Table 1 (Continued): OBS-K cut-off criteria for challenging behaviour in children

<table>
<thead>
<tr>
<th></th>
<th>Challenging behaviour at any frequency or when impact perceived severe or extreme</th>
<th>Challenging behaviour only when impact perceived severe or extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wandering/ Absconding</strong></td>
<td>3 Engages in prolonged repetition resulting in serious physical harm</td>
<td>1 Engages in prolonged repetition that does not result in physical harm</td>
</tr>
<tr>
<td></td>
<td>2 Engages in prolonged repetition resulting in minor physical harm</td>
<td></td>
</tr>
<tr>
<td><strong>Inappropriate social behaviour</strong></td>
<td>4 Presents a danger to self or others, lights fires dangerously, crosses road recklessly</td>
<td>2 Nuisance/ annoyance, interrupts conversations, actively seeks attention</td>
</tr>
<tr>
<td></td>
<td>4 Petty crime or unlawful behaviour, driving without a license, stealing cigarettes</td>
<td>1 Socially awkward, inappropriate laughter, failure to monitor personal hygiene, standing too close</td>
</tr>
<tr>
<td></td>
<td>3 Noncompliant or oppositional</td>
<td></td>
</tr>
<tr>
<td><strong>Adynamia/ Lack of initiation</strong></td>
<td>4 Multiple prompts per day</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 All tasks everyday</td>
<td></td>
</tr>
</tbody>
</table>

4 Adynamia/lack of initiation is not rated in terms of severity on the OBS. It is only rated in terms of frequency of prompting.

Quantitative data analysis
Non-parametric statistical tests were used to analyse the data collected. Specifically:

- Chi-squared test – to analyse the relationship between two categorical or ordinal variables. Fisher exact tests were used for independent and dependent variable that had two categories or levels.

- Mann-Whitney U test – to analyse the difference between two groups against a dependent continuous variable.

The probability for Type-I error of less than 5% was required for statistical relationships to be considered significant (i.e. p<0.05).

Qualitative case review
Another aspect of the CBF was to have each of the three paediatric BIRP services identify up to four clients who were considered particularly challenging for qualitative review. It was expected that a thorough review of this select group of clients could provide additional information about challenging behaviours that could not be provided by analysis of the quantitative data alone.

A semi-structured interview (see interview questions in Appendix C) was undertaken with a clinician who knew the clients' challenging behaviours, treatments received and background. Whenever convenient - sometimes before and sometimes after interview - the medical records and case notes of the qualitative review clients were examined to obtain background, injury details and also gain further understanding of any behavioural issues.

The information collected from each client was then written up into a case history, and each of the case histories then read to identify themes relating to the challenging behaviours of clients who sustain TBI.

It was anticipated in the paediatric arm of the CBF that the qualitative case review would be the primary source of information about comorbidity and challenging behaviour in children and adolescents.

RESULTS
To determine the prevalence, comorbidities and burden of challenging behaviours, a total of 188 BIRP paediatric clients met the study inclusion criteria. However, clinical informants for six BIRP clients did not return OBS-K forms, resulting in a final sample of 182 BIRP clients.

A summary of the demographic and clinical characteristics of the 182 paediatric clients included in the study can be viewed in Appendix D.

5 In the adult arm of the CBF, mental health and drug and alcohol comorbidity was also assessed using specific validated quantitative measures.
### Table 2: Prevalence of the nine types of challenging behaviour

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inappropriate social behaviour</td>
<td>68</td>
<td>37.4</td>
</tr>
<tr>
<td>Verbal aggression</td>
<td>54</td>
<td>29.7</td>
</tr>
<tr>
<td>Adynamia/lack of initiation</td>
<td>26</td>
<td>15.4</td>
</tr>
<tr>
<td>Wandering/absconding</td>
<td>26</td>
<td>14.3</td>
</tr>
<tr>
<td>Physical aggression against others</td>
<td>26</td>
<td>14.3</td>
</tr>
<tr>
<td>Physical aggression against objects</td>
<td>23</td>
<td>12.6</td>
</tr>
<tr>
<td>Inappropriate sexual behaviour</td>
<td>21</td>
<td>11.5</td>
</tr>
<tr>
<td>Perseverative/repetitive behaviour</td>
<td>10</td>
<td>5.5</td>
</tr>
<tr>
<td>Physical aggression against self</td>
<td>7</td>
<td>3.8</td>
</tr>
</tbody>
</table>

### PREVALENCE OF CHALLENGING BEHAVIOURS

The prevalence of challenging behaviour was 51.1%, representing 93 paediatric community TBI clients from the three BIRP units who met criteria for challenging behaviour. This prevalence rate was based on clinician ratings using the OBS-K (see Table 1 on pages 12-13 for cut-off criteria for challenging behaviour).

