Special issue on Alcohol Related Brain Damage: Classification, Prognosis and Management

‘I would not put a thief in my mouth to steal my brains’ William Shakespeare, Othello
**Editorial**

03 Editors introduction to special issue on ARBD  
Dr. Norman Poole

**Special Issue: Alcohol Related Brain Damage (ARBD)**

04 Alcohol related brain damage in the 21st Century  
Kenneth Wilson

11 Current challenges affecting treatment and care of patients with ARBD in Northern Ireland  
Joy Bell & Vanessa Craig

16 Review of Korsakoff syndrome: a clinical perspective  
Clodagh Commane & Michael Kopelman

23 Management of individuals with alcohol-related brain damage in Glasgow  
Iain D. Smith & Máire Cooney

29 Foetal alcohol spectrum disorders: taxonomy in evolution  
Yulia Zyrianova, Cathal McAuliffe & Carol Kiernan

**Articles**

38 Stress as seizure precipitant in adults with epilepsy: a comprehensive review of association  
Muzafar Hawramy

45 Mirror, mirror on the wall: the role for neuroscience in comparative psychotherapy research  
Annie Swanepoel

**Conference Reports**

Andrea E. Cavanna

**AOB**

54 DNA Polymorphism in Wernicke–Korsakoff Syndrome  
Professor Hugh Gurling

55 Neuropsychiatry of Movement Disorders Group  
Dr George El-Nimr

56 Learning Disabilities Masterclass  
Patrick Stokes and Professor Mike Kerr

59 National Confidential Inquiry into Suicide and Homicide by People with Mental Illness; a toolkit

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Neuropsychiatry News is a long way from being eighteen years old, yet already our thoughts are turning to alcohol and its effects. This is by no means premature given Korsakoff’s syndrome has long been considered a paradigmatic neuropsychiatric disorder. However, the striking signs of the classical syndrome appear to have blinkered us to other far more common long-term consequences of alcohol misuse, as this special edition on Alcohol Related Brain Damage (ARBD) makes clear.

First to the bar is Professor Kenneth Wilson with a comprehensive summary of the guidelines for assessment and treatment being developed by the interfaculty Alcohol and Brain Damage Working Party. This article draws attention to the frequency of non-Korsakoff’s presentations in heavy drinkers, when searched for, and provides useful guidance on screening, neuropsychological assessment and management from the acute phase to long-term placement.

Drs. Bell and Craig from Belfast and Drs. Smith and Cooney from Glasgow share their experiences developing services to meet the needs of people with ARBD in two regions with some expertise in this area. These articles are particularly welcome given that ARBD is rising up government and Clinical Commissioning Groups’ agendas as the social and health care costs of mismanagement become known.

No overview of ARBD would be complete without an up to date literature review of Korsakoff’s syndrome. The authoritative article by Dr. Commane and Professor Kopelman ranges from the historical origins of the diagnosis via a critique of the thiamine hypothesis to investigations, treatment and prognosis. Wider awareness of data presented on the latter should hopefully challenge the unwarranted pessimism promulgated by medical colleagues and the potential for recovery should be a guiding axiom for those working in the ARBD field.

Sadly, the potential for recovery may be less in an neglected group of patients with ARBD who did not even imbibe the alcohol. Our special edition on ARBD is completed by a fascinating paper on recent progress in the study and classification of Foetal Alcohol Spectrum Disorders by Drs. Zyrianova, McAuliffe and Kiernan. Anyone without direct knowledge of the topic will be well rewarded by reading this timely and welcome review.

I cannot end my editorial without first raising a glass to all the authors who contributed to this issue of Neuropsychiatry News. Thank you to Professor Cavanna for reporting from February’s meeting of the British Neuropsychiatry Association, it is always interesting to hear a neurologist’s views on our overlapping discipline. Thanks also to Dr. Hawramy for providing a case study of this overlap with his review of the relationship between stress and seizures, which provides argument for the psychosocial perspective in neurological conditions. Finally, congratulations to Dr. Annie Swanepoel who won the Trainee Award for her essay presentation at the September 2012 Section of Neuropsychiatry meeting in Cambridge. For those unable to attend we offer here her essay on the rapprochement of neuroscience and psychotherapy. That really is a reason to drink up.
Alcohol related Brain Damage in the 21st Century

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The Concept of Alcohol Related Brain Damage (ARBD)

