CHAPTER 11  The Clinical Assessment of a Patient with Schizophrenia

Linda Byrne

Young people presenting with psychotic symptoms pose a myriad of challenges for the clinician. Often there can be concomitant drug and alcohol abuse, poor family relations and a long period of untreated psychosis. All of these factors can result in poorer prognosis for the client. This case highlights the importance of thorough assessment of mental state, symptoms and cognitive functioning in an adolescent patient with a recent diagnosis of schizophrenia, the most common psychotic disorder. While this case has a neuropsychological focus, understanding the cognitive profile of this type of patient can lay the groundwork for development of an appropriate treatment plan.

Schizophrenia is the most common psychotic disorder. With a lifetime prevalence of approximately 4 people in 1000 (Saha, Chant, Welham, & McGrath, 2005), it is a relatively rare disorder. However, it has a high burden of disease. Based on the number of years a person will live with their disorder, it is one of the ten leading causes of disability worldwide (Fleishman, 2003). The age of onset for males is typically between the ages of 17 and 25, for women it is usually in the mid- to late-twenties. Because it affects people at such a young age, often people with schizophrenia do not have the opportunity to
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finish their education, form relationships or find and maintain meaningful employment. With symptoms ranging from the classic 'positive' indicators of hallucinations and delusions, to 'negative' symptoms including poverty of speech content and impoverishment of emotion and motivation, it is a disorder that can be difficult for the individual and the family to understand. With such a varied presentation, it is clear that schizophrenia is an imperfectly understood group of disorders that affect the brain and behaviour.

There are three key inclusionary features to a diagnosis of schizophrenia, according to the Diagnostic and Statistical Manual (DSM-IV-TR; American Psychiatric Association [APA], 2000). The first are the characteristic symptoms of the disorder that include delusions, hallucinations, disorganised speech, grossly disorganised or catatonic behaviour and finally, negative symptoms. At least two (or more) of these symptoms must be present for a significant portion of time during a one-month period, or less, if successfully treated. The second necessary feature is social or occupational dysfunction. Work, interpersonal relations or self-care all are included in this category and must be below the level achieved prior to the onset of the disorder. If the affected individual is an adolescent, as in the case presented here, then educational attainment is considered in this category. The third feature to be included for diagnosis is that of duration. There must be a period of at least six months where there are continuous signs of the disturbance. In addition to the inclusionary criteria, as with most DSM-IV diagnoses, there are a series of disorders that must be excluded and these include schizoaffective and mood disorder, substance/general medical condition and relationship to a pervasive developmental disorder. These 'rule-out' diagnoses will be revisited in the commentary section of the case.

A thorough assessment in a case such as this is vital to both the clinician and the client. The first stage is detailed assessment of the client's mental state and symptoms. Once the client's symptoms have been stabilised to some degree by medication and, in this case, electroconvulsive therapy (ECT), the focus can shift to his cognitive capacities. As an adolescent not yet finished schooling, a thorough understanding of his current level of functioning is necessary to assist in educational, and at some point, vocational planning. In addition, the high burden of care for the family in these cases
Integrative Assessment in Clinical Psychology requires the involvement of the caregivers in the assessment process wherever possible. Psychoeducation for the family plays a large role in intervention, but this process commences during the assessment. So too does the establishment of a working relationship with the case manager and the primary health providers once the client returns home. The assessment here is a thorough neuropsychological examination of cognitive abilities with careful attention paid to both the client’s mental state and symptom presentation. Particular attention is paid to those areas known to be compromised in schizophrenia. As well as charting deficits, it is important to clearly chart any personal strengths for the client. Mapping what is cognitively possible assists in developing a treatment plan. It is also vital that this information can be fed back to the client’s teachers to allow them to help modify aspects of the curriculum as necessary.

There are circumstances under which a clinical psychologist might undertake an assessment of similar scope and depth. Many of the assessment tools used in this case form part of the curriculum in the master’s and doctoral courses in clinical psychology and, as such, most clinical psychologists would have the necessary skills to administer and interpret them. While the clinician must remain mindful of not going beyond their level of competence, clinicians located in regional and rural areas without access to specialist neuropsychology services may find themselves undertaking a broader range of testing than in some other settings.

