Psychometric Tools Used for Evaluating Individuals with FASD: Reaching Consensus – Phase 1 Meeting

Canada Northwest FASD Research Network: Vancouver, British Columbia June 13-14, 2007

CanFASD Northwest
CANADA NORTHWEST FASD RESEARCH NETWORK

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Introduction

The Canada Northwest FASD Research Network (CanFASD Northwest) has been collaborating with diagnostic clinics to support their efforts in conducting comprehensive assessments for individuals with FASD. During several months of 2007, CanFASD Northwest focused on the approaches and tools that clinics were using to assess individuals with FASD. This exploration led to the realization that there was little consistency among clinics regarding the psychometric tools that were used by multi-disciplinary teams in the assessment. In an effort to create a common and consistent pan-Canadian approach for assessing individuals with FASD, CanFASD Northwest decided to invest resources in a process that would begin to address this inconsistency.

A two-phase process was devised to bring together representatives of all disciplines working within diagnostic clinics who use a multi-disciplinary approach. The first phase involved psychologists from each of the clinics who would come together for two days to achieve consensus on the psychometric tools to be use in diagnosis. The second phase would involve all others who form a multi-disciplinary diagnostic team (such as speech and language therapists, occupational therapists, and pediatricians) and include a small representative group from the first phase to build continuity. During each phase, the groups would review current approaches and tools for their respective disciplines and then work towards consensus on the most effective tools to use in assessment.

CanFASD Northwest hosted both sessions in Vancouver, BC. The first session was held on June 13 and 14, 2007. The second session occurred on September 18 & 19, 2007. This report chronicles the process and outcomes of the first session.

Session Purpose and Preparation

The purpose of the session was to bring together psychologists (who are currently assessing individuals) to achieve consensus on the tools that would be used consistently across Canada Northwest's diagnostic clinics.

Approximately 30 individuals participated in the session representing 14 clinics from the provinces and territories in the Canada Northwest region.

In advance of the session, a research assistant was hired to collect information on the tools currently being used by clinics across Canada's Northwest. A survey was distributed to all clinics, asking them to complete and return it to CanFASD Northwest.

The information was collated into a table and included tools used in the following 11 areas of assessment:

1. Cognition
2. Academic Achievement
3. Memory
4. Executive Function and Abstract Reasoning
5. ADHD (and attention more generally)
6. Adaptive Behaviour, Social Skills and Social Communication
7. Neurological Signs (sensory motor)
8. Communication: Receptive and Expressive
9. Supplementary Measures (Emotional Status)
10. Pediatrician Administered Measures
11. Others

The first six categories were the focus of the first session. The others were addressed in a second session.

It was evident from the information collected that, for the most part, there was tremendous variability in the instruments used for measurement of each function although the tools that were used were valid and appropriate. Coming to consensus was seen as an important and timely exercise.

Session Process

The session began with opening remarks designed to provide background on CanFASD Northwest, set the context for the event, emphasize the importance of the task and ensure clarity on the expectations and outcomes of the two-day meeting. This was followed by a brief presentation and large group discussion that focused on the current picture of assessment. An explanation of the pre-session survey of clinics was offered along with a review of the matrix of tools, which participants reviewed prior to the

session. The balance of the session consisted of small group discussions, then large group consensus building to identify the psychometric tools the group would agree to use. The session ended with a discussion about phase two and how to ensure continuity between both sessions.

In setting the context, participants were informed that CanFASD Northwest was in the process of preparing to collect consistent and cohesive data that could be translated to informed decision-making and policy. The outcomes of this session would assist in creating a system in which such data could be collected. Recognizing that data is very political and sensitive, the work of this group was seen as extremely important in paving the way ahead.

Participants were advised that in working towards consensus on the tools, it would be necessary to establish some criteria about the population being assessed that would guide their discussion about the tools. The five criteria proposed reflected a most typical case scenario and included:

The Individual

- Is between 4 and 18 years of age
- Has an IQ between 70 and 100
- Speaks English adequately ("fluently: was initially in the criteria, but the group agreed to change it to "adequately")
- Has no sensory deficits
- Has experience in life (i.e. it is valid to use tests for the general population)

Participants were encouraged not to hold back recommendations on tools, if lack of money was an issue, CanFASD Northwest would address this outside of the meeting.