The presentation of a wide range of cognitive deficits, caused by excessive alcohol ingestion and thiamine deficiency has promoted the diagnostic concept of alcohol related dementia (Victor, 1993). However, its nosological distinction remains ambiguous as reflected in both ICD and DSM classification systems. The utilisation of the term ‘dementia’ is of particular note from both a service provision and commissioning perspective in that the prognosis of patients presenting with these syndromes is relatively good, as opposed to the progressive conditions usually associated with ‘dementia’ syndrome. ARBD is a generic term used to refer to this spectrum of neuropsychiatric disorders with which long term alcohol misusers frequently present to health services. The term was first used by Lishman (1998) and subsequently adopted by Jacques (2000). From a pragmatic perspective, ARBD covers a wide range of disorders which can be sub classified into acute and sub–acute neuropsychiatric syndromes (Kopelman, 1991) including delirium tremens, alcoholic hallucinosis, blackouts and the encephalopathies. The chronic syndromes include the classical Korsakoff’s syndrome, which is relatively rare and variable in its presentation (Harper et al, 1989) and the related long term damage to memory. However, the more common long–term presentation consists of the more subtle frontal lobe manifestations (Ihara et al 2000). The term ‘ARBD’ also caters for common complications of long term alcohol misuse. It is important to remember that up to 25% of patients presenting with ARBD related syndromes are likely to have evidence of varying degrees of cerebrovascular disease and/or evidence of previous brain trauma (Wilson et al, 2011).

Oslin (2003) has validated the criteria for recognising alcohol dementia. These criteria can be readily modified to cater for a more inclusive concept of ARBD, facilitating a pragmatic clinical approach to the identification of people that may benefit from accessing appropriate services:

A. Criteria for the clinical diagnosis of probable ARBD include the following:
1. Evidence of cognitive impairment (as demonstrated by clinical examination or use of appropriate instruments).
2. Significant alcohol use as defined by the minimum average of 35 standard drinks per week for men and 28 for women for a period of greater than 5 years. The period of significant alcohol use must occur within three years of clinical onset of the cognitive deficits.

B. The diagnosis of ARBD is supported by the presence of the following:
1. Alcohol related hepatic, pancreatic, gastrointestinal, cardiovascular or renal disease or other end organ damage.
2. Ataxia or peripheral polyneuropathy (not attributable to other non alcohol related causes).
3. Neuroimaging evidence of cerebellar atrophy, especially of the vermis
4. Cognitive damage and evidence of ventricular or sulcal dilatation are likely to improve within the first 60 days, residual damage will be slower to improve and may be permanent.

C. The following clinical presentation indicates that there may be complicating conditions such as vascular or traumatic lesions
1. The presence of language impairment, especially dysnomia or anomia
2. The presence of focal neurological signs or symptoms (except ataxia or peripheral sensory polyneuropathy)
3. Neuroimaging evidence of cortical or subcortical infarction, subdural haematoma or other focal brain pathology
4. Elevated Hachinski Ischemia scale score
The Scale of the Problem of ARBD
Prevalence and incidence studies of ARBD-related syndromes have been problematical as a consequence of a variety of issues. In the first instance, as the psycho-syndromes are varied and are likely to present with subtle frontal lobe dysfunction, diagnosis is often difficult, often requiring the use of instruments that are more sophisticated than those used routinely in day-to-day cognitive assessments conducted in generic clinical situations (Chiang, 2002). Secondly, there is evidence of a significant lack of knowledge concerning ARBD within clinical communities (MacRae & Cox, 2003). Patients presenting with withdrawal and related alcohol problems are rarely examined effectively and as a consequence, specific diagnoses are not accurately recorded in medial documentation. These issues result in a significant under representation of the clinical diagnosis, presentation and prevalence of ARBD in both community and hospital settings with wide variance in findings from clinical audits and prevalence studies, which are dependent on routine systems of documentation.

Some fifteen years ago Cook & Hallwood (1998) undertook a meta-analysis of 40,000 consecutive post-mortems undertaken in USA, Europe and Australia and found evidence of cerebella or other alcohol-related brain damage in 0.5-1.5% of the general population. Torvik (1982) found a prevalence of 12.5% of Wernicke encephalopathy/ Korsakoff’s syndrome (WKS) changes in 561 alcohol dependents and 26.8% showed cerebellar atrophy. Combining these findings and those of Victor et al (1989) it is estimated that 35% of alcohol dependents will exhibit post-mortem evidence of alcohol related brain damage (WKS/ Cerebella atrophy). Notably only 16% of people with evidence of damage have been found to have any clinical identification of the problem whilst alive (Harper 1998). Either as a consequence of a real increase in the prevalence or an increasing awareness of the problem, there is some indication that the prevalence is increasing (Ramaya & Jauhar, 1997). Women tend to present in the 40s and 50s, usually a decade younger than men, and there is a trend towards people presenting earlier than in the past (Scottish Government 2007, BMA Board of Science 2008). It is evident that individuals suffering from ARBD-related syndromes have a disproportionate impact on the health services use and represent a hidden cost (Popoola et al, 2008) which could be mitigated (Wilson et al, 2011) if purposefully identified and managed.