**Prevalence of different types of challenging behaviour**

Table 2 shows the prevalence of the nine different types of challenging behaviours assessed by the OBS-K. The three most common challenging behaviours were inappropriate social behaviour, verbal aggression and adynamia/lack of initiation. When considering all four types of aggressive behaviour assessed by the OBS together, 34.1% (n=62) children demonstrated challenging levels of aggressive behaviour.

### FACTORS RELATED TO CHALLENGING BEHAVIOUR PREVALENCE

Having established the prevalence of challenging behaviours, a series of analyses was undertaken to examine whether demographic and injury-related variables influenced the presence of challenging behaviours.

**Gender**

Generally, the prevalence of challenging behaviour was not significantly related to the gender of children. Just over half of male (50.8%) and female (51.0%) paediatric clients demonstrated challenging behaviour. However, males (18.6%) were significantly more likely to demonstrate one type of challenging behaviour compared to females (7.5%), namely physical aggression against other people (p<0.05).

**Age**

Age was not significantly related to absence or presence of any of the different types of challenging behaviour (p>0.05). The median age was 13.6 years for clients with challenging behaviour and 14.0 years for clients without challenging behaviour.
### Table 3: Indigenous status and challenging behaviours

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Indigenous (%)</th>
<th>Non Indigenous (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal aggression</td>
<td>77.8</td>
<td>30.8</td>
</tr>
<tr>
<td>Physical aggression against objects</td>
<td>44.4</td>
<td>12.0</td>
</tr>
<tr>
<td>Physical aggression against others</td>
<td>44.4</td>
<td>14.3</td>
</tr>
<tr>
<td>Wandering/absconding behaviour</td>
<td>55.6</td>
<td>13.5</td>
</tr>
<tr>
<td>Inappropriate social behaviour</td>
<td>77.8</td>
<td>36.1</td>
</tr>
<tr>
<td>Adynia/lack of initiation</td>
<td>44.4</td>
<td>14.3</td>
</tr>
</tbody>
</table>

### Country of birth
The rate of challenging behaviour was unrelated to whether children were born in Australia or overseas (p>0.05). For both groups, half the clients demonstrated challenging behaviour.

### Indigenous status
A significantly greater proportion of clients of Aboriginal or Torres Strait Islander background met criteria for challenging behaviour (88.9%) compared to non-indigenous clients (48.1%) (p<0.05). Clients of indigenous background also were significantly more likely to demonstrate specific types of challenging behaviour. Table 3 shows the specific challenging behaviours significantly more prevalent in children of indigenous background (p<0.05).

### Geographic location
Clients resident in remote areas demonstrated the highest rate of challenging behaviour (75.0%) followed by urban (51.4%) and then regional clients (45.5%). However, the differences between these three geographical groups were not found to be statistically significant (p>0.05). At the level of individual behaviours none were significantly related to geographical location.

### Age at injury
Age at injury was not related to challenging behaviour overall in paediatric clients (p>0.05). However, there was a significant relationship between age at injury and three specific types of challenging behaviour:

- **Physical aggression against self:**
  those demonstrating this behaviour at challenging levels had a median age of injury of 2.0 years compared to 7.2 years for those who did not demonstrate this behaviour at challenging levels

- **Perseverative/repetitive behaviour:**
  those demonstrating this behaviour at challenging levels had a median age of injury of 3.3 years compared to 7.2 years for those who did not demonstrate this behaviour at challenging levels

- **Adynia/lack of initiation:**
  those demonstrating this behaviour at challenging levels had a median age of injury of 4.8 years compared to 7.2 years for those who did not demonstrate this behaviour at challenging levels
### Table 4: Challenging behaviour (%) by PTA duration

