Erythrocyte sedimentation rate: 150 mU/mL (150 U/L)
- Hematocrit: 55.2%
- Hemoglobin: 18.2 g/dL (182 g/L)
- Leukocyte count: 8200/μL (8.2 × 10^9/L)
- Platelet count: 312,000/μL (312 × 10^9/L)

Urine analysis reveals microscopic hematuria.

Which of the following diagnostic studies should be performed next?

(A) Bone marrow biopsy
(B) CT of the abdomen and pelvis
(C) JAK2 mutation testing
(D) Peripheral blood flow cytometry

Item 140

A 42-year-old man is evaluated for a 3-month history of dyspepsia and increasing episodes of nausea. Medical history is unremarkable, and he takes no medications. On physical examination, vital signs are normal. Examination of the abdomen is normal.

Upper endoscopy discloses a large (6-cm) mass in the wall of the proximal duodenum. Biopsy reveals a gastrointestinal stromal tumor staining positive for KIT protein (CD117). Contrast-enhanced CT scans of the chest and abdomen show no other abnormalities.

The patient undergoes complete resection of the mass with clear margins. The final pathology report confirms the original diagnosis and notes a high mitotic rate of 5 to 10 mitoses per 50 hpf. The tumor is classified as being at higher risk for recurrence on the basis of its mitotic rate, large size, and location in the small intestine.

Which of the following is the most appropriate adjuvant treatment?

(A) Epirubicin, cisplatin, and 5-fluorouracil
(B) Imatinib
(C) Radiation therapy
(D) Observation

Item 141

A 37-year-old woman is evaluated in the emergency department for fever and rigors of 4 hours' duration. Medical history is significant for acute lymphoblastic leukemia for which she completed multiagent chemotherapy 10 days ago. Her medical history is otherwise noncontributory, and she takes no other medications.

On physical examination, temperature is 38.8 °C (101.8 °F), blood pressure is 110/60 mm Hg, pulse rate is 100/min, and respiration rate is 16/min. On pulmonary
examination, the lungs are clear. The remainder of the physical examination is unremarkable.

Laboratory studies indicate a leukocyte count of 0.3/µL (0.0003 x 10^9/L) with 0 neutrophils. The remaining laboratory studies are normal.

A chest radiograph is normal. Blood and urine cultures are obtained.

**Which of the following is the most appropriate next step in management?**

(A) Administer granulocyte-macrophage colony-stimulating factor
(B) Await culture results before starting antimicrobial therapy
(C) Begin piperacillin-tazobactam
(D) Begin vancomycin

**Item 142**

A 61-year-old man undergoes follow-up evaluation for prostate cancer diagnosed 6 months ago that was treated with radical prostatectomy. CT scans of the chest, abdomen, and pelvis at the time of diagnosis were normal. Bone scan at that time showed no evidence of metastatic disease. The serum prostate-specific antigen (PSA) level at the time of surgery was 12 ng/mL (0.2 µg/L), decreasing to 0.6 ng/mL (0.6 µg/L) 6 weeks after surgery.

Physical examination findings are unremarkable.

Serum PSA measurement obtained at the time of this visit is 10 ng/mL (10 µg/L). Repeat imaging studies were obtained, and no evidence of metastatic disease was identified.

**Which of the following is the most appropriate management?**

(A) Androgen deprivation therapy
(B) Chemotherapy
(C) Continued monitoring of the serum PSA level
(D) Salvage radiotherapy

**Item 143**

A 72-year-old man is evaluated for a 4-month history of pain in the left side of his throat. He also has pain when swallowing and a 2-month history of dysphagia. The patient has a 15-pack-year smoking history but stopped smoking 5 years ago. Medical history is otherwise unremarkable, and he takes no medications.

On physical examination, vital signs are normal. There is no palpable cervical adenopathy and there are no abnormalities on inspection or palpation of the oral pharynx and tongue.

Laryngoscopy identifies a mass centered in the left tongue base. Biopsy of the mass identifies moderately differentiated invasive squamous cell carcinoma. PET/CT scans show hypermetabolic uptake in the tongue base mass without any evidence of cervical lymph node involvement or distant metastasis. On PET/CT the tongue base mass measures 2.1 cm.