Natural course of ARBD
In the context of abstinence the medium and long-term prognosis of ARBD is relatively favourable. After withdrawal and the management of the acute manifestations (delirium, and encephalopathies) and physical stabilization of the patient, the brain takes some three months to recover in the context of abstinence (Oslin 2003). Recovery is often quite remarkable. However, in the presence of thiamine deficiency residual cognitive damage is likely. Further recovery is possible (with continued abstinence) but is more gradual and may take three years or more. What evidence there is has been summarized by MacRae and Cox (2003): 25% achieving full recovery, 25% having some mild residual, and probably permanent cognitive impairment, a further 25% making some improvement but remaining more incapacitated, and 25% remaining severely affected.

The case for intervention
As already mentioned, patients presenting with ARBD are likely to experience some degree of recovery in the context of prolonged abstinence. However, there is some evidence relating to the advantages of specific cognitive rehabilitative techniques. In a randomized controlled trial, Fals-Stewart (1994) demonstrated the efficacy of specific computerized cognitive training in comparison to a muscle relaxation group, computer typing and no treatment group. Of these drug and alcohol abusers with cognitive deficit, 25% were specifically ARBD. The authors suggest that the effect of cognitive rehabilitation can be enhanced by tailoring the intervention to the specific needs of each patient. More specifically, practice has been shown to improve visuo-spatial skills (Forsberg and Goldman 1985). Roehrich and Goldman (1993) have demonstrated the efficacy of bibliotherapy in terms of cognitive rehabilitation. In comparing Korsakoff patients with normal controls, V an Damme et al (2008) found that giving increased time, greater explanation and encouraging Korsakoff patients to discuss, helped memory tasks in pairing words. Mimura et al (2005) found that performing actions related to the verbal phrases to be remembered enhanced the recall of the phrase. There is some indication that ‘errorless learning’ (Kessels et al 2007) in which the individual is asked to repeat information immediately after it has been presented improves memory functions. This is consistent with Baddeley and Wilson’s (1998)
provision and related reports. Price et al (1988) followed up 37 patients for one year following discharge into non specialized community care. Ten of these patients (27%) were successfully placed, a further 20 (54.1%) were described as dysfunctional and the remaining seven were dead. Two years earlier, Lennane (1986) followed up 104 patients for between eight months and two years, referred to specialized service provision. Fifty three of these patients were classified as successful placements, 11 (10.6%) had been re-admitted into hospital and the remainder were lost to follow-up or presumed dead. In comparing these studies, Price makes the case for a specialization. Subsequent studies have indicated that intervention (of a varying nature) may have an accelerant role in terms of cognitive improvement and psycho-social integration. Outcome studies of drug or alcohol abusing patients with cognitive dysfunction in long term specialist residential settings have demonstrated better outcomes (Fals-Stewart & Schafer, 1992; DeLeon, 1984; DeLeon & Jainhill, 1981) than when placed in generic institutions. These findings are supported by Blansjaar et al, (1992) and Ganzelives et al, (1994) in which ARBD patients referred to specialized and smaller institutions showed better preservation and improvement in social functioning and enhanced speed of information processing than when in non specialized homes.

Assessment and management of ARBD

Most patients with severe degrees of ARBD will present through crisis in the community or through admission to acute medical or surgical care (Smith et al, 1999; Ellesweil, 2000). If behaviourally disturbed, they may be brought to the attention of liaison psychiatric services. However, a significant proportion will be discharged either to the place from which they were admitted or into inappropriate care homes, without assessment or given the opportunity to be appropriately managed. As many of these individuals are likely to suffer from significant levels of cognitive damage and be incapacitated it is highly likely that they will be re-admitted fairly soon (Price, 1988). The rapid turnover of patients and the lack of understanding and ignorance relating to cognitive assessment suggests that a simple screening instrument, designed to pick up patients at high risk of having cognitive damage should be used. Wilson et al (2011) devised a simple tick box list for nurses on acute wards, drawing on routine hospital data and background knowledge of the patient. This has not been validated but does appear to result in referrals from busy inpatient wards. It is informed by Olin’s criteria (2003) of alcohol consumption, evidence of ‘confusion’ on the ward, recurrent admissions and problems in discharging the individual as a consequence of psycho-social risk. Having identified these patients they are then assessed, using appropriate cognitive assessments, by the specialist team. This pragmatic screening is ‘user friendly’ but is likely only to pick up the more severe cases.