<table>
<thead>
<tr>
<th></th>
<th>&lt;24 hours (n=10)</th>
<th>2-6 days (n=12)</th>
<th>1-4 weeks (n=37)</th>
<th>1-6 months (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All behaviours</td>
<td>40.0</td>
<td>50.0</td>
<td>40.5</td>
<td>66.7</td>
</tr>
<tr>
<td>Verbal aggression</td>
<td>30.0</td>
<td>41.7</td>
<td>27.0</td>
<td>38.9</td>
</tr>
<tr>
<td>Physical aggression against objects</td>
<td>10.0</td>
<td>8.3</td>
<td>8.1</td>
<td>11.1</td>
</tr>
<tr>
<td>Physical aggression against self</td>
<td>0</td>
<td>0</td>
<td>5.4</td>
<td>0</td>
</tr>
<tr>
<td>Physical aggression against others</td>
<td>20.0</td>
<td>8.3</td>
<td>16.2</td>
<td>11.1</td>
</tr>
<tr>
<td>Inappropriate sexual behaviour</td>
<td>0</td>
<td>0</td>
<td>8.1</td>
<td>22.2</td>
</tr>
<tr>
<td>Perseverative/repetitive behaviour</td>
<td>0</td>
<td>0</td>
<td>1.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Wandering/absconding</td>
<td>10.0</td>
<td>16.7</td>
<td>13.5</td>
<td>5.6</td>
</tr>
<tr>
<td>Inappropriate social behaviour</td>
<td>30.0</td>
<td>25.0</td>
<td>29.7</td>
<td>50.0</td>
</tr>
<tr>
<td>Adynia/lack of initiation*</td>
<td>0</td>
<td>8.3</td>
<td>0</td>
<td>27.8</td>
</tr>
</tbody>
</table>

Note. *p<0.05.

### Injury circumstances

Injury circumstance (MVA/MBA related, assault, fall, sport/leisure or other TBI) was not related to the absence or presence of challenging behaviour overall. However, it was related to the presence of perseverative/repetitive behaviour (p<0.05):

- 4.5% (n=5) of those with MVA-related injuries
- 20.0% (n=4) of those with assault/non-accidental injuries
- 0% (n=0) of those with fall injuries
- 0% (n=0) of those with sport/leisure injuries
- 12.5% (n=1) of those with other TBI

Injury circumstance was not related to any other type of challenging behaviour.

### Post-traumatic amnesia (PTA)

The rate of challenging behaviour was generally unrelated to length of PTA, with the exception of adynia/lack of initiation (see Table 4). Table 4 shows a trend for clients with very long PTA (1-6 months) demonstrating higher rates of inappropriate sexual behaviour and inappropriate social behaviour compared to those clients with PTA of less than one month’s duration. Comparison between these two PTA groups found a statistically significant difference in relation to inappropriate sexual behaviour (p<0.05).

*Caution needs to be taken in interpreting these results as numbers were small.*
Table 5: Premorbid issues and challenging behaviour

<table>
<thead>
<tr>
<th></th>
<th>absent (%)</th>
<th>present (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning disability</td>
<td>46.6</td>
<td>69.7</td>
</tr>
<tr>
<td>Developmental disability</td>
<td>50.0</td>
<td>66.7</td>
</tr>
<tr>
<td>Psychiatric disturbance</td>
<td>48.5</td>
<td>83.3</td>
</tr>
</tbody>
</table>

Figure 2: Specific challenging behaviours and premorbid learning disability

Premorbid learning, disability and psychiatric disturbance
The rate of challenging behaviour for paediatric clients with and without premorbid learning disability, developmental disability or psychiatric disturbance can be seen in Table 5. Only premorbid learning disability and psychiatric disturbance were associated with a statistically significant greater prevalence of challenging behaviour (p<0.05).

Premorbid learning disability and psychiatric disturbance were significantly related to the prevalence of specific types of challenging behaviours, namely: verbal aggression, physical aggression against other people, wandering/absconding and inappropriate social behaviour (p<0.05). Premorbid psychiatric disturbance was also significantly related to physical aggression against objects (p<0.05). These results are detailed in Figure 2 and Figure 3. Premorbid history of developmental disability was not related to any type of challenging behaviour.
BURDEN OF CHALLENGING BEHAVIOURS
In the paediatric CBP, burden was evaluated in two ways. First, the relationship between challenging behaviour and issues with the family and child psychosocial situation was considered. Second, the demand that children and adolescents with challenging behaviour place on BIRP and non-BIRP services and the clinicians that work with them was evaluated.