**Which of the following is the most appropriate treatment approach for this patient?**

(A) Concurrent cisplatin-based chemotherapy followed by radiation
(B) Radiation followed by adjuvant chemotherapy
(C) Radiation therapy plus cetuximab
(D) Radiation therapy or surgery alone

**Item 144**

A 55-year-old man undergoes follow-up evaluation for pancreatic cancer. He underwent a pancreaticoduodenectomy (Whipple procedure), with the pathology report showing stage II pancreatic cancer. Because of postoperative complications and a slow recuperation period, he did not receive postoperative therapy. Nine months postoperatively, the patient was able to resume all activities, including full-time work and regular exercise. Three months later, however, he developed right upper quadrant pain. A CT scan showed postsurgical changes in the pancreatic bed and multiple liver metastases. The patient remains medically fit, has good oral intake, and maintains all activities. Medical history is otherwise unremarkable, and he takes no medications.

On physical examination, vital signs are normal. BMI is 27. The abdomen is soft and nontender with normal bowel sounds. The liver is enlarged. The remainder of the examination is unremarkable.

**Laboratory studies:**

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin</td>
<td>12.8 g/dL (128 g/L)</td>
</tr>
<tr>
<td>Leukocyte count</td>
<td>7200/µL (7.2 x 10^9/L)</td>
</tr>
<tr>
<td>Platelet count</td>
<td>302,000/µL (302 x 10^9/L)</td>
</tr>
<tr>
<td>Albumin</td>
<td>Normal</td>
</tr>
<tr>
<td>Total bilirubin</td>
<td>Normal</td>
</tr>
<tr>
<td>Creatinine</td>
<td>Normal</td>
</tr>
</tbody>
</table>

**Which of the following is the most appropriate management?**

(A) Multigent systemic chemotherapy
(B) Single-agent systemic chemotherapy
(C) Radiation therapy to the liver
(D) Transarterial chemoembolization of liver lesions

**Item 145**

A 32-year-old man is evaluated in the emergency department for fever, neck pain, and a rapidly enlarging right cervical lymph node. The patient first noticed the lymph node 3 weeks ago. He has no significant medical history and takes no medications.

On physical examination, temperature is 38.5 °C (101.3 °F), blood pressure is 120/70 mm Hg, pulse rate is 110/min, and respiration rate is 17/min. A 16-cm firm, enlarged right cervical lymph node is palpated. There is no other lymphadenopathy and no splenomegaly. The remainder of the examination is unremarkable.

**Laboratory studies:**

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete blood count</td>
<td>Normal</td>
</tr>
<tr>
<td>Creatinine</td>
<td>1.2 mg/dL (106.1 µmol/L)</td>
</tr>
<tr>
<td>Lactate dehydrogenase</td>
<td>830 U/L</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>5.4 mg/dL (1.74 mmol/L)</td>
</tr>
<tr>
<td>Potassium</td>
<td>5.0 mEq/L (5.0 mmol/L)</td>
</tr>
<tr>
<td>Urate</td>
<td>8.0 mg/dL (0.47 mmol/L)</td>
</tr>
</tbody>
</table>
CT scans of the chest, abdomen, and pelvis reveal a 20-cm enlarged right cervical lymph node that is displacing the trachea to the left. Biopsy of the node shows CD20-positive Burkitt lymphoma. Treatment with hydration, furosemide, and allopurinol is initiated.

Which of the following is the most appropriate additional treatment?

(A) Involved-field radiation therapy
(B) Clarithromycin, amoxicillin, plus omeprazole
(C) Rituximab plus hyperfractionated cyclophosphamide, vincristine, doxorubicin, and dexamethasone (R- hyper-CVAD)
(D) Surgical debulking followed by radiation therapy

**Item 146**

A 45-year-old man undergoes follow-up evaluation for chronic lymphocytic leukemia. He was diagnosed 1 year ago after presenting with profound fatigue, decreased performance status, diffuse lymphadenopathy, and splenomegaly. He has been treated with rituximab, fludarabine, cyclophosphamide, and prednisone since the time of diagnosis without significant improvement in his symptoms or blood counts. He continues to complain of marked fatigue but minimal symptoms associated with lymphadenopathy or splenic enlargement. He reports no abnormal bleeding. Current medications are alemtuzumab and gamma globulin. Family history is significant for a mother with transfusion-dependent myelodysplastic syndrome and a sister and brother who are well.

On physical examination, vital signs are normal. Enlarged cervical, axillary, and inguinal lymph nodes are palpated. Splenomegaly extending 15 cm below the costal margin at the anterior axillary line is present. The remainder of the examination is unremarkable.