The group was also advised that no one was mandating that they use the tools identified through this process. It was hoped that participants would share the outcomes of this meeting with their teams, discuss the merits of the tools identified and consider using the tools in an effort to work towards consistency and, eventually, data collection. CanFASD Northwest would be in touch with clinics once this process is over to determine which ones would commit to using the tools. As far as CanFASD Northwest is concerned, clinics could begin using the tools whenever they are ready to do so.

Participants were reminded that the results of this meeting would bring all those working in diagnosis a step closer to being able to tell a story to the government about FASD and ultimately to support patients, families and communities.

Please Note: The authors of this document assume a certain level of knowledge with regard to the variety of tools discussed from here forward. As such, the tools discussed are most often listed using the acronym form. For the full names, please refer to the Psychometrics Tools Matrix in Appendix C.

Psychometric Tools for Cognition

The scan of clinics identified 16 different tools that were being used to assess Cognition. One group of tests was reportedly used by (between) 9 - 12 clinics. Therefore, this category was chosen to start the discussions since there already seemed to be high agreement on the best tool to use.

As a result of the small group review of tools and the large group discussion, the Wechsler Intelligence Scale (WISC) group of tests was recommended across all age groups to measure Cognition. Specifically, these included:

- WPPSI-III for under 6
- WISC IV for ages 6 to 16
- WAIS III for 16-18

WPPSI-III was chosen based on the fact that it is widely used, there is continuity across ages and it has Canadian norms. A recommendation for an alternative tool was the DAS (which is particularly useful for 4-5 year olds). It is brief, user friendly and easily understood. It is theoretically sound, but does not have Canadian norms. The Stanford-Binet Intelligence Scales, 5th Edition (SB-5) was offered as an alternative tool for older age groups and also for ages 4-5. A final alternate was the McCarthy Scales of Children's Abilities (MSCA) for young children. An important point to note is that the group strongly opposed the idea of using any of the abbreviated forms of IQ tests for the purposes of making an FASD diagnosis – the WISC scale has a screening or shortened version that some people use.

Psychometric Tools for Academic Achievement

Diagnostic clinics identified nineteen tools for assessing this domain. One of them, the WIAT-II, was being used by (between) 9 - 12 clinics. While the groups discussed many other tools, the final consensus on this domain was:

- BBCS-R for 6 and under (with K-SEALS as an alternate)
- WIAT-II for ages 6 to 16 for math, reading and spelling (with WJ III as an alternate)
- TOWL-3 (story portion only) for 6 to 16 for written expression (with WJ III as an alternate)
- WRAT 4 for ages 16 and older

The BBCS-R was selected for two main reasons: it was described as quick to administer and, while it was difficult to measure this domain at this age, this was still seen as a good tool to assess the domain.

The advantages of using the WIAT-II included: it had Canadian norms and was comparable with the WISC. It was noted that there were problems with the reading comprehension subtest and at times it may be helpful to supplement it with other measures, such as the GORT-4. Participants commented that the teacher report was very relevant in the assessment whether it confirms or contrasts with test results.

The TOWL-3 was chosen since it assesses written expression much better than the WIAT-II.

For the alternative, the WJ-R, it was noted that there are no Canadian norms, but that it had good supplementary tests.

Note: Since the session we have learned that Canadian norms may be published in the future. These will most likely be based on Form B, which uses items with Canadian content (e.g. Canadian coins).

Psychometric Tools for Memory (includes working memory)

Thirteen tools were currently being used by clinics to assess the Memory domain. Three of them – the Children's Memory Scale (CMS), the Rey Complex Figure Test and Recognition Trial, and the Wide Range Assessment of Memory and Learning (WRAML2) were being used by (between) 6 - 8 clinics.