Family and client psychosocial issues and challenging behaviour
Clinical informants were asked to state if there were concerns with any of seven psychosocial situations (family, accommodation, health, education, employment, legal, loss of program/service) over the previous three months. It was found that a greater proportion of children with challenging behaviour were at greater risk of breakdown in their family and educational situation ($p<0.05$):

- 77.8% ($n=14$) of children with challenging behaviour experienced issues in their family situation compared to 48.2% ($n=79$) of children without challenging behaviour
- 71.7% ($n=38$) of children with challenging behaviour experienced issues with their educational situation compared to 42.6% ($n=65$) of children without challenging behaviour
BIRP service delivery to children with challenging behaviour

The burden placed on BIRP to provide services to children and adolescents with challenging behaviour was evaluated in several ways including: consideration of the type and number of staff required; the specific services provided; the stress experienced by clinicians working with clients; and staff perception of client complexity.

BIRP staff providing services to clients

The median number of BIRP staff providing services to all children in the study was three (range=0-8). There was no difference in the number of BIRP staff managing clients with and without challenging behaviour (p>0.05). However, clients with challenging behaviour were significantly more likely to be seen by particular BIRP professionals (p<0.05; see Figure 4). In particular:

- 31 (33.3%) challenging clients were seen by a BIRP clinical psychologist compared to 11 (12.4%) clients without challenging behaviour.
- 22 (23.7%) challenging clients were seen by a BIRP neurologist compared to 10 (11.2%) clients without challenging behaviour.

The difference in rates of which challenging and non-challenging paediatric clients saw other BIRP professionals, depicted in Figure 4, was not statistically significant.

No difference was observed in the number of BIRP staff providing services to urban or regional/remote clients (p>0.05). Each group had a median of three BIRP staff providing services to them. However, there was evidence that reception of services from specific BIRP professions depended on the geographical location of the client with challenging behaviour. Specifically, the statistically significant (p<0.05) findings were:

- Occupational therapy services were received by 22.6% (n=16) of urban clients with challenging behaviour compared to 55.6% (n=10) of regional/remote clients with challenging behaviour.
- Neurology services were received by 18.9% (n=12) of urban clients with challenging behaviour compared to 55.6% (n=10) of regional/remote clients with challenging behaviour.
- Rehabilitation physician services were received by 81.7% (n=58) of urban clients with challenging behaviour compared to 50.0% (n=9) of regional/remote clients with challenging behaviour.
- Case management services were received by 76.1% (n=54) of urban clients with challenging behaviour compared to 33.3% (n=6) of regional/remote clients with challenging behaviour.
These results reveal that paediatric clients in more isolated parts of the state were less likely to receive service from case managers and rehabilitation physicians compared to urban paediatric clients. In the adult CBP it was also found that rehabilitation physicians were less likely to provide services to more geographically isolated clients compared to their urban counterparts, but BIRP was more likely to provide remote adult clients a case management model of care. Together, findings from the adult and paediatric CBP reveal a disparity of service delivery based on age.

Somewhat unexpectedly, it was found that two BIRP services were more likely to be provided to regional/remote challenging behaviour children compared to their urban counterparts. Urban clients were less likely to receive services from neurologists than remote/regional clients. However, this was thought to reflect the fact that urban clients’ neurological care was usually met via the rehabilitation physician, which was not available to more geographically isolated clients. It is also important to note that it is only at Kaleidoscope, Newcastle that neurologists provide brain injury services. In regards to occupational therapy, Kaleidoscope reviewed their clients who contributed to the effect of more occupational therapy services being provided to regional/remote compared to urban clients. This post-hoc analysis uncovered that regional/remote clients were more likely to have insurance coverage for injuries, suggesting the possibility of insufficient level of service delivery for paediatric occupational therapy services for clients who were not compensable.

Services provided by BIRP to clients

BIRP provided clients with challenging behaviours significantly more services compared to clients without challenging behaviour, including psycho-education, crisis intervention, behaviour therapy and behavioural support\((p<0.05;\text{ see Figure 5})\). There was a non-significant trend for clients with challenging behaviour to receive more carer/family training and education liaison compared to clients without challenging behaviour\((p<0.10)\).

BIRP provided assessment, psychotherapy or counselling, case management, allied therapy (occupational, physical or speech therapy) and cognitive therapy to an equivalent number of challenging and non-challenging paediatric clients.

