(needs) Assessment & Evaluation

Competency: Assessment & evaluation

➢ Use **assessment & evaluation data**
   to improve Course planning

➢ Identify **competency gaps** of learners
   (what they already know?)

➢ **Adjust**/enhance **contents**

➢ **Adjust formats**

➢ **competency**

➢ **Knowledge/skill**

that educators expect the course participants **must know or be able to do** after the course
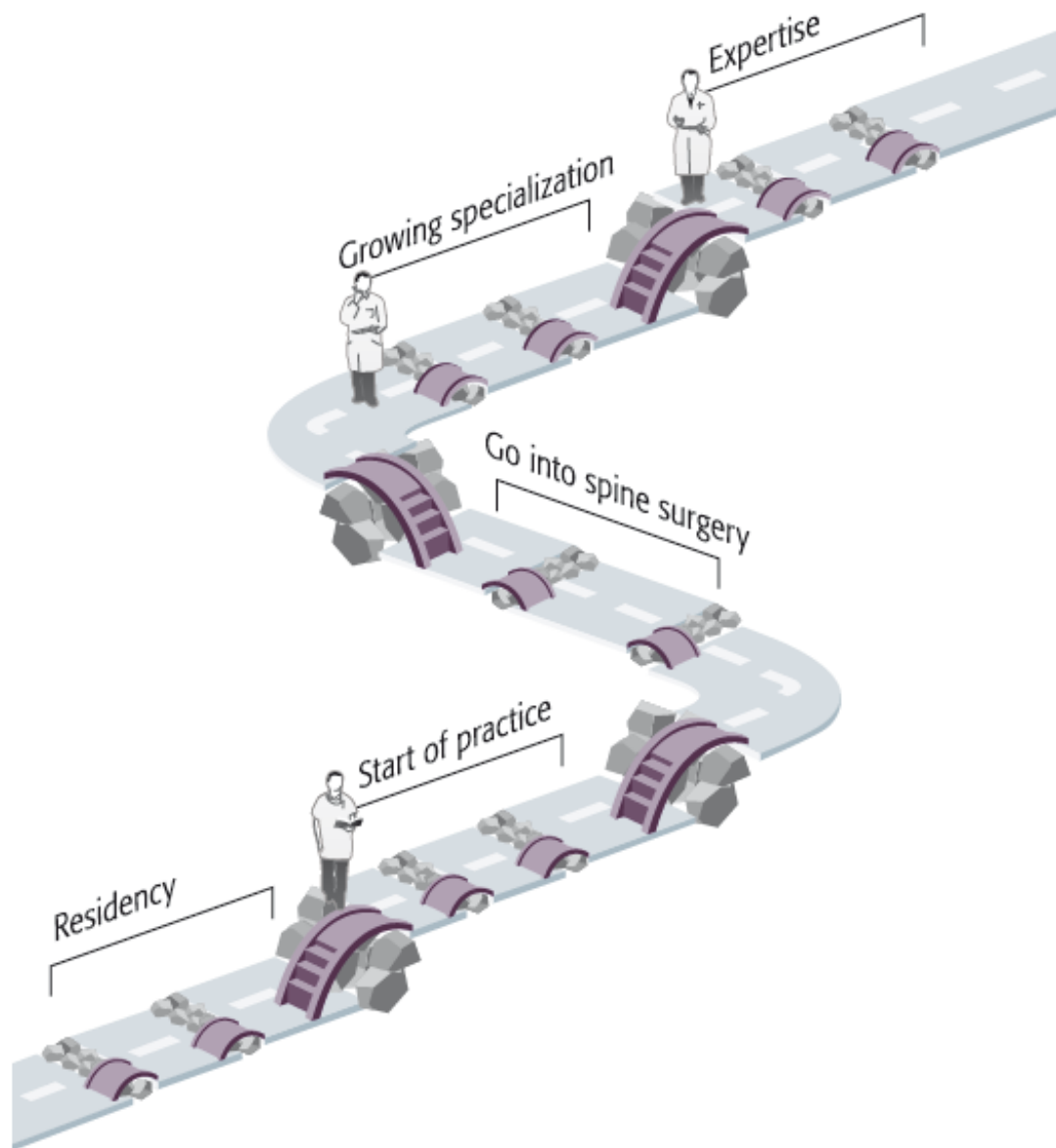
▪ *(e.g. „order appropriate imaging" (Spinal Trauma)*

➢ **key learning outcomes**

for each competency **are defined acc. to the needs** of the participants

▪ *(e.g. order X-rays, CT, MRI based on indications, limitations, timing & availability*

▪ *Recognize the radiographic features of spinal instability*

▪ *Recognize spinal cord edema & hematoma*

Identify the target audience

Levels

Masters

Learners with > 10 years of spine surgery experience.