Wilson et al (2011) describe a model of intervention catering for patients presenting with severe levels of cognitive impairment, referred from acute hospital settings. The model adopts five therapeutic stages. The first stage refers to the physical stabilisation and withdrawal from alcohol (usually conducted in acute hospital settings as all these patients were severely cognitively impaired). In the second stage, the patient is managed in a settled and protective environment (in institutional or domestic settings) (Baddeley et al, 2002). Principles of care include introduction of care planning and the multi-disciplinary team (McRae & Cox, 2003) in the context of mental capacity assessments. Specific environmental and therapeutic interventions include: Abstinence, good nutrition, mood stabilization, regularisation of sleep pattern (Grant et al., 1986; Malloy et al 1990), calm, stable environment (Kopleman et al, 2009), psycho-social support (McRae & Cox, 2003, Wilson, 2011), early engagement of family and other interested parties already involved with the patient (Ylvisaker & Feeney, 1998), early engagement of specialist alcohol treatment services (McRae & Cox, 2003) and early introduction of memory and orientation cues (Baddeley et al, 2002). This stage usually lasts two to three months, during which there is usually significant cognitive improvement.

This is followed by a third stage of active psychosocial rehabilitation, in which it is assumed that specific cognitive training (Goldman & Goldman, 1988) and practice (Stringer & Goldman, 1987) in one or more cognitive tasks improves performance in another (Forsberg & Goldman, 1987). Intervention is principally based on a behavioural model, incorporating diary keeping, activity scheduling, graded tasking and problem solving (Arbias, 2007; Wilson, 2011) and draws on descriptive research conducted in patients with acquired brain injury and those with ARBD (McRae & Cox, 2003; Bates et al, 2002). Principles include a holistic approach to rehabilitation (Prigatano et al, 1996) enhancing the individual’s sense of internal control; involving the introduction of a program of functional rehabilitation (Ylvisaker & Feeney, 1998). This is facilitated through a milieu based approach to the
rehabilitation of the individual (Heinssen, 1996) in which increasing independence in relevant (Giles, 1994) life skills are purposefully encouraged in real life settings. The environment (whether institutional or domestic) should be facilitative (one in which adaptations can be made to accommodate and optimise the changing cognitive profile of the individual) (Heinssen, 1996; Bates et al, 2002). Kadden et al (1989) suggest that interactional group work is beneficial when compared with CBT. Long term follow up and on-going social support may be required for those with significant, long standing cognitive damage (Wilson et al, 2011).

This third stage may last up to three years, until an optimal level of cognitive improvement has been achieved. There should be a seamless transition to the fourth stage in which the patient is established in an environment which facilitates as much independence as possible. The last (fifth) stage is derived from national recommendations for the care of people with chronic alcohol misuse (DoH, 2006) in that the patient should be encouraged to engage in structured activities and weekly routines, promoting long-term independence and minimizing the likelihood of relapse.

The model is characterised by relatively assertive follow-up in both institutional and domestic settings and emphasizes the importance of abstinence. Early evaluation indicates that this model may be associated with fairly good outcomes. There is a 10% alcohol misuse relapse, a 10% mortality rate and reduction of use of acute hospital beds by 85%. The majority of the 41 patients on which the model was developed remain in community based, non-institutional settings (Wilson et al, 2011).

It is well recognised that older people with ARBD are less likely to recover from cognitive deficits during abstinence, compared to younger people (Pfefferbaum et al, 1997). As a consequence, the ‘Wintringham project’, has initiated a specialised model of residential care, which prioritises the dignity, and respect of older people with ARBD, in which residents are not required to be abstinent but in which staff facilitate a variety of treatment options. This model of care continues to be challenged by the balance between autonomy and acceptable levels of protection, the balance between individualised care and the needs to adopt a community based life style and the balance between abstinence and managed harm reduction and minimization, especially in long standing, severely impaired older residents (Rota-Bartelink & Lipman, 2007).

The Mental Capacity Act (England and Wales)
The Mental Capacity Act provides the framework to facilitate an assessment of the individual’s capacity to make decisions.

A person lacks mental capacity if:
1. He/she is unable by reason of mental disability to make a decision for himself on the matter in question or
2. He/she is unable to communicate his decision on the matter because he is unconscious or for any other reason.

‘For the purposes of this Act, a person lacks capacity in relation to a matter if at the material time he is unable to make a decision for himself in relation to the matter because of an impairment of, or a disturbance in the functioning of the mind or brain.’ The Act provides examples of impairment of the mind or brain which include the long term effects of brain damage and the symptoms of alcohol or drug misuse.

Apart from the obvious cognitive disturbance associated with the acute presentations of withdrawal, the longer term affects of alcohol may influence the person’s ability to make decisions. From a functional perspective, there are a number of cognitive domains that may be affected. Notably, memory problems are common. People with ARBD may experience problems in both anterograde, episodic and retrograde, episodic memory. These problems can be complicated by the experience of confabulations. In particular, anterograde memory problems are characterized by memory decay over 45 minutes to an hour. Typically a patient may make a decision in the context of an on-going interview but have no recollection of the process or the decision some 45 minutes after the interview has finished. Consequently, it is important to incorporate a delayed evaluation of memory decay and its relationship to the patient’s capacity to make a decision and remember what they have decided.