The case presented here follows the fictional case of an 18-year-old youth, Tom Bryant, who was an inpatient in an acute psychiatric ward in a large city hospital at the time of the assessment. Tom lived in a rural setting and had a 20-month history of psychosis. He had recently undergone ECT to treat severe catatonic symptoms. The referral was made by one of the consulting psychiatrists, Dr Maryann Comerford, as Tom’s symptoms appeared to be stabilising. The assessment was requested ahead of Tom’s likely discharge and return to his parent’s home.
The Case of Tom Bryant

REPORT OF NEUROPSYCHOLOGICAL ASSESSMENT
PRIVATE AND CONFIDENTIAL

NAME: Tom Bryant
DATE OF BIRTH: August 10, 1991
ADDRESS: 17 Hillside Crescent, Golden Heights
SOURCE OF REFERRAL: Dr Maryann Comerford, Consultant Psychiatrist
CLINICIAN: Dr Marcus Welby, Clinical Neuropsychologist
AGE AT TESTING: 18 years 2 months
DATE OF TESTING: October 5, 2009, October 6, 2009, October 8, 2009

Presenting Problem
Tom is an 18-year-old youth in his final year of high school. Tom was referred for neuropsychological assessment in order to determine his current level of functioning following recent (4 months previous) electroconvulsive therapy (ECT) treatment. The primary purpose of the assessment is to assist in recommendations to allow Tom to return to school to complete his final year of study.

History of Presenting Problem and Previous Treatment
Tom has a 20-month history of psychosis. He was first seen by his GP, Dr Jason Bateman, following an incident where he wandered away from his home and was found in a confused state. Prior to this incident his parents report some concerns with his behaviour including laughing for no apparent reason, appearing perplexed and fixated on a classmate, with whom he had little previous contact, suspected auditory hallucinations
and altered motor behaviour (remaining motionless for long periods of time). These behavioural changes were noticed over an estimated period of two months. His parents also suspect that Tom had started to smoke marijuana just prior to the onset of his problems.

Dr Bateman recommended admission to his local hospital and Tom was commenced on a low dose of rispiridone. No improvement was seen over a two-day period and he was subsequently transferred to the acute psychiatric ward at City Hospital on July 15, 2008. At this time he was unable to follow simple commands and remained confused. During his fifteen-day admission he improved slightly, becoming less confused, but remaining introverted and shy. He was referred to a local psychiatrist (Dr Roberta Green) and was seen periodically over the following months after his return home. During the next 12 months Tom’s mental state further deteriorated, he experienced continued auditory hallucinations, prominent negative symptoms and vagueness. During this period his psychiatrist switched his medication to olanzapine. However, given his poor response to treatment, he was readmitted to City Hospital on July 30, 2009. Upon readmission he had minimal response to pharmacological treatment and continued to exhibit marked negative symptoms, including posturing, rigidity and extreme negativism. Symptom evaluation at this time using the Positive and Negative Symptom Scale (PANSS) indicated high levels of positive symptoms and general psychopathology (80th percentile and 75th percentile respectively) and extreme levels of negative symptoms (99.9th percentile). In addition, on the Catatonia Rating Scale, Tom was exhibiting 14 of the 21 catatonic behaviours measured, most at moderate or severe levels. As a consequence, he underwent 12 sessions of ECT and was also placed on small doses of benzodiazepines as required for agitation.

Tom has experienced some improvement in his symptoms in the four months following ECT; however, he still has
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frequent auditory hallucinations and displays distinct negative symptoms. His spontaneous speech is limited and he needs encouragement to complete tasks at home. Tom also still exhibits some abnormal posturing. At the time of assessment his diagnosis was schizophrenia, catatonic subtype. At the time of assessment he was still taking olanzapine and diazepam.

Family History

Tom lives with his parents on a small, rural property in Golden Heights. He has one maternal half-sister who is 15 years older and three paternal half-brothers (20, 18 and 16 years his senior). Tom's parents are estranged from all of their other children. Tom's mother reported that her pregnancy with him was unexpected and unwanted. Once she came to terms with the pregnancy, she said that she had wanted a daughter. When Tom was born she developed postnatal depression that lasted for approximately three months.

Tom's father has a history of mental health problems with several hospitalisations for depression and anxiety during Tom's preschool and primary school years. Tom's paternal uncle has a history of schizophrenia.

According to Mrs Bryant, the emotional climate in the home was often tense. Communication between the parents was often characterised by conflict. Tom's mother reports that she was disappointed and angry by her husband's frequent hospitalisations and inability to maintain his role as breadwinner. There were also significant unresolved issues of grief and loss surrounding the estrangement of their other children. This was particularly true of Tom's mother who indicated that at times she felt reluctant to show Tom love for fear of him leaving her.