Advanced

Learners with 3–10 years of spine surgery experience, who are aiming to improve their knowledge or specialization in spinal disorders or specific techniques.

Core curriculum

Learners with < 3 years of spine surgery experience or surgeons undergoing training in a new technique or procedure.

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Select the pathology(ies) to be covered
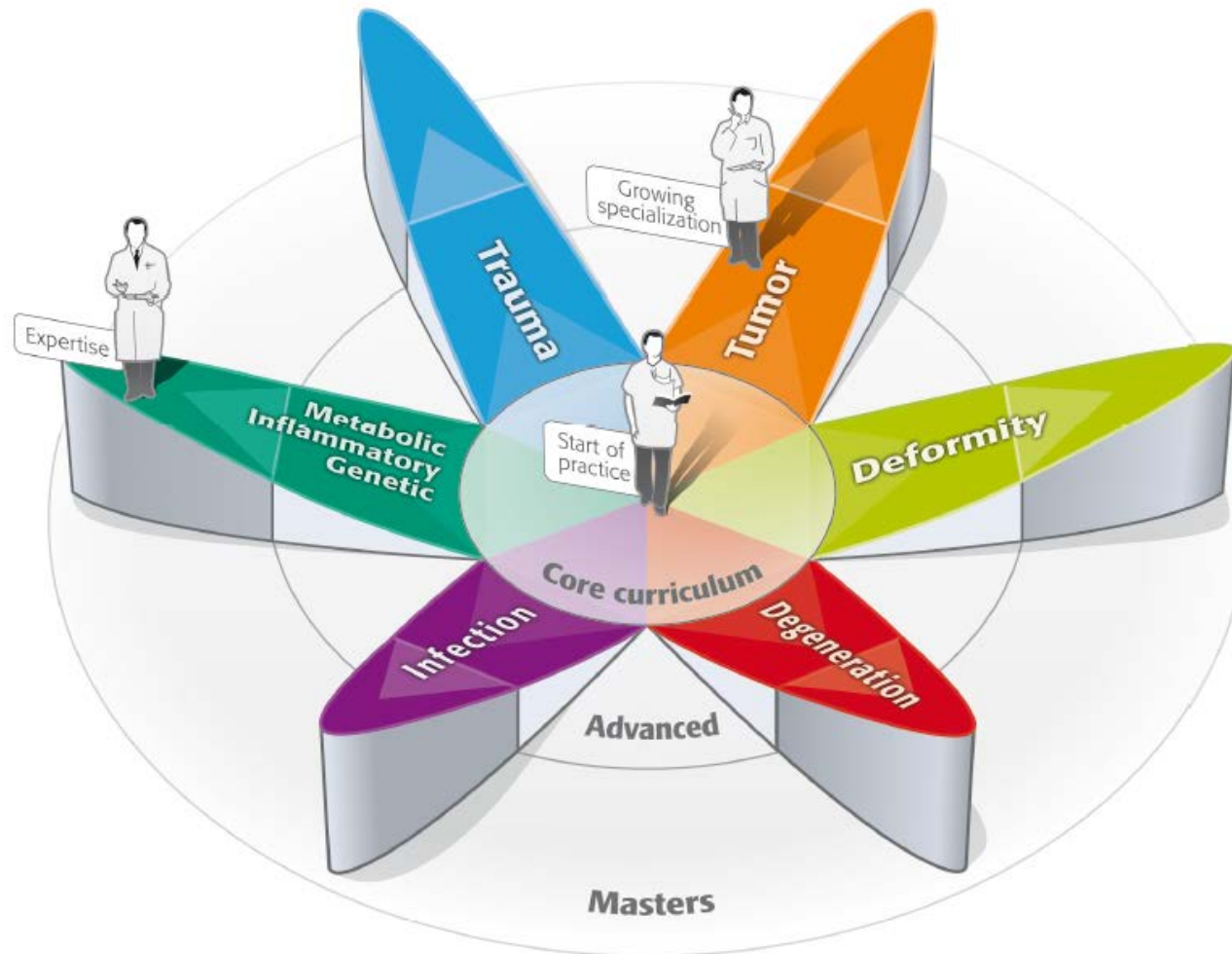
Competencies & learning outcomes