Retrograde biographical or episodic memories are likely to be patchy; resulting in significant periods of memory loss for which the individual. Problems with memory may stretch back as far as 25 years into the individual’s past and are likely to be complicated with varying degrees of confabulation, temporal and chronological distortion. In establishing whether an individual has capacity to make decisions relating to future alcohol related behaviour or other aspects of their life, it is important to assess the individual’s recollection and
understanding of their past if these issues are pertinent to the decision making process.

Confabulation and other dysfunctions of the frontal lobe are common presentations. Frontal dysexecutive syndrome may present with varying degrees of severity. At the mild end of the spectrum, social intelligence can be affected (Uekermann & Daum, 2008) or may present as disruption of a wide range of executive domains, extending to “everyday” problem solving as well as more elementary aspects of executive functions, such as visuospatial performance, mental set shifting, and the inhibition of habitual behavior (Ihara et al, 2000) and enhanced impulsivity and problems in motivation. These problems may well exist in the absence of obvious memory problems.

It is self-evident that memory and the cognitive functions associated with frontal lobe activity are cardinal aspects of decision making as defined by the mental capacity act and enable people to understand, retain and use or weigh the information as part of decision making processes. As explicitly described in the act, an assumption of capacity should be held with regard to any particular decision making situation. However, it is also evident that some patients will have significant levels of brain damage, as a consequence of ARBD and as, when working with other patient groups with similar levels of dysfunction; they should be afforded an appropriate assessment.

What now?

What evidence there is indicates that ARBD remains under diagnosed and the prevalence is difficult to estimate. There is no doubt that most acute hospitals (particularly the gastro-intestinal and hepatic units) will be familiar with a series of patients who frequently present, appear confused and are difficult to discharge because of psycho-social problems. Accident and Emergency units will have experience of recurrent attendees, usually drunk and requiring frequent withdrawal provision. They may require short term observation in the unit as a consequence of secondary trauma or physical complications such as convulsions. Alcohol treatment services may also be aware of people presenting to the service, who are hard to engage, fail to comply with treatment programs and appear to have memory problems. General practitioners may have similar experiences of a small number of alcohol misusers that present with complex psycho-social problems associated with alcohol misuse. Recurrently relapsing alcohol misusers and are persistently at risk of trauma, fire hazard and aggression (Ferran et al, 1996). It is probably safe to assume that a significant proportion of these individuals will have pathological changes in the brain as a consequence of alcohol misuse and thiamine deficiency. It is also probably safe to assume that many of these individuals will have varying degrees of long term cognitive damage. Unfortunately, it is probable that the majority of these cases are not provided with appropriate diagnostic or supportive services (Wilson, 2011).

As a consequence of this unmet need, the Royal College of Psychiatrists has brought together a review group to explore the literature and develop recommendations relating to the assessment and management of ARBD and the commissioning of appropriate services. It is recommended that services are developed in the context of either established neuro-psychiatric services or services designed to cater for younger people with dementia. Both these options are potentially problematical but examples do exist where they have been commissioned successfully (Wilson, 2011; Royal College of Physicians, 2001). Other models of service delivery have been advocated in which specialized nurses are embedded within community health teams (MacRae & Cox, 2003). It is also evident that the recent Department of Health Guidelines (2006) for assessing people referred to alcohol treatment services will have implications for the development of new pathways of care for alcohol misusers within alcohol services.

It is important to disestablish the negative connotations of working with this group of patients. The evidence base is small however; there is a consistent finding that prolonged abstinence with appropriate nutritional and social support is beneficial. It is also evident that if patients with ARBD are treated with the same diligence and care as patients with other severe mental illnesses then the prognosis is relatively good, with only 25% remaining in institutional care and a considerable reduction bed day use in acute hospital trusts for this population (Wilson et al, 2012). The sadness is that little support or active management is offered.

References


The extent of alcohol misuse in Northern Ireland is estimated to cost health and social care services over £170 million per year. More specifically, £65m–£72m is spent per year in acute hospital admissions and £16–£30 million per year in A&E attendances. The total number of acute hospital episodes wholly attributable to alcohol in 2007/08 was 11,899. Statistics from the Northern Ireland Hospital inpatient system state that over the 10 year period, 1996–2005, hospital admissions for Korsakoff’s syndrome have increased by 35%. Up to 30% of the homeless population in Northern Ireland are thought to be alcohol dependent.

Identifying the problem

From clinical experience and discussion with general medical colleagues, it is evident there are individual cases that highlight the need for improved services for ARBD. Issues regarding capacity often cause delays in discharge from hospital. Poor engagement with services complicates treatment planning and provision.

These cases are known to various teams including alcohol treatment services, neuropsychiatry, general medicine, general psychiatry and brain injury services, amongst others. There is a lack of options regarding appropriate placements and there appears to be no option of specialised rehabilitation for patients with ARBD.