Tom's father admits that he was often 'tough' on his son. He frequently criticised Tom's efforts at school and was particularly disappointed by what he perceived as his son's lack
of sporting prowess. Tom’s father reported that he felt that three other sons from a prior marriage were ‘ungrateful’ and ‘always took their mother’s side’. He said that he had been a good provider for them and that it ‘didn’t make any difference’ and he believed that they hated him. He has not seen his other children for many years.

Both parents appear unsure of how to assist their son, they both expressed concern that he would be ‘just like Jimmy’ (Tom’s paternal uncle), who has been accommodated in a long-term facility for the mentally ill for over 30 years. They are also concerned about the amount of time that Tom has been out of school and are worried that he may not be able to finish his education. Tom’s mother reported that she is unsure of her capacity to care for him at home.

**Medical History**

Tom’s medical history is unremarkable aside from the removal of his appendix at the age of 11. There is no significant neurological history.
Developmental History

Tom was born following a normal pregnancy and vaginal delivery. Tom’s mother was a somewhat vague historian, but she believed that he achieved his developmental milestones at a normal rate. Socially, Tom’s mother said that he has always only had a few friends.

Educational History

School reports for Tom indicated that in primary school he was an average student and there was no indication of disciplinary problems. This pattern continued at high school. His secondary school home-room teacher indicated that, prior to his illness, Tom was an average student in most subjects. He generally performed a little below average in maths. In contrast, he had strengths in music and social sciences. His teachers described him as being quiet and withdrawn, but with a close group of friends. Until around August 2007, his teachers report that his behaviour was normal. Sometime in the latter part of 2007 his teachers reported that his written work was frequently punctuated with profanities. His behaviour also became problematic, swearing at other students, wandering off from classes and appearing to respond to sounds that were not there. The principal of Tom’s school has indicated that if at all possible, they would like to have him return to complete his schooling. He is very interested in receiving information regarding the outcome of the assessment in relation to Tom’s ability to complete his final year.

Behavioural Observations

Tom presented as an overweight, right-handed male of above-average height. He was dressed in casual clothing. During the first assessment Tom appeared to be withdrawn. He was cooperative with the testing procedure, however, his affect was flat and he demonstrated abnormal body posturing.
Tom's posturing appeared to become worse when he found items difficult. He was extremely softly spoken and had to be asked to repeat some answers in order to be heard. Throughout the assessment he mumbled to himself and would at times respond with repetitive echolalic responses (e.g., 'yeah, yeah, yeah'). On occasion he brought his face very close to the stimulus material on the table as if he had difficulty seeing the items. However, upon questioning he reported that he could see the material. On subsequent assessments, Tom's presentation improved slightly. He was able to maintain eye contact briefly on one or two occasions and even demonstrated some spontaneous speech. His concentration appeared to be sound, as he was able to work for over an hour without a break. Tom's verbal responses to questions were brief. It appeared that if he found a task too difficult, he would not attempt an answer.

Tom was alert and oriented to time and place. However, his behaviour during testing suggested that he was at times responding to auditory hallucinations. For example on a card-sorting task when asked about the strategy he was using, he indicated he was making choices based upon what his voices said. As a result, the current assessment may underestimate his true cognitive abilities.

**Tests Administered**

- Catatonia Rating Scale (CRS)
- Positive and Negative Symptom Scale (PANSS)
- Wechsler Test of Adult Reading (WTAR)
- Wechsler Adult Intelligence Test—4th Edition (WAIS-IV)
- Wechsler Memory Scale—3rd Edition (WMS-III)
- Wechsler Individual Achievement Test—2nd Edition (WIAT-II)
- Rey Auditory Verbal Learning Test
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• Connors Continuous Performance Test
• Rey Complex Figure Test
• Wisconsin Card Sort Test
• Trail Making Test
• Controlled Oral Word Association Test
• Tower of London
• The Awareness of Social Inference Test (TASIT).

NOTE: High Average (74–99%); Average (26–73%); Low Average (10–25%); Borderline (5–9%); Impaired (1–4%). For example if an individual was performing at the 60th percentile this indicates that he is performing at a level that is better than 60% of individuals his age.

Assessment Results

Symptoms

CRS. Tom demonstrated 10 of the 21 symptoms on the CRS including stereotypies, posturing, rigidity, motor inhibition and mutism. Most of these symptoms were rated as minimal, but he demonstrated moderate levels of rigidity, exaggerated responsiveness and mutism. This represents a reduction in catatonic symptoms compared to the assessment prior to commencement of ECT.