AOSpine Curriculum—Spinal trauma

AOSpine learning activities for spinal trauma focus on addressing common and critical patient problems. The competencies below are a guiding framework for the design and delivery of all our learning activities. Specific learning outcomes for each activity must be defined according to the needs of the participants.
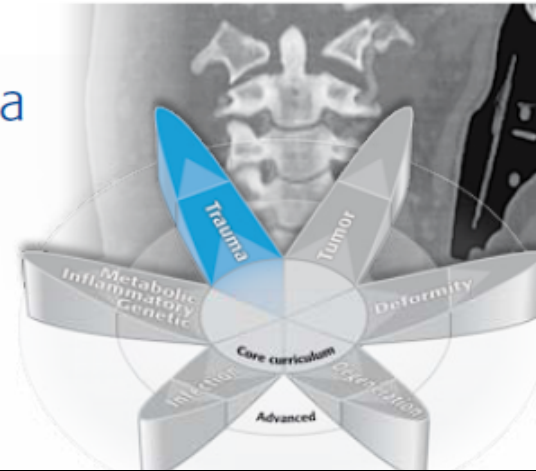
Competencies	Key learning outcome
1. Resuscitate the patient according to ATLS® guidelines	• Maintain the patient's oxy • Administer IV fluids to the • Maintain normotension in • Identify all other injuries • Prioritize the patient's inju
2. Immobilize the spine in a patient with a suspected spinal injury beginning at the scene of injury and during the assessment process	• Identify potentially unstab • Recognize that the uncon • Recognize that any mover • Perform spinal immobiliza • Maintain immobilization c
3. Examine the patient	• Assess the patient's moto • Assess the patient's ASIA, • Perform a complete neur • Assess the patient for sec • Identify spinal cord shock • Consider the prognostic importance of sacral sparing • Serially re-examine the patient for evolving injury

- Competencies and key learning outcomes guide course chairs and faculty in the development and delivery of content

- Specific learning outcomes must be created by the chair/faculty for each specific course/activity based on the needs of the participants

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Select the competencies (48) to be covered for the pathology(ies) & focus on the audience needs

Degeneration

1. **Analyze the patient history and physical examination findings**
2. **Use** appropriate **diagnostic tools**
3. **Use evidence-based decision making** when recommending operative and nonoperative interventions
4. **Use appropriate nonoperative treatments**
5. **Select and perform appropriate surgical procedures** for specific indications
6. **Prevent/manage operative and postoperative complications**
7. **Use outcome measures** to assess the effectiveness of each intervention

Tumor

1. **Recognize the possibility of spinal tumor** in a patient presenting with common symptoms of spinal pathology
2. **Establish a diagnosis based on histological verification** and plan appropriate treatment
3. **Optimize the physical condition of the patient** before treatment
4. **Recognize** the presence or possibility of **spinal** ins...
5. **Re**... ber...
6. **Per**...
7. **An**...

Deformity

1. **Analyze the history** and physical examination of the patient presenting with spinal deformity
2. **Order and interpret appropriate imaging** to assess spinal balance, flexibility, and spinal cord anomalies
3. **Assess the patient**
4. **Use evidence-based decision making** when recommending operative and nonoperative interventions
5. **Safely perform appropriate surgical procedures**
6. **Manage** intraoperative and postoperative **complications**
7. **Use outcome measures** to assess the effectiveness of interventions

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Select the key learning outcomes (173) that should be covered for each competency
(thus providing guidance to faculty for each activity)

| Competencies	Key learning outcomes
1. Analyze the patient history and physical examination findings	• Assess the patient's pain • Assess the patient's disability and quality of life • Assess the patient's psychosocial situation and its relevance • Assess relevant comorbidities • Recognize abnormal findings in the history, including 'red flags' • Perform a comprehensive clinical examination • Exclude non-spine pathologies
2. Use appropriate diagnostic tools	• Order appropriate imaging studies based on the history and physical examination findings • Use additional diagnostic tools if indicated • Critically evaluate the use of invasive tests • Recognize the limitations of each diagnostic tool • Correlate the diagnostic test results with the clinical findings
3. Use evidence-based decision making when recommending operative and nonoperative interventions	• Critically review the benefits and risks of each operative and nonoperative intervention • Select operative and nonoperative interventions based on the best available evidence and on the natural history • Consider the patient's treatment preferences and expectations • Consider the psychosocial, cultural, and ethical implications of the recommended treatment