These observations highlight the need for education and training, screening and detection and ongoing specialised care provision.

Current Service Provision

Patients with ARBD have few natural advocates and may have impaired help seeking behaviour. Consequently they are not likely to present overtly to primary care services. In the event of a GP having concerns regarding cognitive dysfunction related to alcohol there is no clear pathway for onward referral. If referred to general adult psychiatry or addiction treatment services the patient may not engage due to their poor cognitive functioning. It may be thought that they are “poorly motivated” or are “pre contemplative” about their addiction.

This group of patients tend to present in crisis at A&E departments. Due to the subtle nature of underlying cognitive deficits, including frontal lobe and dysexecutive problems, the condition may not be picked up or may be overshadowed by co-morbidity. In the event where a patient is admitted to the medical ward they will need a length of time for medical stabilisation. For those with more severe cognitive impairment, such as Korsakoff’s syndrome, issues regarding capacity may arise leading to a referral to liaison psychiatry. Currently in Northern Ireland residential/institutional care has been commissioned but appears to be limited to those patients who have an established diagnosis.
of Korsakoff’s syndrome. It can be difficult to identify residential placements for patients within the wider category of ARBD.

In the Bamford Review Of Mental Health and Learning Disability in Northern Ireland it was stated that there is a lack of information on the extent of ARBD and that Health and Social Care Trusts can mostly only identify cases of ARBD in terms of hospital bed occupancy and nursing home placements. It stated that this population is likely to be interspersed throughout several programmes of care often without a formal diagnosis. It is suggested in the document that a report should be commissioned to establish the extent of ARBD in Northern Ireland in order to develop pathways of care which address emotional, cognitive, behavioural and social needs of people with this condition.

**Current challenges**

Shaw et al described obstacles to therapeutic commitment to patients with alcohol related problems. These include low role adequacy (feeling untrained or unskilled), low role legitimacy (feeling it is not appropriate to intervene) and low role support (perception that support and help that would enable effective intervention is not available).

To address the issue of role adequacy there is a need for improved education and training in detecting and managing the problems surrounding ARBD both within primary and secondary health care services. For example, many healthcare professionals, in medical, psychiatric and addictions specialities, report poor knowledge of cognitive testing. Roche identified education and training as a significant area of concern among those working in the alcohol field and lack of expertise has been reported in literature.

There is need for development of a clear care pathway to address low role legitimacy for healthcare professionals treating patients with ARBD. It has been noted that it is rare for any speciality to take responsibility for patients with ARBD. As a result the patient feels as though they are being passed from “pillar to post”.

To improve role support there needs to be treatment options and resources in place. Without these there may be little incentive to improve detection of cases.

A number of factors mitigate against screening and detection in A&E departments:

- High turnover of patients
- Behaviour which staff can find stressful and difficult to manage
- ‘Revolving door’ presentations with associated frustration.

Due to a combination of factors it is likely that patients with ARBD will ‘slip through the net’. While A&E departments have access to short stay units which can be used for alcohol detoxification, there is pressure to keep admissions short and patients may be discharged to complete their detox in the community.

For the patient with more complicated withdrawal, or comorbid medical/surgical problems, longer periods of admission are arranged. Patients’ behaviour on medical wards can be challenging with aggression and disinhibited behaviour. Again there is pressure on length of hospital stay. The commonly used test of cognitive function, the MMSE, does not cater for frontal lobe deficits and is unlikely to detect early cases of ARBD. There is need for a simple, user friendly but valid screening tool that medical and nursing staff will feel competent to use. It has been suggested that screening would be assisted by gathering information about level and duration of drinking, capacity issues and retrospective information about ‘revolving door’ admissions.

Once the patient has received thiamine replacement, and improvements have been noted in their MMSE, they are likely to be discharged with onward referral to addiction services if the patient is agreeable. As previously mentioned, however, there is often poor engagement by the patient and a lack of assertive outreach by the addiction treatment services. Where there are significant concerns about capacity the psychiatry liaison service is contacted for an assessment. It is important to note that in Northern Ireland it is not practice to assess a patient’s capacity to continue drinking alcohol as happens in other areas.

From alcohol liaison staff experience it appears that patients are being ‘picked up too late’. They feel the focus can be on diagnosing Korsakoff’s syndrome and less attention is given to the other conditions that are included in the wider diagnosis of ARBD, such as frontal lobe dysexecutive syndrome.

In Northern Ireland community treatment orders are not currently an option. There is an on-going review of the Mental Health (Northern Ireland) Order 1986,
with plans to introduce new legislation on capacity. Guardianship orders are used for some of the patients with Korsakoff’s syndrome living in residential homes. Each of these homes, however, have spoken of difficulties faced in balancing a patient’s best interests in promoting abstinence with ensuring the respect of human rights.