Participants noted several key considerations in choosing tools for this domain:

- There were many ways of interpreting memory performance
- There was no "perfect" test since there were many aspects of memory
- There were always issues around justifying the time to administer tests

The group agreed that it would be useful to divide this domain into four sub-domains and named them accordingly as:

- Immediate memory
- Delayed memory
- Verbal memory
- Non-verbal memory

The tools agreed upon included:

- NEPSY-II for those under 6
- WRAML2 (with either CVLT-C/CVLT- II or the CAVLT/RAVLT used as supplementary tools) for ages 5 and older

Note: The CMS and Rivermead Behavioural Memory Test (RBMT) were considered, but not chosen due to limitations identified by participants.

Psychometric Tools for Attention and Hyperactivity

Note: The group began with a discussion about the name of this domain and offered a suggestion for re-naming it. The essence of the discussion was that if the domain is called Attention Deficit and Hyperactivity Disorder (ADHD), it implies a DSM-IV diagnosis and the group felt that the name of the domain should not be the name of a diagnosis. More accurately, the name of the domain is Attention and Hyperactivity – or Attention and Activity Level. Participants agreed to re-name this domain Attention and Hyperactivity.

Clinics identified approximately 25 tools that were used to assess Attention and Hyperactivity. Participants noted a number of areas that required discussion by the group prior to finalizing the tools for this domain.

Participants indicated that "Attention" had been divided into "Focused Attention" and "Sustained Attention". Two key aspects of attention being hyperactivity and

distractibility. It was stressed that both attention and hyperactivity are measured during assessment, not ADHD. Therefore, a suggestion was made (and accepted) to remove the second "D" from the acronym ADHD.

In recognizing the complexity of this domain, participants acknowledged the need for several sources of reliable information that can be used, including:

- Clinical Setting: Psychometric tools
- School/Home Setting: Observation by Psychologist
- Standardized Questionnaires: Parents and teachers complete

When all three of the above sources were used, it generally results in a more accurate assessment. For example, a child may test well in a clinical setting yet may not do well in a school setting (or vice-versa).

The group was able to agree on a questionnaire to measure attention and hyperactivity:

- The BASC-2 for all age groups

Participants felt that it was also desirable to obtain a direct psychometric measure of sustained attention, such as a Continuous Performance Test (CPT). Several different CPTs were discussed including the TOVA, IVA+Plus, and Conners' Continuous Performance Test II (CPT II). However, relatively few clinics currently used such a measure. Furthermore, even fewer individuals have experience with more than one of them. Therefore it was impossible to make an informed decision on a CPT measure. The group recommended that funding be made available to some clinics to purchase and use two of the measures so people would have experience with more than one measure.

Ultimately it was concluded that although many members of the group would like to explore the use of such a measure, it is not currently part of a standard assessment. This decision should be reviewed in the future. Participants noted that to measure "sustained" attention, the task must be long enough to obtain good data, that it must be engaging and that it must be simple to follow.

Psychometric Tools for Executive Functioning

The discussion on this domain began with an agreement to only consider Executive Functioning, since it was thought that the Speech and Language Pathologists (S-LPs)

and Occupational Therapists (OTs) would be dealing with Abstract Reasoning (or at least, verbal reasoning) in the next meeting.

Participants named twenty-six different tools that they were currently using. However, one was used by (between) 9-12 clinics. The Behaviour Inventory of Executive Function (BRIEF), for those aged 6 to 18. However, the final recommendation for this domain were:

- BRIEF/BRIEF-P for all ages
- NEPSY II for under 6 and 6-8 year olds
- RCFT for those aged 6 to 18
- WISC-IV or WAIS-III Digit Span, Backwards and Letter-Number Sequencing for those aged 6 and up
- WRAML2 Verbal Working Memory and Symbolic Working Memory for those aged 9 and up
- D-KEFS for ages 8 and up
  Subtests:
  -Sorting
  -Color-Word Interference
  -Verbal Fluency
  -Design Fluency
- Children's Colour Trails Test (CCTT) for ages 8 to 16 years

On a final note, participants decided that working memory be divided into "Span" and "Manipulation". Span has been dealt with in the Memory discussion while manipulation is in Executive Function.

