Clinical Simulation Testing

A Webinar for Program Directors

March 2008

National Board for Certification in Occupational Therapy, Inc.
Seminar Format

- **Section 1**
  - Background and rationale for using clinical simulation testing (CST) for occupational therapy credentialing

- **Section 2**
  - Format and flow
  - Exam development process

- **Section 3**
  - Demonstration of a CST item

- **Q & A**
What is CST?

- It is a format of assessment designed to simulate the types of situations newly certified occupational therapy practitioners may encounter in practice.
The items are designed to measure a candidate’s knowledge and critical reasoning ability sequentially across the continuum of care:

- Screening
- Formulating conclusions regarding treatment needs and priorities
- Implementing interventions
- Assessing outcomes
How is CST different from Multiple Choice Testing (MCT) formats?

- MCT measures breadth of knowledge
  - judgment is made in isolation and the items are non-sequential in nature
- CST complements MCT formats by examining depth of knowledge sequentially where decisions are tied to previous decisions and results
The move to CST came from the need to measure critical reasoning skills and was driven by:

- NBCOT
  - practice analysis studies
  - mission
- Revised ACOTE standards
- Certification industry trends
Critical foundation for developing a psychometrically sound and legally defensible credentialing examination

Accreditation agencies require systematic re-evaluation of content standards to ensure appropriateness of the examination:
- content valid
- appropriately evaluates what is required to function as a competent practitioner
Results from the latest NBCOT practice analysis study:

- **0101** Evaluate the client on an ongoing basis using appropriate tools, procedures, and protocols in order to determine factors that impact participation in occupation

- **0303** Use critical reasoning to select and implement interventions and approaches consistent with psychosocial and cognitive abilities, and client needs in order to facilitate outcomes within areas of occupation

*(NBCOT OTR Practice Analysis Study, 2007)*
Mission “to serve the public interest:”

- Assure key stakeholders that certificants have met a minimum practice standard by differentiating between competent and incompetent practitioners

- Just as in real life, through the sequential nature of the CST, errors may be compounded on top of errors resulting in nonproductive assessment and intervention procedures
Transition to post-baccalaureate degree and revised ACOTE standards:

“The rapidly changing and dynamic nature of contemporary health and human services delivery systems requires the occupational therapist to possess basic skills as a direct care provider, consultant, educator, manager, researcher, and advocate for the profession and the consumer.”

Preamble to The Standards 2008
B5.26 Organize, collect and analyze data in a systematic manner for evaluation of practice outcomes. Report evaluation results and modify practice as needed to improve outcomes.
Certification Industry Trends

- Consistent with certification examination practices of other allied health and medical certification bodies who use defensible constructs to assess critical clinical competencies
  - *i.e. Physician Assistants, Counseling*
Historical Background

- Branching logic/simulation testing introduced by the National Board for Medical Examiners in the 1960s as an objective, reliable evaluation of clinical competence in the medical profession
  
  (Hubbard et al, 1965)

- Seminal studies in the medical professions have concluded there is a statistically significant relationship between results obtained by exam candidates and those obtained by experienced practitioners taking CST examinations

  (Grace et al, 1977)
Historical Background

- The 1980s saw the emergence of CST testing formats in the behavioral sciences
  (Berven & Scofield, 1980)

- This led to CST being identified as a way to evaluate competence for high stakes certification and licensure purposes
  (Forker & McDonald, 1996; Bersky, Krawczak & Kumar, 1998)
References


Completed last quarter of 2007
- N = 50
  - (Beta test N = 250)
- OTR certificants across geographic and practice settings
- 0 – 18 months since initial certification
- End of test survey
- Performance statistics
Preliminary Results:

- Over 80% indicated CST as an appropriate style of testing for occupational therapy credentialing.
- Majority said the format was a fair assessment of their occupational therapy knowledge.
Alpha Results

- “Really replicates what I’m doing everyday in my practice.”
- “MCT just tests snippets of knowledge, the CST goes into more depth – tested my problem solving ability.”
- “… gave me more information to build up a picture about the client.”
“I preferred having questions related to one case rather than jumping around from diagnosis to diagnosis like in the MCT format.”

“If you’ve done 2 good level II fieldwork placements, you really should have no problem answering these CST questions.”
“Fieldwork is where you put all your knowledge into practice by using your clinical judgment and common sense. That’s exactly what you have to do when answering a CST item.”
Section 2: Format and Flow

Project Timeframe

2006
Advisory Taskforce
BOD approves project
Presentation to program directors

2007
CST Development Team
Alpha Testing
Presentation & mailing to program directors

2008
Beta testing
Program director webinars
Study tools
A Standard Setting study will be completed in May:
  - Determine passing standard for the OTR certification examination

Beginning 2009, the OTR examination will be a hybrid test consisting of:
  - MCT items
  - CST items

Exam will continue to be ADA compliant
Exam Development
Process
Practice Analysis Study

- Completed systematically to ensure the examination evaluates what is required to function as a competent practitioner
Results from the practice analysis study are used at all stages of examination development:

- Creation of test blueprint
- Item writing
- Examination construction
Latest Practice Analysis Study

- Completed in 2007
  - Initial development and validation
  - Pilot study
  - Full validation survey
  - Development of test blueprints
- Implemented January 2009
2009 OTR Blueprint Specifications