PANSS. When compared to other people with a diagnosis of schizophrenia, Tom’s current level of positive symptoms is in the average range (55th percentile) with the most prominent positive symptoms being his active hallucinatory behaviour and conceptual disorganisation. In contrast, his level of negative symptoms is extreme (95th percentile). He exhibits the full range of negative symptoms including extreme blunted affect, severe emotional withdrawal, poor rapport, difficulty in abstract thinking, social withdrawal and a lack of spontaneity. His level of general psychopathology as measured by the PANSS is average (65th percentile), with the most promi-
ponent features being his posturing, preoccupation and disturbance of volition. Overall, there has been a slight decrease in his symptoms as measured by the PANSS compared to those documented prior to ECT.

**Attention, working memory and speed of information processing.** Tom was alert and oriented at the time of testing. Tom’s performance on a task of sustained attention indicates that he has difficulties with both attention and arousal. He was slow to respond and this was particularly evident as the length of time between stimuli increased. He made a large number of errors on the task suggesting, that he had difficulty attending and that he also had problems inhibiting his responses. Tom’s performance on tasks of working memory was variable. On less demanding tasks such as manipulating digits he performed within the normal range for his age. However, on more demanding tasks, he performed poorly. He had difficulty holding and mentally manipulating information. Tom’s speed of information processing was also variable. On some tasks he performed within the normal range and on others he performed in the below average range when compared with others of his age.

**Intellectual ability.** Based on a test of reading, Tom’s estimated premorbid level of intellectual functioning was in the average range. In contrast, Tom’s current overall level of intellectual functioning is in the well below average (5th percentile) for his age. His verbal ability was in the low average to average range. Nonverbal (performance) ability fell in the impaired to borderline range. There was no significant difference between his overall performance on verbal and nonverbal tasks. Tom demonstrated a relative strength (average range) on a task of general knowledge and a constructional task. His vocabulary was also in the average range. Therefore, some skills that have been well learned appear to remain intact in the context of an overall diminution of abilities.
Learning and memory. Tom demonstrated difficulties on tasks of learning and memory. Tom's immediate recall of visual material was impaired for someone of his age. Following a delay, Tom's performance was below average. However he was able to retain some of the information that he acquired after the immediate trial, indicating that he has difficulty encoding information for later retrieval. Tom's immediate recall of verbal material was also impaired. He demonstrated difficulty in recalling prose passages and in the acquisition of word lists over repeated learning trials. Repetition of material did not improve Tom's performance. His performance on recognition tasks of previously presented material was also impaired for both verbal and visual information. Together these results suggest a significant difficulty with encoding information initially, which is likely to be related to poor attention.

Executive abilities. On tasks of executive ability he demonstrated impairments in planning and organisation, conceptual problem-solving and set shifting.

Visual-spatial skills. On visual-spatial tasks, Tom's performance was varied. His copy of a complex geometric design was intact and his performance on a task of constructional ability was in the average range. However, on other tasks of visual-spatial copying, his performance was impaired when compared to others of his age.

Academic achievement. Tom has good single-word and nonword reading skills (high average). His spelling is in the average range for his age. However, Tom's performance on a task of written computational problems was in the low average range. His performance on tasks of mathematical word problems was in the very low average range for his age. It was noticed during the written computational part of the task that he sometimes rushed the task and made errors because he did not consider what he was required to do (e.g., adding a problem that was actually required subtraction).
Social and emotional functioning. Tom’s ability to discriminate between facial expressions was poor. He had difficulties recognising faces displaying anger, disgust and fear. This may result in problems with peer relations if he fails to pick up on the nonverbal indicators in his social interactions with others. He also had difficulty understanding the social inference in conversations where people might say one thing, but mean another.

Summary and Formulation
Tom is an 18-year-old male with a 20-month history of schizophrenia for which he received ECT and is currently taking antipsychotic and anxiolytic medication. Tom displays active hallucinatory behaviour and has marked negative symptoms, including catatonic motor behaviour. Although his current symptomatology is reduced compared to the level he exhibited prior to commencement of ECT treatment. Formal neuropsychological assessment revealed a reduction in intellectual functioning relative to Tom’s average estimated premorbid level of functioning. His performance also indicated specific deficits in attention, learning, memory and on tasks of executive functioning, consistent with those seen in individuals with a psychotic illness. He needed encouragement to attempt and complete tasks, especially those he perceived as difficult. Tom also demonstrated marked impairment on tasks of social and emotional functioning. Tom’s family life is characterised by high expressed emotion (EE), with confusing and conflicting communication patterns.