Laboratory studies show a hemoglobin level of 9.5 g/dL (95 g/L), a leukocyte count of 30,000/µL (30 x 10^9/L) with 70% small mature lymphocytes, and a platelet count of 40,000/µL (40 x 10^9/L).

Flow cytometry studies show small mature B cells co-expressing CD5 and CD23. Fluorescence in situ hybridization indicates a chromosome 17p deletion.

Chest radiograph is normal. CT scans show extensive cervical, axillary, abdominal, and pelvic lymphadenopathy and splenomegaly.

Which of the following is the most appropriate next step in treatment?

(A) Hematopoietic stem cell transplantation
(B) Leukapheresis
(C) Lymph node radiation
(D) Spleenectomy

**Item 147**

A 76-year-old man is evaluated for a 1-month history of increasing fatigue, abdominal pain, decreased appetite, and a 4.5-kg (10-lb) weight loss. He does not have cough, dyspnea, or chest pain. Medical history is unremarkable, and he takes no medications. The patient is a lifelong nonsmoker.

On physical examination, the patient is afebrile, blood pressure is 130/80 mm Hg, pulse rate is 84/min, and respiration rate is 12/min. Abdominal examination reveals hepatomegaly. The remainder of the examination is unremarkable.

The serum alkaline phosphatase level is 225 U/L, the serum total bilirubin level is 2.0 mg/dL (34.2 µmol/L), and the serum creatinine level is 0.9 mg/dL (79.6 µmol/L).

Contrast-enhanced CT scans of the abdomen and pelvis show multiple liver metastases with 50% liver replacement and several metastases in the ribs and pelvic bones. CT-guided needle biopsy of the liver reveals high-grade poorly differentiated neuroendocrine cancer. A subsequent chest CT scan shows no evidence of tumor.

Which of the following is the most appropriate treatment?

(A) Hepatic artery embolization
(B) Octreotide
(C) Platinum-based systemic chemotherapy
(D) Radiation therapy for bone metastases
(E) Radiofrequency ablation of liver metastases

**Item 148**

A 43-year-old woman undergoes follow-up evaluation following a recent diagnosis of estrogen receptor-positive, progesterone receptor-positive, HER2-negative, grade 2 invasive ductal carcinoma of the left breast. The patient was treated with surgery, adjuvant chemotherapy, and radiation therapy. This is her first postradiation visit. She currently takes no medications. She is premenopausal.

On physical examination, vital signs are normal. Well-healed incisions of the left breast and left axilla are present. There is no lymphadenopathy and no right breast masses. The remainder of the examination is unremarkable.

Results of a complete blood count and serum chemistry panel are normal.

Which of the following is the most appropriate therapy?

(A) Exemestane alone
(B) Tamoxifen alone
(C) Maintenance chemotherapy with oral capecitabine
(D) No additional adjuvant therapy

**Item 149**

A 65-year-old man is seen in follow-up for a recent diagnosis of non-small cell lung cancer. He presented 2 weeks ago with a 3-month history of worsening shortness of breath, fatigue, and reduced appetite with a 35-pound weight loss. Medical history is notable for COPD with baseline shortness of breath with exertion, but no supplemental oxygen
requirement. Medications are tiotropium and as-needed albuterol metered dose inhalers.

Physical examination at the time of diagnosis revealed decreased breath sounds in the left lung field. Chest radiograph showed near complete obliteration of the left lung field. CT scan of the chest confirmed the presence of a large left-sided pleural effusion and showed evidence of multiple hepatic and osseous metastatic lesions. He underwent left-sided large volume thoracentesis, and cytology confirmed squamous cell carcinoma.

He currently notes that despite fluid drainage, his breathing has not improved significantly and he is now using home oxygen. He remains weak, spending significant time in bed and requiring assistance in performing many of his daily self-care activities.

Chest auscultation reveals a clear improvement in left-sided breath sounds, and a chest radiograph shows a small amount of residual pleural fluid on the left.