There is a need for development of guidelines to direct advances in screening, detection and service provision for patients with ARBD. NICE Clinical Guideline 100 (Alcohol–use Disorders: Physical Complications) focuses on the treatment of Wernicke’s encephalopathy and does not consider the issues surrounding ARBDº.

**Care/ Management**

A number of patients with a diagnosis of ARBD are likely to be placed in generic EMI, nursing or residential care homes. There are a number of nursing homes which will cater specifically for patients with an established diagnosis of Korsakoff’s syndrome.

- One home has a thirteen bedded unit designed for patients with Korsakoff’s syndrome. The unit has a locked door and there is a no alcohol policy. There is currently no active rehabilitation happening but staff appear motivated and keen to employ such principles.

- Elsewhere there is five bedded unit which recently has received approval to expand to eight beds. They have a strict abstinence policy and they work assertively with patients to achieve this. There is no formal rehabilitation, but staff work with patients to aid re-learning of skills required for daily life.

- There is a 38 bedded unit outside of Belfast which accepts referrals from across the region. 80% of these beds are dedicated to patients with Korsakoff’s syndrome. This unit has recently employed an Occupational Therapist and they are in the early stages of developing a rehabilitation programme.

Following visits to these units there is clearly scope to develop rehabilitation training in these homes. However more placements are required and the widening of acceptance criteria from solely Korsakoff’s needs reviewed.

**Action in Belfast to improve services**

An audit of service needs of patients with ARBD has commenced within the Belfast Health and Social Care Trust. This trust serves a population of approximately 350,000 people over three acute hospital sites. The audit is led by two senior psychiatry trainees with the assistance of the trust audit department. It targets patients in acute hospital wards including general medicine, hepatology and gastroenterology.

Patients are referred using the following criteria:

- 1. Probable history of heavy drinking — 35 units of alcohol or more per week for at least five years
- 2. Confusion, doubt about capacity, concerns about risk on discharge
- 3. Three or more admissions into hospital and/or A&E in one year probably associated directly or indirectly with alcohol ingestion OR One or more delayed discharges from general hospital wards in the last year.

These are derived from Oslin’s criteria and adapted by other established ARBD services as referral criteriaºº.ºº

Ward staff identify appropriate patients and refer to the Alcohol Liaison Nurses who complete an audit proforma. This gathers information on:

- Patient demographics
- Reason for current admission (adapted from the Paddington Alcohol Testª)
- Pattern and duration of drinking
- Hospital attendances/admissions related to alcohol
- Delayed discharges
- Documented concerns about cognition/capacity
- Treatment with parenteral/oral thiamine

At the point of discharge the Alcohol Liaison Nurse performs a 6–CIT cognitive screening tool. This tool was chosen given its brevity, statistical validity and lack of interpretative errorª. Consideration had been given to carrying out frontal lobe testing but without adequate duration of abstinence from alcohol there would be limited diagnostic value.

With the aid of the audit department a sample of the patients’ hospital records will be viewed retrospectively to quantify the number of hospital admissions over the preceding year. This will be used to calculate the cost of admitting these ‘revolving door’ patients.

Over a period of time the scope of the audit will be widened into other specialties that encounter this group of patients, for example: Regional Acquired Brain Injury Unit, General Psychiatry and Community Addiction Services. There are patients with ARBD dispersed throughout each.
The ultimate aim of the audit is to understand the likely scale of the problem of ARBD in Belfast with a view to presenting the need for improvement in services.

Future steps
There are identified barriers at each stage throughout a patient’s journey in the detection and treatment of ARBD, both in primary and secondary care. The focus of future work will be on addressing each of these barriers. Collaboration between interfacing services is necessary. It has therefore been proposed that an ARBD group, including representatives from each of these services, should be set up in conjunction with the Royal College of Psychiatrists. With the aid of the Northern Ireland Mental Health Research Network a piece of qualitative research will be carried out using a sample of the patients identified in our audit we are planning to take a closer look at patients medical and social background, including individual interviews. WE hope that this will help to clarify the complex needs of these individuals to assist the focus of a forthcoming service.

Hospital medical staff, as well as those working in mental health and addiction treatment services, will be educated regarding the diagnosis, detection and treatment of ARBD. A teaching module is currently being written for the Royal College of Psychiatrists CPD Online section to raise awareness of ARBD amongst psychiatrists.

A collaborative approach with regards to education and training could make best use of existing resources and care homes in Northern Ireland. Services are already based on a recovery model. There is scope to build on these and there is a requirement for the development of services to cater for patients with ARBD. In line with the Bamford review document there is need for a four tier service with access to expertise and support. There are likely many services in the UK with similar service gaps. Despite there being many barriers, action is possible and necessary especially at a time when the awareness of this condition is being increased through acknowledgement in a forth coming document being produced by the Royal College of Psychiatrists and through the development and success of already existing ARBD services.