Note: Meyers and Meyers (1995) RCFT criteria were noted to be the most commonly used scoring system among participants. Owing to the multiple processes underlying performance on the RCFT, the use of an organizational or qualitative scoring system was also raised as an item for future discussion.

A recommendation was made to convene another meeting to discuss how findings on the diverse Executive Functioning tests should be interpreted in evaluating this domain.

Psychometric Tools for Adaptive Behaviour

One of the first points raised by participants was the suggestion to change the title of this section by removing the term "social communication" from the current discussion and bring it forward to the Phase 2 session to be dealt with there. The suggested was accepted.

Approximately 18 tools were identified in this domain. Two tools are currently being used by the majority of clinics the VABS-II and the ABAS-II. Considerable discussion ensued in relation to this domain.

It was not possible to reach agreement on one specific tool. However, the field was narrowed to either of the following:

- VABS-II
- ABAS-II

The main advantages of the ABAS-II were seen to be its questionnaire format, resulting in considerable timesavings for the clinician. The VABS-II also has a questionnaire format available, but some felt that it was less "user-friendly." Many were concerned about the impact of poor literacy, inappropriate expectations, or other forms of parent/teacher bias on scores based on a questionnaire. Some psychologists expressed concern about smaller numbers of items relevant to older children and teens on the VABS-II.

In summary, a decision about which measure to be used needed to be made in light of the following criteria:

- Amount of time available
- Parent literacy
- Age of child
- Approach: one-on-one interview or survey

When the ABAS-II was used, the psychologist should review the ratings and follow up with interview questions about any items that seemed questionable, as recommended in the ABAS-II manual.

Summary

CanFASD Northwest will soon embark on an extensive data collection exercise that will seek to further describe and understand the range of needs of persons with FASD in Canada's Northwest. In anticipation of that exercise, CanFASD Northwest wanted to ensure that the data coming into the system would be useful in terms of moving the field forward. The idea of consulting with multi-disciplinary diagnostic teams on the psychometric tools they use emerged as a way of working toward a pan-Canadian approach to assessment of individuals with FASD.

This session was the first of two that will identify the tools that multi-disciplinary diagnostic teams will use to assess individuals with FASD. The task of doing so is an incredibly important one and will pave the way for a consistent pan-Canadian approach to diagnosis that in turn will have the potential to generate a very useful foundation of data to inform the FASD field.

A key discussion point that was made related to alcohol-related diagnoses. The group recommended that clinical teams use extreme caution when making a diagnosis based on ratings by others (not of the patient). An alcohol-related diagnosis requires identifying three significantly affected brain domains. The finding of three affected domains could potentially be made based on the ratings of a single informant. For example, a diagnosis might be made using ratings of executive function (rather than direct measures), ratings of adaptive behaviour (rather than interview), ratings of ADHD symptoms (rather than observations or direct measures), and ratings of social communication (rather than direct or observational measures). The concern is that a parent or teacher with a negative response bias could have an undue effect on the diagnostic outcome. Teams should always include direct measures in the assessment battery where they are available, and follow up with interviewing if ratings are questionable. The group mentioned that further discussion of this issue should be pursued at future meetings. They also expressed a desire to have a mechanism or process by which new tests or different tests could be suggested and evaluated.

Those who participated in the session demonstrated immense commitment to the task, a sincere willingness to provide leadership in FASD assessment and great enthusiasm for the work ahead. They expressed appreciation for the invitation to be involved in the deliberations and agreed to offer additional input to support the completion of the tasks.

CanFASD Northwest was extremely pleased with the outcomes of the exercise and is in the midst of planning for the second phase.