Which of the following is the most appropriate management?
(A) Palliative care assessment
(B) Platinum-based chemotherapy
(C) Pleurodesis
(D) Radiation to bone metastases
**MONDAY**

**Multidisciplinary Breast Conference**  Weekly 7:30-9:30 am, New Inpatient Tower, IPT Tower, Conference Room A. **Mandatory for Team 2 fellow**; optional for other fellows, but fellows with patients to discuss from clinic should be present.  **CLINICAL**

---

**TUESDAY**

**Radiology Conference – Hepatoma Intervention Procedures**, 8:00 to 8:45 am, Radiology Reading Room, 2nd floor, for Norris Fellow. **OPTIONAL**

**Cancer Center Grand Rounds** – Cancer Center Grand Rounds is an important mechanism used to promote interdisciplinary research within the program areas. These bi-monthly rounds provide Cancer Center members with an awareness of emerging developments in other fields and promote development of new directions. Cancer Center Grand Rounds are held at the USC Keck School of Medicine in the USC/Norris Comprehensive Cancer Center, Aresty Auditorium in the Harlyne Norris Research Tower (Lower Ground Level) from 12:00-1:00 pm. **BASIC SCIENCE AND CLINICAL.**

**Multidisciplinary Hepatocellular Cancer Conference** – Weekly 2-4 pm. Keck/UH Cardinal Conference Room, **CLINICAL – OPTIONAL**

**GI Tumor Board** – 1st and 3rd Tuesday at 4:00pm-5:00pm, NRT G508 – **OPTIONAL.**

**Division Meeting** – 3rd Tuesday at 5:00-6:00pm, NTT 3424 – Fellows to attend

**Melanoma Tumor Board** – 1st Tuesday at 5:05pm, NRT G508 – **OPTIONAL.**

---

**WEDNESDAY**

**Case Conference (weekly)/M&M (monthly)** – Weekly 8:00 – 9:00 am, NTT 3424. Case presentations or M&M cases presented by fellows and discussion by fellows and faculty. The last Friday of the month is assigned to M&M conference. **Team 1 and 2 fellows responsible for cases**, although other cases may be presented. **Relevant literature is to be presented with every case. Mandatory for all fellows.**  **CLINICAL**

**Didactic Lectures** – Weekly 12:00-1:00pm, NTT 3424. Intensive didactic lecture series directed at fellows, but residents and interns should also attend **Mandatory for all fellows.**  **CORE CURRICULUM**

**Oncology Pathology Conference** – 1st Wednesday of each month; 12:00-1:00pm. County Hospital, CT building, room A7A103, Surgical Pathology. Slide review on oncology cases. **Mandatory for all fellows**, residents, and interns. Fellows with clinic cases to be reviewed should be present as well.  **CLINICAL**

**Multidisciplinary Gastrointestinal Oncology Conference** – Weekly 2:00 –3:30 pm, New Clinic Tower, 1st floor Rad Onc Conf Room.A1B118  **Mandatory for Team II fellows**, residents, and interns.  **CLINICAL**
Division of Medical Oncology  
USC Department of Medicine  
Conferences

**WEDNESDAY (continued)**

**Multidisciplinary Gastrointestinal Oncology Conference** – Weekly 2:00 – 4:30 pm, New Clinic Tower, 1st floor Rad Onc Conf Room. A1B118  **Mandatory for Team 2**  
**CLINICAL**

**Multidisciplinary Genitourinary Oncology Conference** – Weekly 3:30 – 4:30 pm, New Clinic Tower, 1st floor Rad Onc Conf Room. A1B118  **Mandatory for Team 1**  
**CLINICAL**

**Thoracic Tumor Board**- 5:00-6:00pm , HCT Lower Level Conference Room #1302.  
**Journal Club** –4th Wednesday at 5:00- 6:00pm, NTT 3424.  **Mandatory for all fellows.**  
**CORE CURRICULUM**

**THURSDAY**

**Urology Grand Rounds** – Weekly at 5:30 pm, Norris Topping Tower, Rm 7409. Multidisciplinary conference. Encouraged for all fellows. **CLINICAL and OPTIONAL**

**LAC Tumor Board-**  Weekly at 4:00pm, Conference Room C. Optional

**FRIDAY**

**Sarcoma Tumor Board** – Every other week, 8:00 – 4:00 pm, Location: Norris Topping Tower, 3rd floor, NTT 3424. Optional

**Neuro-Oncology-** 1st & 3rd Friday of each month 12:00 pm – 1:00 pm. Norris Ezralow Tower, 5th floor, Nat King Cole Conference Room. **CLINICAL and OPTIONAL**

**Research/Protocol Meeting** – 1st and 3rd Friday of each month, 12:30 pm, Norris Topping Tower, Rm 7409. Fellows present research protocol cases for review in rotating order. Oncology attendings present -- problems discussed. **Mandatory for all fellows**  **CLINICAL RESEARCH. SEPT-JUNE EACH YEAR.**