Clients in urban locations received a median of three BIRP services whereas clients in regional/remote parts of the state received a median of two BIRP services. This difference was statistically significant\((p<0.05)\). Specifically, the following services were more likely to be received by urban clients with challenging behaviour:

- Psychotherapy/counselling services were provided to 23.9% \((n=17)\) of urban challenging behaviour clients compared to nil regional/remote challenging behaviour clients.
- Crisis intervention services were provided to 29.6% \((n=21)\) of urban challenging behaviour clients compared to nil regional/remote challenging behaviour clients.
- Case management services were provided to 73.2% \((n=52)\) of urban challenging behaviour clients compared to 16.7% \((n=3)\) of regional/remote challenging behaviour clients.
- Behavioural support services were provided to 35.2% \((n=25)\) of urban challenging behaviour clients compared to 11.1% \((n=2)\) of regional/remote challenging behaviour clients.
Figure 6: Challenging behaviour and clinician stress

Figure 7: Challenging behaviour and client complexity
Contribution of challenging behaviour to clinical informant stress

There was a statistically significant relationship between challenging behaviour and clinical informant experience of stress working with children (see Figure 6). All children and adolescents rated at the two most extreme levels of stress had challenging behaviour.

Similarly, there was a significant relationship between challenging behaviour and clinical informant perception of client complexity (see Figure 7). Clients that were rated at least moderately complex were more likely to have challenging behaviour. All clients that were rated extremely complex had challenging behaviour.

**Figure 8: Challenging behaviour by additional (non-BIRP) services**

**ADDITIONAL (NON-BIRP) SERVICE DELIVERY TO CLIENTS WITH CHALLENGING BEHAVIOUR**

**Received and desired non-BIRP services**

Overall, children with challenging behaviour did not receive significantly more non-BIRP services than children without challenging behaviours (p>0.05). However, there were specific additional (non-BIRP) services that challenging behaviour clients utilised more than non-challenging behaviour clients, including community agency/home support, respite and family/friend support (p<0.05). This is illustrated (*) in Figure 8.

The following non-BIRP services were received by an equivalent proportion of challenging and non-challenging clients: medical practitioner, community health, mental health, family psycho-education, behavioural management, disability, educational assistance, vocational assistance, legal, counselling, living skills training, speech therapy and occupational therapy.
Clients with challenging behaviour were more likely to have more unmet need (i.e. services desired but not provided) as identified by their clinical informants, compared to clients without challenging behaviour. This was a statistically significant finding for three services: family education, behavioural management and respite services. This is shown (*) in Figure 9.

The following non-BIRP services were desired for an equivalent proportion of challenging and non-challenging clients: medical practitioner, community health, mental health, drug and alcohol, community agency/home support, disability, education assistance, vocational assistance, legal, counselling, family/friend support, living skills training, case management and cognitive therapy.

Geographical location was not found to be related to the likelihood of non-BIRP services being received (p>0.05). An equivalent proportion of challenging clients in urban and regional/remote areas received non-BIRP services. However, there was a trend for greater unmet need regarding family-based services for clients with challenging behaviour in more isolated geographic areas (p=0.05).

- 5.6% (n=4) of urban clients with challenging behaviour had family education desired for them compared to 22.2% (n=4) of regional/remote clients with challenging behaviour
- 2.8% (n=2) of urban clients with challenging behaviour had family/friend support desired for them compared to 16.7% (n=3) of regional/remote clients with challenging behaviour

There was one area where urban clients demonstrated greater unmet need compared to regional/remote clients, namely vocational assistance. Whilst no challenging behaviour clients in regional/remote areas had vocational assistance desired for them, 19.7% (n=14) of urban clients with challenging behaviour neither received nor accessed vocational assistance services despite it being desired for them (p<0.05).
The environment in which children with TBI found themselves was a critical factor influencing the display of challenging behaviour. Challenging behaviours were often encountered in environments that lacked structure and supports to cater for children's cognitive impairments and learning disabilities. Moreover, environments that failed to be guided and/or implement BIRS-suggested management approaches often resulted in the frequency and intensity of behavioural problems increasing over time, resulting in catastrophic consequences in some cases such as serious physical injury. Children who displayed challenging behaviour were also influenced by peers who encouraged them. School was the one environment outside the family home where challenging behaviours were often encountered. However, there were also examples where these behaviours occurred in other public places (e.g. swimming pools; shopping centres). The lack of access to important psychological services for behavioural management because of the geographical isolation of clients was also shown to be a complication in the case review.

Medical issues
Although rare, there were isolated examples showing that deteriorating medical conditions, such as a seizure or epileptic disorder, can be an underlying cause of poor behaviour. Drug and alcohol issues also affected children's behaviour and their level of engagement with services that tried to provide assistance. Often medications for behavioural management were refused by parents who did not like the side-effects of the drugs or were philosophically opposed to such treatments. However, there were cases where drugs, when they were taken, did assist in managing challenging behaviour.