Implementation

- Curriculum components
  1. Competencies and key learning outcomes to guide Faculty
  2. Participant self-assessment (BEFORE course)
  3. Practice change survey (last day of course)
  4. Participant self-assessment (AFTER course)
  5. Online forum, cases, questions, etc (AFTER course)
     - The forum is for you, so please provide input & feedback

- Implementation (and feedback) roles for:
  – Participants, Faculty, Chairs, Educational

What information was gathered before the course?

- Demographic and practice profile data
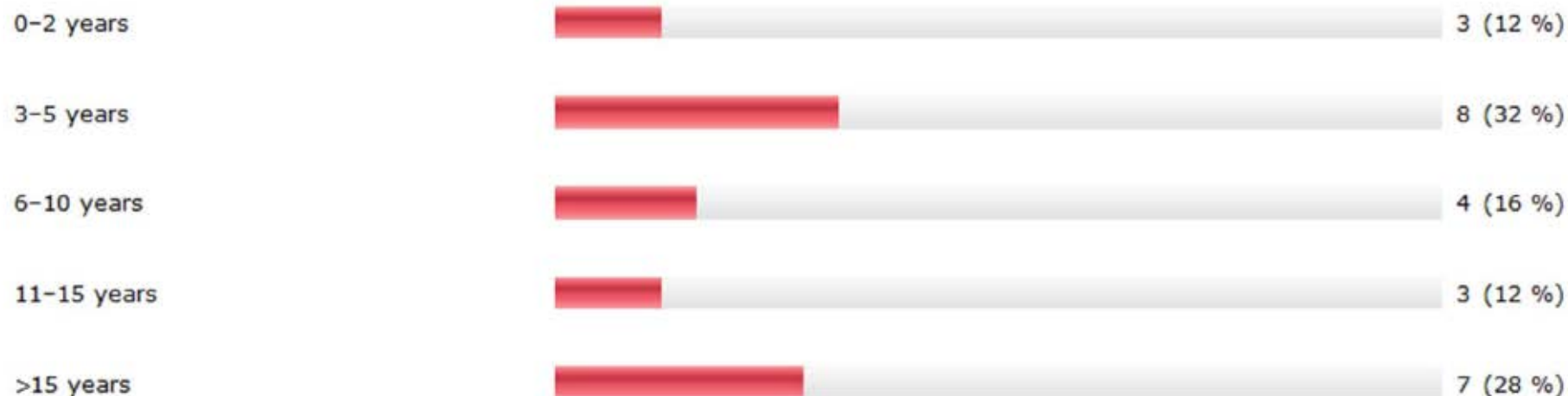 - Current position, years of experience, number of cases

Key demographic and practice profile data

How many spinal trauma operations did you perform as an assistant surgeon in the past year?

