Overview of WAIS-IV

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Standardization of the WAIS-IV

► Standardization data from 2,200 people sampled based on 2005 US census data
► Stratified according to age, sex, race/ethnicity, geographic region, and education
► 13 age groups with 100-200 per group between 16 and 90 years old

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WAIS-IV Scales

► **Full Scale Intelligence Quotient (FSIQ)**
  ► Represents a measure of general intelligence (g)
  ► Derived from the sum of scaled scores for 10 subtests
► Optional **General Ability Index (GAI)**
  ► Eliminates effects of WMI and PSI
  ► Focuses on VCI and PRI (see p. 161 of WAIS-IV Essentials for sample interpretive report)
  ► Good with certain neuropsych cases (e.g., learning and memory disorders; see p. 5 of Administration Manual)
► Optional **Cognitive Processing Index (CPI)**
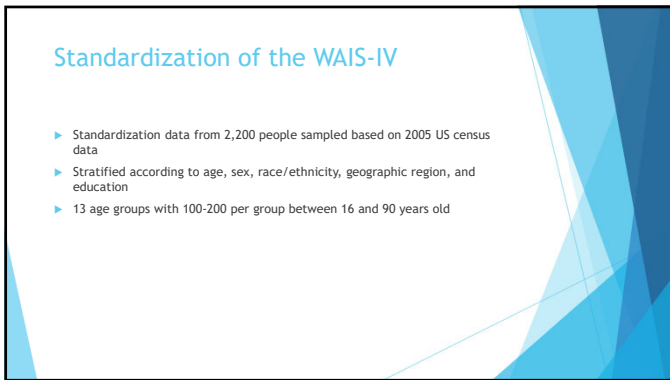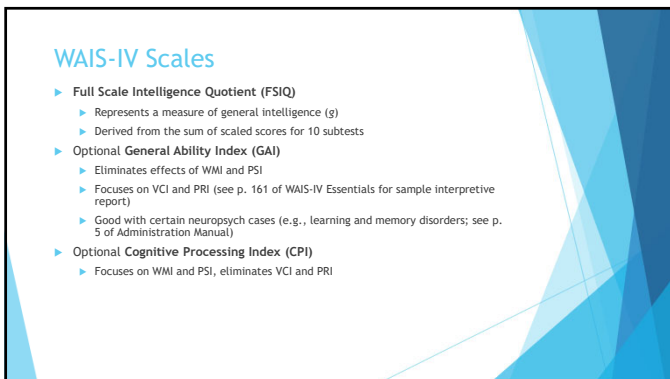 ► Focuses on WMI and PSI, eliminates VCI and PRI

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4 Index Scales

- **Verbal Comprehension Index** (3 subtests)
  - Acquired knowledge, verbal reasoning and expression
  - Closest to *Gc* (Crystallized Intelligence)
  - Similarities, Vocabulary, Information (Comprehension)
- **Perceptual Reasoning Index** (3 subtests)
  - Fluid reasoning (*Gf*), spatial processing (aka visual processing or *Gv*), attention to detail, visual-motor integration
  - Block Design, Matrix Reasoning, Visual Puzzles (Figure Weights, Picture Completion)

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4 Index Scales (cont'd)

- **Working Memory Index** (2 subtests)
  - Attention to verbally presented info, processing info in memory, sequencing of information
  - Closest to Short-Term Memory (*Gsm*)
  - Digit Span, Arithmetic (Letter-Number Sequencing)
- **Processing Speed Index** (2 subtests)
  - Process simple visual info quickly, motor speed
  - Processing Speed (*Gs*)
  - Symbol Search, Coding (Cancellation)

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Reliability

- See **Rapid Reference 1.7** in WAIS-IV Essentials book
- Split-half and test-retest varies across subtests
- Stability coefficient for Visual Puzzles "unacceptably low" for older sample (ages 65-90, p. 44)
  - Test-retest (~3 weeks) based on 298 adults
- FSIQ strongest, 4 indices also strong

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Factor Loadings on g (General Ability)

- WAIS-IV Essentials p. 45
- Best = Arithmetic, Figure Weights, Matrix Reasoning, Vocabulary
- Worst = Cancellation