Consequences of challenging behaviour
There was a variety of consequences resulting from children's challenging behaviours. Behaviours interfered with clients achieving important developmental milestones such as becoming independent in self-care and social interactions. These children were at increased risk of falling behind their peers in learning as they were disengaged with the educational system. Clients were also prone to be excluded from avenues of participation because of challenging behaviours (e.g. refused entry to shops, swimming pools and loss of respite placement). The challenging behaviours demonstrated by clients led to increased stress and tension within families, resulting in intra-family conflict and issues with mental health and adjustment, which further diminished the capacity of families to respond to challenging behaviours.

It is important to note that clusters simply provided a means of organising the 24 themes. This was done by considering the general essence conveyed by the theme. Sometimes there were specific aspects of a theme that may have had a closer relationship with a different cluster to which it was allocated, emphasising that the clusters are not mutually exclusive.

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**QUALITATIVE CASE REVIEW**

Ten child and/or adolescent histories were undertaken for the case review. This review led to the identification of 24 themes pertinent to understanding the challenging behaviour seen in children and adolescents who sustained a TBI.

**Theme clusters and individual themes**

It is noteworthy that each of the case histories was a highly complex presentation of challenging behaviour and reflected the interplay of multiple themes. The identification and separation of themes was a means of making sense of this complex information. It was found that subgroups or clusters of themes could be identified (Figure 10). Four of these clusters were grouped as issues pertaining to the development and maintenance of challenging behaviours; another set of themes reflected the consequences of challenging behaviour. A summary of each of the clusters of themes is presented below.

**Family adjustment issues**

There was variability in the capacity of families to respond to challenging behaviours encountered. Higher functioning families were able to take on board strategies provided to them from the BIRS and make reasoned decisions about how to appropriately respond as the child developed, or as issues arose that changed the nature or severity of behaviours. In contrast, families with limited education, independent problem-solving capacity and positive parenting skills struggled to implement strategies despite receiving education from the BIRS. It is noteworthy this sometimes resulted from a lack of engagement by families with the BIRS or the difficulty for families in integrating the model of behavioural management put to them with their own cultural beliefs about parenting.

**Child characteristics**

Both pre- and post-injury characteristics of children influenced the nature of challenging behaviour. Premorbid behavioural and learning difficulties were exacerbated as a result of the TBI. A number of factors often interacted to affect children's behaviour post-injury including: cognitive impairments and/or disability; fatigue; and lack of insight. This last factor affected children's ability to recognise the need to regulate their behaviour or to engage with rehabilitation providers who aimed to decrease challenging behaviours and increase positive behaviours. A unique feature in this younger population was finding that the nature of challenging behaviours could change during the course of development. Adolescence was associated with an increase in oppositional behaviours and also the emergence of sexually inappropriate behaviour.
Family adjustment issues
- Complex psychosocial problems impact on family ability to implement solutions for challenging behaviour
- Families that are adaptable, responsive and take on board prescribed strategies have a positive effect in child behaviour support
- Lack of consistent and positive methods of parenting contributes to challenging behaviour
- Parenting styles can maintain challenging behaviour
- Socio-cultural issues can affect client and family engagement with services
- Non-engagement with offered services by families and/or client contributes to maintenance and escalation of challenging behaviours

Child characteristics
- Premorbid behavioural and learning difficulties are exacerbated after TBI
- Lack of insight interferes with client engagement with rehabilitation services
- Client fatigue contributes to challenging behaviour
- Client cognitive impairments and disability contribute to behavioural challenges
- Challenging behaviour presentation can deteriorate at the onset of adolescence

Environmental factors (non-family)
- Challenging behaviour is associated with environmental antecedents
- Appropriate educational placements and supports are essential to minimise challenging behaviour
- Schools can have difficulty accepting and/or implementing recommended treatment strategies for behavioural problems
- Supported participation can reduce challenging behaviour
- Peers can encourage challenging behaviours
- Geographical isolation makes it difficult to access needed psychological services

Medical issues
- Medical complications can contribute to challenging behaviour
- Medications can assist with behavioural management
- Client mental health/drug and alcohol issues contribute to challenging behaviour

DEVELOPMENT & MAINTENANCE OF CHALLENGING BEHAVIOURS

CONSEQUENCES OF CHALLENGING BEHAVIOUR

Exclusion of participation/decline in family adjustment/poor functional outcome
- Lack of engagement with educational system
- Challenging behaviours lead to exclusion of participation
- Caring for clients with challenging behaviour impacts on family adjustment and cohesion
- Challenging behaviours can impact on client functional outcome and achievement of developmental milestones