Appendix A: Agenda

June 13 – Day One

8:15 Breakfast Provided

9:00 Welcome and Opening Remarks

- Dr. Sterling Clarren
- Jan Lutke

9:15 Introductions and Overview of the Meeting

- Paula Stanghetta, Facilitator

9:45 Overview of Current Approaches to Psychometric Testing for FASD

- Jan Lutke
- Dr. Christine Lilley
- Dr. Sandra Clarren

10:15 Response to Current Approaches - Group Discussion

10:45 Refreshments

10:45 Detailed Discussions and Consensus Building on Psychometric Tools

12:15 Lunch Provided

1:00 Small group work continued

2:15 Refreshments

2:30 Small group work continued

3:30 Small group work continued

4:30 Summary of day

4:45 Adjourn

June 14 - Day Two

7:45 Breakfast Provided

8:30 Review of Day One Accomplishments

8:45 Small group work continued

11:45 Lunch Provided

1:00 Final small group session

2:30 Refreshments

2:45 Outstanding Issues

Next Steps

3:30 Adjourn

Appendix B: Participant List

Prov.	Name	Organization
BC	Julie Conry	Asante Centre for Fetal Alcohol Syndrome 103 - 22356 McIntosh Avenue Maple Ridge, BC V2X 3C1
	Sandra Clarren	CONSULTANT Canada Northwest FASD Research Network L408 – 4480 Oak Street Vancouver, BC V6H 3V4
	Sterling Clarren	Canada Northwest FASD Research Network L408 – 4480 Oak Street Vancouver, BC V6H 3V4
	Jeanine Harper	Fraser Developmental Clinic 261 - 610 Sixth Street New Westminster, BC V3L 3C2
	Kim Kerns	Department of Psychology, UVic
	Jan Lutke	Canada Northwest FASD Research Network L408 – 4480 Oak Street Vancouver, BC V6H 3V4
	Christine Lilley	Complex Developmental Behavioral Conditions (CDBC) Clinic 3644 Slocan Street Vancouver, BC V5M 3E8
	Christine Loock	Complex Developmental Behavioral Conditions (CDBC) Clinic 3644 Slocan Street Vancouver, BC V5M 3E8
	Kelly Price	CDBC Clinic, Queen Alexandra Centre for Children's Health, Victoria, BC
	Tina Newman	CDBC Clinic, Sunny Hill Health Centre for Children, Vancouver, BC

	Ann Robson	CDBC Clinic, Sunny Hill Health Centre for Children, Vancouver, BC
	Aaron Lautzenhiser	CDBC Clinic, Sunny Hill Health Centre for Children, Vancouver, BC
	Diane L. Russell	CDBC Clinic, Nanaimo Child Development Centre, Nanainmo, BC
	Krystina Tran	Canada Northwest FASD Research Network L408 – 4480 Oak Street Vancouver, BC V6H 3V4
AB	Shelley Bergman	Renfrew Educational Services, Calgary, AB
	Carmen Rasmussen	Glenrose Rehabilitation Hospital FASD Clinical Services, Edmonton, AB
	Mary E. Lee	Northwest Regional FASD Society High Level, AB
	Valerie Massey	Canadian Diagnostic & Training Centre Redwater, AB
	Jacqueline Pei	Glenrose Rehabilitation Hospital FASD Clinical Services, Edmonton, AB
	Marty Mrazik	Canadian Diagnostic & Training Centre Redwater, AB and University of Alberta
SK	Della Hunter	Regina Child and Youth Services Regina, SK
	Mary Vandergoot	Alvin Buckwood Child Development Program Saskatoon, SK
	Heather Switzer	Children's Program, Wascana Rehabilitation Regina, SK
MB	Al Kircher	Clinic for Alcohol & Drug Exposed Children (CADEC) Child Development Clinic, Children's Hospital Winnipeg, MB
	Kent Somers	CADEC

YK	Leona Corniere	Children & Youth FASD Diagnostic and Support Teams C/o Child Development Centre, Whitehorse, YK CDC Yukon Preschool Team
	Sharon Davis	CDC Team - School Age Team, Department of Education, Special Programs, PO Box 2703, Whitehorse, YK Y1A 2C6
	Donna Jones	DC Team - School Age Team, Department of Education, Special Programs, PO Box 2703, Whitehorse, YK Y1A 2C6
ON	Paula Stanghetta (Facilitator)	Paula Stanghetta and Associates Ottawa, ON

Appendix C: Post-Session Psychometric Tools Matrix (consensus achieved)