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## Racial Differences

- See p. 47-49 in WAIS-IV Essentials
- Basically, differences between Whites and minorities (African Americans, Hispanics) varies by age
  - Biggest differences in **older adults**
  - Difference lessens with younger examinees, but is still observed in children on WISC-IV
  - Some variance may be attributable to variance in education, occupation, income, region, gender

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Subtests

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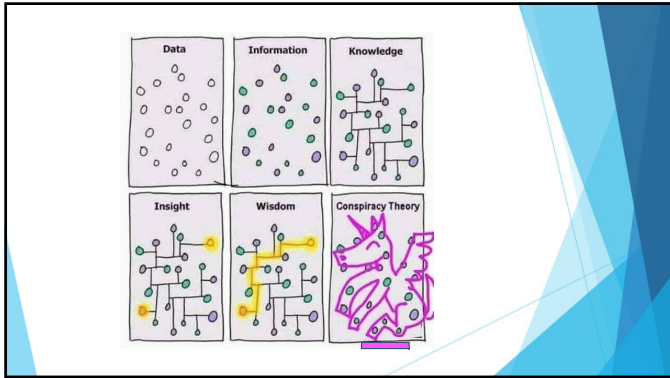
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Before You Begin

- Room Set-up
  - Sit across a table from your client
  - Have the manual to your left (if client is right handed) or right (if client is left handed)
  - Clipboard and stopwatch at the ready.
  - Place Stimulus Booklet to the client's left (or right, depending)
- Now, you are good to go!

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Block Design

- Developed by Kohs (1923)
- 9 blocks, Stimulus Booklet, stopwatch
- Subject must arrange the blocks to reproduce 2D designs that increase in difficulty
- Requires reasoning, analysis of spatial relationships, and integration of visual and motor functions (visual input, motor output)
- Measures nonverbal concept formulation, abstract thinking, visual perception, and neurocognitive impairment
- On PRI index, closely related to *Gv* of CHC model

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Block Design Administration

- Start with Sample item, then Item 5 (*unless suspected ID)
- Reversal: If not a perfect score on Items 5 or 6, reverse until you get 2 consecutive perfect scores
  - Items 1-4 have 2 trials so you can help
- Discontinue: 2 consecutive scores of 0
- It's ok to give a few additional seconds if they run out of time (to help maintain rapport)
- "Only the tops of the blocks need to be the same"
- 2 blocks: each block should have different side facing up; 4 blocks: 1 with red-and-white; 9 blocks: only 2 red-and-white
- Block model must be 7 in away from edge of table and beside the Stimulus Booklet
- Know the examinee's handedness!
- Correct only the first rotation ("See, it goes this way")

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Similarities

- Subject must identify similarity between paired items of increasing difficulty
- Easier items very well known and may reflect previously learned associations, but more difficult items may require some abstract thinking
- Requires verbal reasoning, verbal concept formulation, auditory comprehension, memory, verbal expression
- On VCI index, maps onto *Gc* of CHC theory

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Similarities Administration

- Start with item 4 (*unless suspected ID, then item 1)
- Reverse: if not perfect scores on items 4 or 5, then reverse until two consecutive perfect scores
- Discontinue: after 3 consecutive scores of 0
- "In what way are a/n _____ and a/n _____ alike?"
  - Repeat this as often as necessary, but verbatim
- If they mishear a word, repeat item while emphasizing misheard word
- Unclear or vague responses get queried (Q)
  - "What do you mean?" or "Tell me more about it"
- Record responses verbatim (abbreviations on p. 63)

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Similarities (cont'd)

- Score the best response (unless spoiled response = 0)
  - Spoiled: p. 46 of Manual: "elaboration reveals a fundamental misconception about the item… clear misunderstanding of the concept"
  - 2 points = major classification pertinent for both words
  - 1 point = specific property constituting a minor or less pertinent similarity; a major classification that is less pertinent
  - 0 point = not pertinent to both stimuli, too general, or describes differences instead of similarities
- More abstract is generally better

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Digit Span

- Series of orally presented number sequences, examinee must repeat verbatim in a specified order
- Measures auditory STM, sequencing skills, attention, concentration, learning, encoding, auditory processing
- Core subtest of WMI, maps onto *Gsm* of CHC model
- Warning: anxiety may impair performance (see Gass & Curiel, 2011)
- 3 tasks: Forward, Backward, Sequencing
  - Always administer all three tasks
- Each item has two trials
  - Always administer both trials

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Digit Span Administration

- Always start at Sample item or number 1 (no reverse!)
- Discontinue: after scores of 0 on both trials of each task
- 1 number per second
- Drop voice slightly on last digit in the sequence, then pause to allow examinee to respond
- If examinee interrupts you, go ahead and present the rest of the trial and allow the examinee to respond, award appropriate credit, then say "Remember to wait until I'm finished before you start"
- No repetitions: "I cannot repeat the sequence. Just take your best guess."
- They can self-correct, but clarify which one they meant
  - "You said … and you said…. Which one did you mean?"