0		3 (12 %)
1–25		13 (52 %)
26–50		4 (16 %)
51–100		4 (16 %)
101–150		1 (4 %)
151–200		0 (0 %)
> 200		0 (0 %)
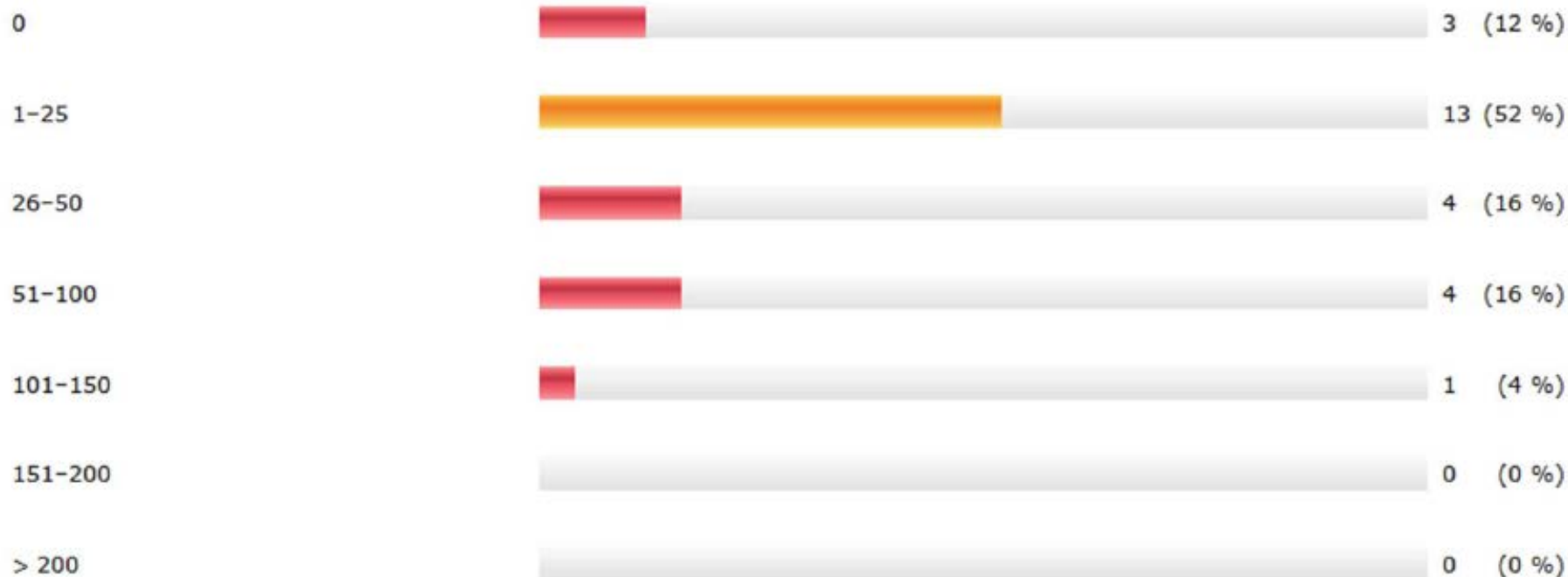
Key demographic and practice profile data

How many years of experience do you have in spinal surgery?

0–2 years	3 (12 %)
3–5 years	8 (32 %)
6–10 years	4 (16 %)
11–15 years	3 (12 %)
>15 years	7 (28 %)

What information was gathered before the course?

- Demographic and practice profile data
  - Current position, years of experience, number of cases

- Information on motivation to learn
  - Present and Desired ability for each competency
  - Gap scores for each competency
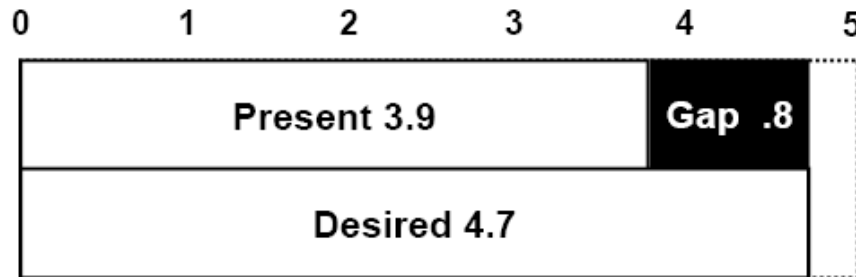   - Competencies with low or high levels of motivation
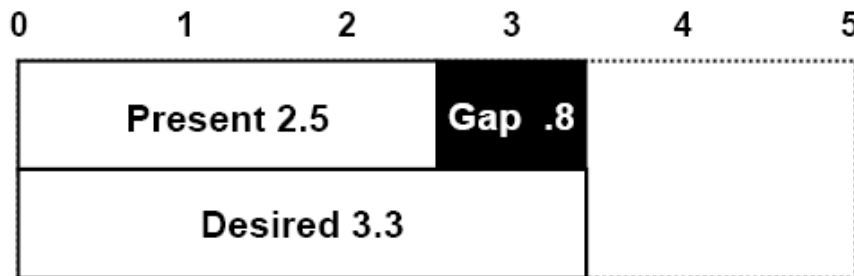
GAP = desired level of ability minus present level