**Didactic Lecture** – Weekly 1:30 – 2:30pm, NTT 3424. Intensive didactic lecture series directed at fellows, but residents and interns should also attend. **Core curriculum. Mandatory for all fellows.**
<table>
<thead>
<tr>
<th>Name</th>
<th>Pager/Cell</th>
<th>Phone Ext</th>
<th>Pager/Ext</th>
<th>Pager/Cell</th>
<th>Phone Ext</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chang, Grace</td>
<td>323.340.0518</td>
<td>865-3823</td>
<td>Ashai, Zeno</td>
<td><a href="mailto:6268407756@vtext.com">6268407756@vtext.com</a></td>
<td>865-0463</td>
</tr>
<tr>
<td>D-Souza, Anishka</td>
<td>323.260.0469</td>
<td>865-3900</td>
<td>Cole, Sarah</td>
<td>865-0820</td>
<td></td>
</tr>
<tr>
<td>Ghani, Umair</td>
<td>323.260.0795</td>
<td>865-3900</td>
<td>Hall, Mary</td>
<td>865-3360</td>
<td></td>
</tr>
<tr>
<td>Kang, Irene</td>
<td>323.340.0526</td>
<td>865-3900</td>
<td>Hermosillo, April</td>
<td>865-3967</td>
<td></td>
</tr>
<tr>
<td>Lee, Charlene</td>
<td>323.340.0499</td>
<td>865.3823</td>
<td>Moody, Dianne</td>
<td>Cell: 6262038572</td>
<td>865-3963</td>
</tr>
<tr>
<td>Li, Ming</td>
<td>323.349.1302</td>
<td>865-3900</td>
<td>Oelgart, Kathy</td>
<td>865-3930</td>
<td></td>
</tr>
<tr>
<td>Li, Xing</td>
<td>323.349.1304</td>
<td>865-3900</td>
<td>Ramos, Gabriel</td>
<td>865-3900</td>
<td></td>
</tr>
<tr>
<td>Shen, James</td>
<td>323.340.0566</td>
<td>865-3900</td>
<td>Sian, Shirley</td>
<td>865-3930</td>
<td></td>
</tr>
<tr>
<td>Su, Derrick</td>
<td>323.340.0501</td>
<td>865-3900</td>
<td>Acap, Jubilee</td>
<td>877-461-6643</td>
<td>865-0593</td>
</tr>
<tr>
<td>Yu, Steven</td>
<td>323.340.0528</td>
<td>865-3900</td>
<td>Agafitei, Dana</td>
<td>877-339-2721</td>
<td>865-0467</td>
</tr>
<tr>
<td>Agafitei, Dana</td>
<td>cell 310-779-3852</td>
<td>310.272.7640</td>
<td>Ballon, Elysse Faye</td>
<td>877-656-6505</td>
<td>865-0464</td>
</tr>
<tr>
<td>Agus, David</td>
<td>Cell 216-533-4046</td>
<td>865-3829</td>
<td>Casillas-Lopez, America</td>
<td>877-259-0688</td>
<td>865-0804</td>
</tr>
<tr>
<td>Barzi, Afsaneh</td>
<td>Cell: 3106121067</td>
<td>865-3901</td>
<td>De Oliveria, Laurie</td>
<td>323-260-0405</td>
<td>226-6397</td>
</tr>
<tr>
<td>Daniels, John</td>
<td>323-260-0528</td>
<td>865-3905</td>
<td>Elsayegh, Sherine</td>
<td>323-260-0271</td>
<td>865-0465</td>
</tr>
<tr>
<td>Dorff, Tanya</td>
<td>Cell 213.458.0580</td>
<td>865-3957</td>
<td>Facio, Grace</td>
<td>888-810-3628</td>
<td>226-3511</td>
</tr>
<tr>
<td>Gitlitz, Barbara</td>
<td>877-339-2721</td>
<td>865-0514</td>
<td>Garcia, Marile</td>
<td>213-393-1945</td>
<td>226-2451</td>
</tr>
<tr>
<td>Goldkorn, Amir</td>
<td><a href="mailto:agoldkor@usc.edu">agoldkor@usc.edu</a></td>
<td>310-994-2096</td>
<td>865-3907</td>
<td>Lowstuter, Katrina</td>
<td>877-209-9548</td>
</tr>
<tr>
<td>Gross, Mitchell</td>
<td>cell 310-993-6008</td>
<td>310-272-7640</td>