- Domain 1
  - Gather information regarding factors that influence occupational performance

- Domain 2
  - Formulate conclusions regarding the client’s needs and priorities to develop a client-centered intervention plan

- Domain 3
  - Select and implement evidence-based interventions to support participation in areas of occupation throughout the continuum of care

- Domain 4
  - Uphold professional standards and responsibilities to promote quality in practice
MCT Development Process

- Written to 2009 blueprint specifications
- Validated
  - Subject matter experts (OTR practitioners and educators)
  - References
  - Performance statistics
- Statistics collected to ensure psychometric integrity and validity
- Reviewed and approved by independent testing agency
- Complies with accreditation standards
Format of MCT Items

- Computer delivered
- Tutorial
- Question stem
- 4 response options
  - 1 correct answer
  - 3 distractors
An inpatient who has Guillain Barre syndrome is referred to OT to maximize independence with ADL. The patient has proximal weakness in upper and lower extremities. Which method is BEST for the OTR to use when assessing the patient’s initial functional status?

A. Ask the nursing staff about the patient’s abilities
B. Have the patient complete a lifestyle inventory
C. Interview family members during visiting hours
D. Observe the patient completing ADL tasks
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Observing the patient’s performance of ADL tasks will provide the most accurate and measurable information about the individual’s functional level.
Overview of CST Development Process

- Written to 2009 OTR blueprint specifications
- Validated
  - Subject matter experts (OTR, practitioners and educators)
  - References
  - Performance statistics
- Statistics collected to ensure psychometric integrity and validity
- Reviewed and approved by independent testing agency
- Complies with accreditation standards
CST Item Makeup

- Tutorial
- An opening scene
- Sections with section headers
- A series of decisions/action statements
An individual who has moderate OA in the left knee and the CMC joint of the right thumb has recently moved into an assisted living facility (ALF). The individual uses a cane for mobility. Since the move, the individual has become isolated and has lost interest in engaging in IADL although continues to independently complete all BADL. The individual is participating in a lifestyle redesign program at the facility.

**Section A:** During the transportation and occupation module the individual states they used to visit the library several times a week prior to moving into the ALF. The individual wants to continue with this activity but is anxious about changing routines and learning new bus routes. Which method(s) is effective for assisting the individual to resume this activity? (Check All that apply)

- [ ] Encourage the group to assist the individual in planning a bus trip using public transport
- [ ] Accompany the individual to and from the local library using the bus service
- [ ] Assist the individual with obtaining community activity brochures, public transport schedules, and local street maps
- [ ] Teach the individual deep breathing and relaxation exercises
- [ ] Arrange for the individual to go independently by bus to the library and have another group member meet them there
- [ ] Encourage the individual to register for a books-on-tape home delivery service
- [ ] Suggest the individual asks to borrow books from other group members

[Next]
Candidates should select the decisions/actions that they deem appropriate from the list of options provided.

As the decision/action statement is selected, a feedback box will appear.

Feedback contains information regarding the consequence of selecting that decision and is used to make future selections.
Section A: During the transportation and occupation module, the individual states they used to visit the library several times a week prior to moving into the ALF. The individual wants to continue with this activity but is anxious about changing routines and learning new bus routes. Which method(s) is effective for assisting the individual to resume this activity? (Check All that apply)

- [x] Encourage the group to assist the individual in planning a bus trip using public transport
- [ ] Accompany the individual to and from the local library using the bus service
- [ ] Assist the individual with obtaining community activity brochures, public transport schedules, and local street maps
- [ ] Teach the individual deep breathing and relaxation exercises
- [ ] Arrange for the individual to go independently by bus to the library and have another group member meet them there
- [x] Encourage the individual to register for a books-on-tape home delivery service
- [ ] Suggest the individual asks to borrow books from other group members

Group members offer suggestions to the individual

Feedback Boxes

Individual states they do not have a tape player
The decisions/action list consists of:

- **Positive responses**
  - Optimal route
  - Points awarded if candidate selects these responses

- **Neutral responses**
  - May be helpful, but not absolutely necessary in solving the problem
  - Points neither awarded nor deducted

- **Negative responses**
  - Hinder or distract from solving the problem
  - May be harmful to the client
  - Points deducted if candidate selects these options
Candidate will have the ability to scroll back through the CST item to view:

- Opening scene
- Section headers
- Items they have selected

Just as in real life, once the decision/action has been checked, the candidate will not be able to de-select the response
Summary-
Each CST Will Have:

- Opening Scene
- Series of Sections
  - Each section has a section header
    - List of decisions/actions
      + neutral -
      - As a decision is made, a feedback box will provide additional information assisting the candidate to progress through the item
Section 3

- Primer
- Demonstration
- Q&A
Primer

- CST item is about an OTR working in a school system
- Teacher refers student for OT due to concerns with classroom performance and fine motor skills
- Student has an older sibling with autism
- CST progresses from screening through to selection of activities to meet IEP goals
Contains 4 sections:

- Screening
  - 11 potential decisions/actions listed
- Assessment
  - 9 potential decisions/actions listed
- Recommendations to IEP team
  - 11 potential decisions/actions listed
- Activities supporting IEP goals
  - 7 potential decisions/actions listed
Demonstration