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Matrix Reasoning

▶ Series of incomplete visual patterns (2x2 or series completion), examinee completes the series by identifying a pattern or relationship between stimuli and by pointing to or saying the number of the correct response

▶ Measures fluid intelligence, general intellectual ability, visual information processing, abstract reasoning

▶ Part of PRI index, maps onto Gf of CHC theory

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Matrix Reasoning Administration

▶ Need the Stimulus Book (1) again

▶ Start with Sample Items A and B, then go to Item 4 (*unless suspected ID, then start with Item 1)

▶ Reverse: if not a perfect score on Item 4 or 5, then reverse until perfect score on 2 consecutive items

▶ Discontinue: after 3 scores of 0

▶ Make sure you point to the visual stimuli, response options, and the box with the ?

▶ Response must be pointing or saying the number; anything else, then say "Show me"

▶ They can self-correct, just make sure you know which one they're going with ("You said... and... Which one did you mean?")

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Vocabulary

▶ Series of orally and visually presented words that the examinee orally defines

▶ Measures word knowledge, verbal concept formation, fund of knowledge, learning ability, LTM, degree of language development, auditory perception and comprehension, verbal conceptualization, abstract thinking, and verbal expression

▶ Part of **VCI**, maps onto *Gc* of CHC theory

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Vocabulary Administration

- **Stimulus Book** 1 – for administering first 3 picture items and to give a visible list as Items 4-30 are read by the examiner
- Score responses as they are recorded as much as possible
- If you're not sure about an item, it is best to keep administering if you risk a premature discontinue rule
- Record **exact responses** as much as possible in case you need to review your scoring later
- Be sure to **query** vague or incomplete answers (or items marked **Q**) appropriately
- Scoring will inevitably be subjective

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Vocabulary Administration (cont'd)

- Start with **Item 5** (unless suspected disability, then item 1)
- Reverse: if not a perfect score on Items 5 or 6, provide corrective feedback and administer previous items until you get **2 consecutive perfect scores**
- Discontinue: after **3 consecutive scores of zero**
- **"I don't know"** could mean: word retrieval problems or poor word fluency rather than word knowledge (see p. 74 of WAIS-IV Essentials)
- **Hearing problems** (do they lean forward?)
- **Auditory discrimination problems** (confusing "confine" rather than "confide"

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Vocabulary Administration (cont'd)

- After they understand the directions, you can just read the word
- If they give the definition of a similarly sounding word, make sure they heard the word correctly

I speak loudly not because I think you're hard of hearing, but because you're hard of listening.

someecards
user card

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Arithmetic

- Series of arithmetic problems that the examinee solves mentally and responds to orally
- Measures mental manipulation, concentration, attention, STM, LTM, numerical reasoning ability, and mental alertness
- Part of **WMI**, maps onto *Gf* CHC factor

$$2 + 2 = 5$$

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Arithmetic Administration

- Need **stimulus book** 1 (if administering Items 1-5) and **stopwatch**
- **No paper and pencil** (but allowed to draw imaginary numbers)
  - Requires **working memory** to solve the problem
- **Sample** item, then **Item 6** (unless suspected disability, then Item 1)
- Reverse: If 0 score on either Items 6 or 7, then reverse until you get **2 consecutive perfect scores**
- Discontinue: After **3 consecutive scores of 0**
- Only **repeat each question 1 time** (keep stopwatch going)
- **Query** if examinee gives multiple responses and you're not sure which one they mean

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Let's Practice!

- Next Week: Quiz 3 (WAIS subtests 5-8: Vocab, AR, SS, and VP)
- Practice SS, VP, Info, Coding, LNS, and FW
- Take-home scoring practice assignment

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