<td>Ketchens, Charlean</td>
<td><a href="mailto:Ketchens_C@med.usc.edu">Ketchens_C@med.usc.edu</a></td>
<td>865-3035</td>
</tr>
<tr>
<td>Hu, James</td>
<td>Cell 858 349 5433</td>
<td>865-0813</td>
<td>Luevano, Jessica</td>
<td>877-241-7594</td>
<td>226-2397</td>
</tr>
<tr>
<td>Iqbal, Syma</td>
<td>Cell 3106121067</td>
<td>865-3901</td>
<td>Lujan, Ramona</td>
<td>877-293-5843</td>
<td>226-2452</td>
</tr>
<tr>
<td>Lenz, Heinz-Josef</td>
<td>Cell 6268184799</td>
<td>865-3955</td>
<td>Massopust, Kristy</td>
<td>323-260-0309</td>
<td>226-5003</td>
</tr>
<tr>
<td>Lu, Janice</td>
<td>Cell 6268088824</td>
<td>865.0314</td>
<td>Menendez, Xiomara</td>
<td>877-290-1845</td>
<td>226-5003</td>
</tr>
<tr>
<td>McDonnell, Kevin</td>
<td>323-260-0414</td>
<td>442-7985</td>
<td>Nievas, Elena</td>
<td>626-932-3876</td>
<td>226-6384</td>
</tr>
<tr>
<td>McNamara, Mark</td>
<td>626-932-3876</td>
<td>626-568-1622</td>
<td>Oswald, Molly</td>
<td>877-331-8213</td>
<td>865-0455</td>
</tr>
<tr>
<td>Martel, Cynthia</td>
<td>626.932.8216</td>
<td>626-568-1622</td>
<td>Perez, Nancy</td>
<td>877-366-0670</td>
<td>226-3790</td>
</tr>
<tr>
<td>Nieva, Jorge</td>
<td>Cell 4066960770</td>
<td>865-0421</td>
<td>TBN (Ticong-replacement)</td>
<td>877-443-0627</td>
<td>865-0460</td>
</tr>
<tr>
<td>Pinski, Jacek</td>
<td>Cell 3105933748</td>
<td>865-3929</td>
<td>Tse, Gina</td>
<td>877-268-2370</td>
<td>865-0514</td>
</tr>
<tr>
<td>Quinn, David</td>
<td>Cell 3238411289</td>
<td>865-3956</td>
<td>Viverette, Yvette</td>
<td>888-268-9047</td>
<td>865-0459</td>
</tr>
<tr>
<td>Ricker, Charite</td>
<td>Cell 8187236544</td>
<td>226.2289</td>
<td>Watkins, Kristy</td>
<td>877-246-1161</td>
<td>865-0452</td>
</tr>
<tr>
<td>Russell, Christy</td>
<td>Cell 6269757196</td>
<td>865-3903</td>
<td>Sadeghi, Sarmad</td>
<td>Sadeghi@usc</td>
<td>323-340-0635</td>
</tr>
<tr>
<td>Sadeghi, Sarmad</td>
<td>6268088824</td>
<td>865-0553</td>
<td>Watkins, Rebecca, NP</td>
<td>323-340-0635</td>
<td>865-0452</td>
</tr>
<tr>
<td>Spicer, Darcy</td>
<td>323-260-0584</td>
<td>865-3904</td>
<td>TBN (Ticong-replacement)</td>
<td>877-443-0627</td>
<td>865-0460</td>
</tr>
</tbody>
</table>

**NPs & PAs**

<table>
<thead>
<tr>
<th>Name</th>
<th>Pager/Cell</th>
<th>Phone Ext</th>
</tr>
</thead>
<tbody>
<tr>
<td>Averia, Monica</td>
<td>323-260-0602</td>
<td>865-3948</td>
</tr>
<tr>
<td>Frausto, Lilia</td>
<td>323-260-0533</td>
<td>865-3976</td>
</tr>
<tr>
<td>Lara, Kristi</td>
<td>323-260-0295</td>
<td>865-3808</td>
</tr>
<tr>
<td>Luther, Michael</td>
<td>323-260-0534</td>
<td>865-3839</td>
</tr>
<tr>
<td>Julien, Karen</td>
<td>323-260-0535</td>
<td>865-3949</td>
</tr>
<tr>
<td>Khoukaz, Taline</td>
<td>323-260-0536</td>
<td>865-3981</td>
</tr>
<tr>
<td>Regan, Peg</td>
<td>877-327-5384</td>
<td>226-6397</td>
</tr>
<tr>
<td>Soo, Tina</td>
<td>323-260-0537</td>
<td>865-3966</td>
</tr>
</tbody>
</table>