Domain	Age Groups (Years)		
	4-6	**6-16**	**≥ 16 (Adults)**
Cognition	WPPSI–III: Wechsler Preschool and Primary Scale of Intelligence, 3rd Edition (0-6) Alternate: DAS: Differential Ability Scales (2-17)	WISC -IV: Wechsler Intelligence Scale for Children, 4th Edition	WAIS–III: Wechsler Adult Intelligence Scale, 3rd Edition (16-89)
Academic Achievement	BBCS-R: Bracken Basic Concept Scale-Revised School Readiness Composite (3-6) Alternate: K-SEALS: Kaufman Survey of Early Academic and Language Skills	Math: WIAT–II: Wechsler Individual Achievement Test, 2nd Edition (4-85) Reading: WIAT–II: Wechsler Individual Achievement Test (4-85) Spelling: WIAT-II: Wechsler Individual Achievement Test (4-85) Written Expression (story only): TOWL–3: Test of Written Language, 3rd Edition (7-17) Alternate: WJ-R to WJ III: Woodcock-Johnson Tests of Achievement (2-90)	WRAT–4: Wide Range Achievement Test, 4th Edition (5-75) Alternate: WJ-R to WJ III: Woodcock-Johnson Tests of Achievement (2-90)
Memory	NEPSY Learning and Memory (≤ 4) WRAML2: Wide Range Assessment of Memory and Learning, 2nd Edition (5-90)	WRAML2: Wide Range Assessment of Memory and Learning, Second Edition (5-90) Supplementary: CAVLT: Children's Auditory Verbal Learning Test (6-17) or CVLT-C: California Verbal Learning Test-Children's Version (5-16). Use either; not to be used together	WRAML 1-2: Wide Range Assessment of Memory and Learning, first and Second Editions (5-6 and 6-90) Supplementary: RAVLT: Rey Auditory Verbal Learning Test (6 to 89) or CVLT-II: California Verbal Learning Test, Second Edition (16-89). Use either; not to be used together

Executive Functioning and Abstract Reasoning	BRIEF-P: Behaviour Inventory of Executive Function, Preschool Version (4-5) NEPSY: Attention and Executive Functioning (4-6) NEPSY II, Second Edition for ≤ 6	BRIEF: Behavior Rating Inventory of Executive Function (5 to 18) RCFT: Rey Complex Figure Test (6 to 89) WISC-IV Digit Span Backwards and Letter-Number Sequencing D-KEFS: Delis-Kaplan Executive Function System (≥ 8). Subtests: Verbal Fluency, Design Fluency, Color-Word Interference, Sorting Children's Color Trails Test (8-16) WRAML-2 Verbal and Symbolic Working Memory (9-89)	BRIEF: Behavior Rating Inventory of Executive Function (5 to 18) RCFT: Rey Complex Figure Test (6 to 89) WISC-IV Digit Span Backwards and Letter-Number Sequencing DKEFS: Delis-Kaplan Executive Function System (≥ 8). Subtests: Verbal Fluency, Design Fluency, Color-Word Interference, Sorting Color Trails Test (18-89) WRAML-2 Verbal and Symbolic Working Memory (9-89)
Attention and Hyperactivity	BASC–2: Behavior Assessment System for Children, Second Edition (2-21)	BASC-2: Behavior Assessment System for Children, Second Edition (2-21)	BASC-2: Behavior Assessment System for Children, Second Edition (2-21)
Adaptive Behavior	ABAS-II: Adaptive Behavior Assessment System, Second Edition (0-89) VABS-II: Vineland Adaptive Behavior Scale, Second Edition (0-90) Choice of measure depends on situation: Limitation of time Parent literacy Age of child Need for an interview rather than a questionnaire	ABAS: Adaptive Behavior Assessment System (0-89) VABS: Vineland Adaptive Behavior Scale (0-90) Choice of measure depends on situation: Limitation of time Parent literacy Age of child Need for an interview rather than a questionnaire	ABAS: Adaptive Behavior Assessment System (0-89) VABS: Vineland Adaptive Behavior Scale (0-90) Choice of measure depends on situation: Limitation of time Parent literacy Age of child Need for an interview rather than a questionnaire