Recommendations
Tom will need considerable assistance in order to continue with his schooling this year. He will need assistance with ongoing rehabilitation and school reintegration. It is recommended that Tom undertake cognitive remediation to assist with his difficulties. With encouragement, Tom can attend to
a given task; however, his attention is variable. He will need an environment where distractions are kept to a minimum so that he can focus his attention on the task at hand. Tom will benefit from a structured environment where clear routines are established. Given his difficulties with memory, he needs to be taught how to use memory aids such as diaries. Tasks need to be presented in small steps with clear instructions to ensure that he can understand and remember what is expected. Presenting him with too much information, or too many choices, will be overwhelming.

Reassessment is recommended in 12 months time to review Tom’s progress. Psychoeducation is recommended for both Tom and his parents as the starting point for a broader therapeutic approach. In addition, referral for family therapy in their area may assist in changing communication patterns that may interfere with Tom’s recovery.

**Diagnosis**

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**Treatment Plan**

**Ongoing Treatment Plan**

The overall ongoing management of Tom needs a multi-disciplinary approach, including:

- psychoeducation for Tom’s parents
- psychoeducation for Tom
• it is recommended that this material be presented to Tom in a relatively simplistic way, taking into consideration his limited concentration at this time
• psychiatric management and liaison with crisis and community services
• family therapy to treat high EE communication
• cognitive rehabilitation to focus on Tom’s current difficulties particularly focusing on attention, memory and executive control.

Dr Marcus Welby, Clinical Neuropsychologist
October 15, 2009

Commentary on Assessment
Aims and Techniques Used in Assessment

Schizophrenia is a relatively uncommon in the general population; however, clients with this diagnosis are frequently seen in acute and outpatient settings. DSM-IV-TR currently lists five subtypes of schizophrenia: paranoid, disorganised, catatonic, undifferentiated and residual. The case presented in this chapter represents one of the most uncommon subtype of schizophrenia, catatonic. Indeed there has been a recommendation that all subtypes are removed under DSM-V (APA, 2010). However, while the diagnosis given to Tom is rare, his cognitive profile is not uncommon in young patients with psychotic illnesses. Particularly where there has been a long duration of untreated psychosis and prominent negative symptoms. His case highlights important considerations when assessing young people with psychotic illnesses, particularly in regard to adequately assessing cognitive functioning. The following commentary will discuss issues surrounding determining symptom levels, differential diagnosis, mapping cognitive change and deciding which cognitive domains to assess. In addition, it will also address considerations when conducting assessments with young people who may have not yet completed their education, treatment planning for this type of client and the size and scope of the report.
Assessment of a young person such as Tom would typically be undertaken by a neuropsychologist. The breadth of testing covered here would ordinarily be beyond the training of most clinical psychologists. As mentioned in the introduction, many of the tests used in this assessment form part of the training curriculum of clinical psychology programs. With additional speciality training, clinical psychologists, particularly those working in areas without access to a neuropsychologist, may feel equipped to undertake similar assessments.

Tom's case clearly is supportive of the biopsychosocial model of the development of schizophrenia. His family history (paternal uncle with schizophrenia) suggests a genetic vulnerability, coupled with the environmental stress of a high EE environment potentially providing the necessary 'double-hit' suggested by the stress-vulnerability model (e.g., Walker & Diforio, 1997). His behaviour in the early stages of the onset of his disorder raise the spectre of the role of illicit substances, in this case possibly marijuana, in the development of his symptoms. This of course raises the issue of differential diagnosis. Can we rule out a substance-induced psychotic disorder? There are two important issues here; first of all, we have no evidence, just a suspicion that Tom has used marijuana at sometime in the past. According to the DSM-IV-TR criteria for diagnosis of a substance-induced psychotic disorder, there must be evidence from 'the history, physical examination or laboratory findings of dependence, abuse, intoxication or withdrawal' (p. 342). Second, Tom's presentation and course of his disorder are better accounted for by the criteria for a primary diagnosis of schizophrenia. As for other possible diagnoses, there is also no evidence from Tom's history or current presentation, that there is a mood component to his disorder, effectively ruling out schizoaffective or mood disorder. Finally, Tom's developmental history does not give any hints of any pervasive developmental disorder.

Carefully charting Tom's symptoms serves a number of purposes. Administering symptom rating scales prior to his ECT treatment and again some months after, allows us to examine the resolution (or not) of symptoms across time. Tom’s presentation with the catatonic subtype of schizophrenia is very rare. Only an estimated 1% of cases in developed countries received this diagnosis (Bhugra, 2005). However, higher rates have been reported elsewhere (Bräunig, Krüger, Shugar, Höfler, & Börner, 2000). The rarity of catatonia, and the use
of the CRS pre-ECT prompted the clinician to administer this tool in conjunction with the PANSS. Negative symptoms can be particularly resistant to treatment and certainly antipsychotic medication seems to have had limited effectiveness in Tom’s case. ECT combined with benzodiazepines has been shown to be the most effective treatment for catatonic symptoms of schizophrenia (Tharyan & Adams, 2005).