<div align="center">< 1   1 to 2.5   > 2.5</div>

2 possible reasons for low motivation

| 0 | 1 | 2 | 3 | 4 | 5 |

Present 3.9 — Gap .8

Desired 4.7

→ **Participants think that they know the topic already**

| 0 | 1 | 2 | 3 | 4 | 5 |

Present 2.5 — Gap .8

Desired 3.3

→ **Participants have little interest in the topic (low desired level)**

T4C – June 2012

GAP = desired level of ability minus present level

< 1   1 to 2.5   > 2.5

Q4: Assign faculty based on surgical and educational expertise (n=15)

Present   3.8
Desired   5.0
GAP   1.2

Q7: Use the AO Spine specific tools and platforms to plan, organize, and direct the Course,Symposium and/or Seminar (n=15)

Present 2.7
Desired 4.9
GAP   2.2

What information was gathered before the course?

- Demographic and practice profile data
  - Current position, years of experience, number of cases

- Information on motivation to learn
  - Present and Desired ability for each competency
  - Gap scores for each competency
    - Competencies with low or high levels of motivation

- Knowledge level (based on clinical questions)
  - Average test score results for each course competency
  - Detailed breakdown for each question

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Writing Assessment Items

➢4 Q/competency: 2 easy (preCourse) +
  2 difficult (postCourse)

➢Scenarios should present clinical decisions
  which the surgeon would face

➢1 clearly correct answer (not necessary the longest
  one!) out of 4 options

➢Answer should be referenced

➢The feedback rationale should explain the
  correct & incorrect options

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Competency 4	Order appropriate imaging	
Question 1	Level of difficulty: Easy or difficult	Easy (precourse)

A 76-year-old female had a minor fell on her buttocks 4 weeks ago when she missed the chair behind her. She now reports low back pain, which increases with flexion and upon standing and sitting. No neurological deficits are present. She has a history of breast cancer but has been tumor free for 8 years.

Which of the following is the most appropriate next step?

Option A	CT scan
Option B	**MRI with or without contrast medium**
Option C	Bone scan
Option D	Flexion/extension x-ray views
Answer	B
Rationale	MRI will provide most of the information you need to determine your treatment strategy. It can show whether the fracture is still fresh (bone edema), degenerative changes that might be responsible for the low back pain, and the current status of the spinal canal. In addition, it can confirm a diagnosis of metastasis with a pathological fracture. A CT scan can show bony changes but gives less information on underlying pathology. A bone scan can confirm malignancy but is not the first imaging technique to choose for this purpose. Flexion/extension x-ray views would provide no additional information.
Reference(s)	**Krug R, Burghardt AJ, Majumdar S, et al** (2010) High-resolution imaging techniques for the assessment of osteoporosis. *Radiol Clin North Am*; 48:601–621. **Blumenkopf B, Juneau PA** (1988) Magnetic resonance imaging (MRI) of thoracolumbar fractures. *J Spinal Disord*; 1(2):144–150.

Reviewer comments, etc	
Name	Comment
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Competency 7	Reduce/decompress/stabilize appropriately	
Question 4	Level of difficulty: Easy or difficult	Difficult (postcourse)

A 56-year-old multimorbid patient falls from a roof. He has no neurological deficits but has bilateral calcaneal fractures and an L3 fracture (as shown in the image). He has had two myocardial infarctions in the past, and has two coronary stents, diabetes mellitus, arterial hypertension, and COPD. The anesthetist reports that the patient is inoperable ("not fit for surgery").

What is the best treatment option for this patient?

Option A	Kyphoplasty
Option B	**Lumbar brace for 3 months, weekly control x-rays**
Option C	Thoracolumbar extension brace for 3 months
Option D	Consult another anesthetist
Answer	B
Rationale	This patient is at too high a risk for surgery. Therefore, nonoperative treatment is the only option. Kyphoplasty is contraindicated because of the coronal-split fracture, and a 4-point extension brace is not necessary. If an increase of the split can be avoided in this A2.2 fracture, the probability of healing with the use of a short brace is good.
Reference(s)	**Magerl F** (1982) External fixation of the lower thoracic and lumbar spine. *Uhthoff HK (ed), Current Concepts of Internal Fixation of Fractures.* Berlin, Heidelberg:Springer-Verlag, 353–366. **Shen WJ, Liu TJ, Shen YS** (2001) Nonoperative treatment versus posterior fixation for thoracolumbar junction burst fractures without neurologic deficit. *Spine*; 26(9):1038–1045.