As in any disorder where there is the suspicion of cognitive decline, it is important to have some estimate of how the client was functioning before the onset of their difficulties. Emma Gould, in the chapter on cognitive assessment of a patient with dementia of the Alzheimer’s Type (DAT), presents an excellent discussion on the various methods of estimating premorbid ability and so a full recap is unnecessary here. The method adopted by Dr Welby was administration of the Wechsler Test of Adult Reading (WTAR; The Psychological Corporation, 2001). The WTAR takes only five to ten minutes to administer and was co-normed with the WAIS-III and the WMS-III. Similar to the National Adult Reading Test (NART; Nelson & Willison, 1991), it is a reading test of words with irregular pronunciation. Given that Tom’s schooling has been interrupted by his illness, relying on years of education may produce an inaccurate estimate of his abilities. The difference between his estimated premorbid IQ and his obtained WAIS-IV IQ was marked and indicated a significant drop in his overall level of functioning.

One area of functioning that is sometimes overlooked with young people that present with psychiatric difficulties is academic achievement. Any young person that has not yet completed their education should be assessed with an assessment tool specifically targeting this area. In Tom’s case, the referral question explicitly revolves around Tom’s capacity to return to school. Dr Welby’s administration of selected subtests from the Wechsler Individual Achievement Test–2nd Edition (WIAT-II; Wechsler, 2001) allows for an understanding of the basic level of academic skills he has acquired up until the onset of his illness.

The role of the clinical and neuropsychologist in assessing and treating clients with schizophrenia is multidimensional. While medication remains the first line of treatment for symptom management, psychoeducation, cognitive–behavioural therapy, family therapy and cognitive remediation all have a valuable role to play in improving
functional outcome in this group. In addition, there is an emerging litera-
ure suggesting that there is a functional significance of social cog-
nition in schizophrenia (Couture, Penn, & Roberts, 2006) and that social cognitive interventions may improve functional outcomes
(Horan, Kern, Green, & Penn, 2008). In the case of Tom, Dr Welby
acknowledges in his recommendations that a combination of these
treatment options may assist Tom and his family.

While cognitive remediation is usually the domain of neuropsy-
chologists, multidisciplinary management of the client can lead to
superior outcomes. This is particularly the case when the client is
young and there are still many opportunities to assist them in the
transition back to their studies. Supportive therapy, especially when
it is targeted to address specific deficits and achieve goals set in col-
laboration with the client, is likely to improve such things as future
compliance with medication, ongoing contact with mental health
professionals and improve family relations. Moreover, understanding
the cognitive strengths and limitations of the client can add in treat-
ment planning.

One final issue relates to the length and general style of the report.
Dr Welby has administered a neuropsychological battery that is not
atypical in many psychiatric inpatient settings. Testing was lengthy
and very comprehensive, and yet the report is relatively brief. As has
been noted in other chapters, the style and length of reports will vary
depending upon the setting. What should be clear from this case is
that reporting of a client’s cognitive abilities as measured by a wide
variety of tests need not be complicated. Reporting scores for the most
part is unnecessary. There are some aspects of this report that are not
typical of that written by a neuropsychologist. Developing an ongoing
treatment plan is unusual in a neuropsychological report. The inclu-
sion of this section is due to Dr Welby working in a setting where a
team of professionals work together to assist Tom’s transition back to
the community. The brevity reflects an acknowledgment by Dr Welby
that many of these treatment options are not the realm of the neu-
ropsychologist. Overall, the goal of this report is to answer the referral
question by clearly documenting Tom’s current functioning, note any
changes and recommend how this information may be best used to
assist Tom’s return to school.
Choice of Measures

Symptom Assessment

It is clear from the assessment that Tom's symptoms are not properly controlled and are having a detrimental impact on his level of functioning. The application of the PANSS allows for mapping of his current symptom level, which will assist in tracking the resolution (or otherwise) of symptoms over time. The Positive and Negative Symptom Scales (PANSS) contains 30 items and is administered in a semistructured interview format over a period of 30–40 minutes. Additional information provided by hospital staff and family members is sometimes drawn upon for completion of the PANSS. Each item on the PANSS is rated on a seven-point scale (1 = Symptom is absent, to 7 = Symptom is present to an extreme degree). The PANSS has demonstrated reliability and validity (Kay, Opler, & Lindenmayer, 1988) and is widely used as a method of assessing positive and negative symptoms in schizophrenia.

The inclusion of the Catatonia Rating Scale (CRS) was based upon the relative rarity of the symptoms. Once again, the inclusion of a baseline measure allows for a tracking of the resolution of symptoms. The CRS (Bräunig et al., 2000) is a 21-item clinician-administered rating scale. It comprises 16 catatonic motor symptoms and five catatonic behaviours. The presence and severity of the symptoms are rated during a semistructured examination. It can be administered in conjunction with the PANSS as there are overlapping areas on both scales. The rationale for including an additional rating scale for a subset of psychotic symptoms is that the CRS provides a comprehensive, specific and quantifiable measure of the rare phenomenon of catatonia.

Cognitive Assessment

Cognitive deficits are a core feature in schizophrenia and are present early in the onset of the disorder (Gonzalez-Blanch et al., 2007). There had been some speculation that cognitive deficits would feature in the new criteria for schizophrenia in the DSM-V; however, the taskforce have acknowledged the importance of this area, but specifically excluded them from the new manual (APA, 2010). There has been a large body of research identifying key cognitive deficits and this work has been relied upon by clinicians working with individuals with schizophrenia. As a result of the research, they have typically selected a
large, comprehensive battery of tests in order to capture the full range of cognitive domains. Recently the National Institute of Mental Health (NIMH) in the United States undertook an initiative called the Measurement and Treatment Research to Improve Cognition in Schizophrenia (MATRICS). One of the many outcomes of this research has been the development of a consensus cognitive battery, specifically for use in clinical trials (Nuechterlein et al., 2008). This research is important, as key researchers in the area have come together to systematically review the literature, identify the best measures to capture cognitive difficulties in this population and then evaluate their use. The relevance to the practitioner is that this research provides the gold standard for evidence-based practice. Seven key domains were identified as being fundamental in an assessment of schizophrenia: speed of processing, attention/vigilance, working memory, verbal learning, reasoning and problem-solving and finally, social cognition.

So the clinician needs to be guided by the relevant literature when embarking on an assessment of functioning in a given population. However, this case demonstrates how the clinician must go beyond those areas recommended by the research in order to provide the best possible assessment for the individual needs of the client. While assessment should clearly incorporate the seven key domains outlined above, in the context of the referral question, additional assessment is required.

As a result, a comprehensive neuropsychological test battery was selected in order to establish his current and premorbid level of intellectual functioning as well as assessment of academic achievement. This is vital for educational and vocational planning.

The Wechsler Test of Adult Reading (WTAR; The Psychological Corporation, 2001), can be used as an estimate of premorbid ability. Word reading is an ability that remains largely intact in the presence of many other cognitive changes (Lezak et al., 2004). The advantage of the WTAR is that the manual provides tables for direct comparisons with WAIS IQ and WMS-III memory scores.

The WAIS-IV is relatively new and, according to the test publishers, represents an improvement over the WAIS-III in a number of key areas including the size and scope of normative sample and inclusion of more special populations (Wechsler, 2008). It is a comprehensive test of cognitive functioning across four key domains: Verbal
Comprehension, Perceptual Reasoning, Working Memory and Processing Speed. As mentioned above, two of these four domains, Working Memory and Processing Speed are explicitly mentioned by the MATRICs consortium as being fundamental to an assessment of cognition in schizophrenia. Further, administering a complete WAIS-IV to a client such as Tom allows a clear recording of his current intellectual abilities. This is vital if one is to explore change.

At the time of testing, the new WMS-IV (Wechsler, 2009) was not yet released in Australia and so the WMS-III (Wechsler, 1997) was administered. This test, like the other suite of Wechsler tests, has very good psychometric properties and is well used in psychological practices in Australia and overseas. It provides a comprehensive assessment of immediate and delayed recall in both verbal and visual modalities. The Rey Auditory Verbal Learning Test (RAVLT; Lezak, 1983) is a list-learning task that allows for exploration of acquisition of new material, the influence of repeated exposure to learning and recall and how sensitive the client may be to interference. In addition, it also contains a recognition trial. Recognition is easier than free recall and including this measure can allow the clinician to tease out whether a memory deficit may be due to encoding, storage or retrieval difficulties.