Reviewer comments, etc

Name	Comment
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Online preparations, May 24–June 28

Date Activities /TIME

Week 1 Introduction

 • Become familiar with the new virtual learning space (upload your photo)
• Get to know each other (Introduction discussion)
• Gain an understanding of your own needs by completing the self-assessment
• Refresh your knowledge of "How people learn" (Booklet, eModule)

Week 2 Role of the Chairperson

• Understand the role of the Chairperson (Job Description) and their responsibilities
and tasks ("How to be a course chairperson" chapter)
• Define the roles/tasks of the Chairperson vs the Educational Director
• Assign faculty based on area of expertise, experience, and principles of effective
teaching (Faculty and Expertise profiles)

Week 3 Teaching methods

• Match the teaching and learning methods to the needs and desired
outcomes of participants
• Refresh your knowledge on "Giving a lecture" (Booklet, eModule)
• Refresh your knowledge on "Running a practical exercise" (Booklet, eModule)
• Refresh your knowledge on "Leading group discussions" (Booklet, eModule)
• Refresh your knowledge on "Moderating and debating" (Booklet, eModule)

Week 4 Program planning and AOSpine curriculum

• Understand what the AOSpine curriculum is all about and how you can
implement it into your course by going through the curriculum presentation
• If you wish to get more information on how the curriculum was developed,
please refer to the curriculum brochure
• Begin preparing your own course program by using the course program template,
which will guide you through the process

Week 5 Preparations for the event

• Introduce yourself on the introduction forum
• Go through the curriculum presentation to understand what the AOSpine
curriculum is all about and how you can implement it into your own
course program
• Please remember to bring your prepared course program for use during the

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Assessment after the Course:

Last day of the Course:

➤ Evaluation sheet
➤ Change of practice survey

Two weeks after the Course:

➤ Postcourse self-assessment
➤ Online- Forum

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PARTICIPANT EVALUATION

Please mark one answer per question and hand it to one of the AOSpine staff members or fax it to +41 44 200 44 12.

A: How relevant was the content to your daily practice?
☹
- O irrelevant
- O quite irrelevant
- ● partially relevant
- O quite relevant
☺ O highly relevant

B: How effective was the faculty in their role?
☹
- O ineffective
- O quite ineffective
- O partially effective
- O quite effective
☺ ● highly effective

C: Were your expectations of the event met?
☹
- O not at all
- O mostly unmet
- O partially met
- O mostly met
☺ ● expectations exceeded

D: How likely are you to recommend this event to your colleagues?
☹
- O highly unlikely
- O quite unlikely
- O possibly
- O quite likely
☺ ● highly likely

E: How would you rate the value for money of this event?
☹
- O very poor
- O poor
- O average
- O good
☺ ● excellent

F: The costs of this event were covered by:
- O myself
- O my employer
- O industry
- ● partly myself, partly my employer
- O partly myself, partly industry

G: Did you perceive this event as commercially influenced?
☹
- O completely
- O significantly
- O partially
- ● a little
☺ O not at all

H: How did you hear about this event?
- O AOSpine website/e-mail
- O event brochure
- O postal promotion
- ● colleague
- O industry representative
- O advertising (e.g. ESJ, InSpine)

List one positive aspect of the event _Cadaver work fantastic – especially to find entry points etc – excellent! Answered partially relevant to "A" only because not currently doing spines_

List one aspect of the event that can be improved _As always would love more time in the cadaver lab._

THANK YOU VERY MUCH!

Assessment after the T4C

What was the most important thing you learned in helping to do your course?	What did you like most about this course?	How could this course be improved?
Better understand participant needs, and adapt content	Group discussion, share information, interaction with educators	See 1 best program example (for each level)
New Curriculum - Competencies and outcomes are useful, including backward planning	Discussion with experience surgeon educator	Having someone with detailed knowledge from AO Foundation
Relationship between EA & Chair/Faculty	Educational principles, interactivity	Clear next steps & process (where to send program, etc)
Active involvement	Precourse self-assessment	More guidance on common parts of a program (improved template)
	Breakout sessions	Precourse should be presented as a more flexible framework (check online materials)
		Could economic issues be covered more?
		Explain details in the Curriculum better

After the T4C they play with white balls. I have no idea how they do it...

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