The importance of assessing academic achievement in a young person was outlined above. Given that the WTAR, WAIS-IV and WMS-III were all administered, the choice of test for this domain was obvious. The WIAT-II allows the clinician to directly compare a client’s academic performance to their intellectual ability. Only selected subtests of the WIAT-III were administered to Tom. Even when such a comprehensive assessment takes place, the clinician needs to remain mindful of the difficulties for the client in completing such a lengthy assessment. Restricting the achievement tests to the core areas of reading, spelling and mathematics provided sufficient information for Dr Welby to address the referral question.

Disruption to attentional processes can be measured in a number of ways. The Continuous Performance Test provides information on the ability of a client to sustain attention. In addition, it also provides information on errors, including omissions (failure to respond) and commissions (responding in error). The CPT has been touted as a potential genetic marker for schizophrenia (Chen et al., 1998). Tom’s performance on this test was markedly atypical.
Problem-solving and planning were identified as two of the seven domains that should be examined in schizophrenia. These two types of ability fall under the umbrella of executive functioning. The Wisconsin Card Sort Test, Tower of London and Controlled Oral Word Association test (COWAT) were all selected to exam Tom's executive abilities. Executive functioning relates to higher-order cognitive abilities and these are thought to be mediated by the frontal lobes. The WCST is a classic measure of set-shifting and inhibition. The Tower of London allows for examination of planning and the COWAT test, which is typically included in larger aphasia batteries (see Strauss, Sherman, & Spreen, 2006) measures verbal generativity and can be useful for eliciting preservative responses.

The inclusion of an additional perceptual reasoning task such as the Rey Complex Figure test is typical in a neuropsychological assessment and Tom's performance on this task was one of the few areas of relative strength.

Tom's cognitive profile displays many of the classic findings in the neuropsychological functioning in schizophrenia. He has poor attention, executive control and verbal memory. He has experienced a decline in functioning from his premorbid state. His symptoms, both negative and positive, impacted upon his performance. Despite the severity of his symptoms and the recently exposure to ECT, there are several areas of cognitive ability that remain at least in the average range. It is to these areas that the clinician must look when designing an appropriate intervention.

One final note on the assessment tools used in Tom's case. The Awareness of Social Inference Test (TASIT; McDonald, Flanagan, & Rollins, 2002) is a relatively new test developed in Australia to assess and treat deficits in social perception. It was originally developed to assess and treat these deficits in clients who had suffered a head injury. There are few tests with good psychometric properties that have been developed to measure social cognition. There are fundamental deficits in several areas of social cognition in schizophrenia including emotional perception, social information processing and theory of mind and, as previously mentioned, these deficits are linked to poor functional outcomes (Couture et al., 2006). While this is a relatively new instrument, it is gaining traction in the schizophrenia literature as a
useful tool in measuring these important domains (e.g., Chung, Mathews, & Barch, 2010).

Choice of Treatment
There are a number of options available for the clinician when treating a client with schizophrenia. Psychoeducation for both Tom and his family would be the first step. Evidence from trials indicates the effectiveness of this approach as part of any treatment program for people with schizophrenia (Pekkala & Merinder, 2002). Cognitive-behavioural therapy (CBT) has been found to be efficacious in improving both overall mental state and global functioning in randomised control trials (Hodgkinson, Evans, O'Donnell, Nicholson, & Walsh, 2000; Sensky et al., 2000). Clinicians interested in this approach are directed to several excellent resources by Douglas Turkington, David Kingdon and their colleagues (Kingdon & Turkington, 2008; Wright, Turkington, Kingdon, & Basco, 2009).

Two other critical areas focus on remediation of cognitive deficits and social cognitive deficits. The latter was not recommended in Tom's case. This is mainly due to the fact that while there is evidence emerging as to the effectiveness of social cognitive remediation (Horan et al., 2008), as yet this type of program has not found its way into mainstream practice. There has been a body of work generated by Alice Medalia in the United States using an individualised approach to cognitive remediation that has shown some positive outcomes (Medalia, Revheim, & Casey, 2002; Medalia, Revheim, & Casey, 2000). She advocates an approach known as the Neuropsychological Educational Approach to Rehabilitation (NEAR; Medalia & Freilich, 2008). This is a comprehensive, manualised approach that emphasises the cognitive and educational aspects of remediation. This type of intervention has been adopted here in Australia by some clinical neuropsychologists and the outcome of randomised control trial found significant improvements in verbal and visual memory, sustained attention and executive functioning (Redoblado-Hodge et al., 2010).

Endnote
1. This case assessment is fictional and is to be used for the purposes of demonstration only. Any resemblance to persons known is entirely coincidental.
References