References


Special Edition Articles

Review of Korsakoff syndrome: a clinical perspective
Introduction

In “The Lost Mariner”, Oliver Sacks describes 49 year old Jimmie G. who, despite highly superior intellectual and perceptual powers, cannot remember isolated items for more than a few moments and cannot consistently recognize the people who have looked after him for the past 9 years. Jimmie was “always a drinker” but had been a competent member of the Navy until 1965. After a period of marked disorientation in 1971, he was never again able to live independently. In addition to his obviously disabling anterograde amnesia, Jimmie has a profound retrograde memory deficit going back to 1945. He is amazed to hear that there are elements beyond uranium in the periodic table and to see a photograph of the earth taken from the moon. Sacks describes him as “isolated in a single moment of being, with a moat or lacuna of forgetting all round him…..without a past (or future), stuck in a constantly changing, meaningless moment.”

Korsakoff syndrome can be defined as an abnormal mental state, resulting from thiamine deficiency, in which memory and learning are affected out of all proportion to other cognitive functions, in an otherwise alert and responsive patient. Clinical descriptions of the syndrome date back to the nineteenth century. In 1878, Robert Lawson published an article “On the Symptomatology of Alcoholic Brain Disorders” in which he noted that in some patients with a history of excessive drinking, there is

“almost absolute loss of memory for recent events. The patients are cheerful, attentive, understand what is said to them, and show little dementia as far as simple processes of reasoning are concerned, but are absolutely destitute of memory for passing events. When the medical officer makes his visit (perhaps the third in the course off the day), and asks “Have you seen me before?” the patient asserts that he or she has not; and the constant, ineffectual repetition of this question at short intervals, shows that the capability of retaining new impressions has completely disappeared.”

Starting in 1887, S. S. Korsakoff published a series of articles describing the psychic symptoms which frequently accompany alcoholic polyneuropathy and suggested that the psychic disturbance and the neuropathy might represent two facets of the one disease. He noted that the mental syndrome could occur without the neuropathy. He described a marked disturbance of memory in a setting of clear consciousness and noted that in some cases “not only memory of recent events is lost, but also that of the long past”. He postulated that the syndrome might be due to a toxin.

6 years previously, Carl Wernicke had described three fatal cases involving an abnormal mental state, ocular motor abnormalities, and an ataxic gait. Two patients were alcoholic men and the third was a 20 year old seamstress with sulphuric acid poisoning. Wernicke noted that all three cases showed the same pathological changes of numerous small punctate haemorrhages symmetrically situated in the gray matter around the third and fourth ventricles and the aqueduct. Neither Wernicke nor Korsakoff appreciated the connection between the conditions they described. Today, it is generally accepted that Wernicke’s encephalopathy and Korsakoff syndrome can be viewed as a continuum of one pathological process, Wernicke referring to the initial, more acute phase and Korsakoff to the subsequent, more chronic condition. The pathology occurs due to thiamine (vitamin B1) deficiency.
Wernicke's encephalopathy

From a clinical perspective, two related issues regarding Wernicke's encephalopathy warrant highlighting: the high frequency of missed diagnosis and the importance of early, adequate treatment.

The classic triad of features in Wernicke's encephalopathy consists of confusion, eye movement abnormalities (nystagmus and ophthalmoplegia) and unsteadiness (ataxia). Importantly, however, in the majority of cases, not all of these signs are evident. It has been shown that only 20% of patients diagnosed with Wernicke's encephalopathy at autopsy had presented with the full triad of clinical features and approximately 30% had presented with only cognitive impairment. It has been estimated that 19% of patients with Wernicke's may have none of the features of the classic triad. Autopsy studies show that the incidence of Wernicke's encephalopathy can be as high as 12.5% in patients with alcoholism but rates of diagnosis in life are much lower. In an effort to improve antemortem identification of Wernicke's, Caine and colleagues have proposed operational criteria which require only two out of the following four features for diagnosis: 1) dietary deficiencies, 2) oculomotor abnormalities, 3) cerebellar dysfunction, and 4) either an altered mental state or mild memory impairment. The salient point is that in general, the index of clinical suspicion should be increased and the threshold for diagnosis and treatment decreased. If there is any possibility of Wernicke's encephalopathy, large doses of parenteral thiamine should be given as soon as possible.

The textbook view of Korsakoff syndrome is of a chronic amnesic state which becomes apparent as the confusion of an episode of Wernicke's encephalopathy clears. While this certainly describes some cases, Korsakoff syndrome may develop without a history of Wernicke's. This may reflect undiagnosed or subacute Wernicke's.

In industrialized countries, 90% of cases of thiamine deficiency are associated with alcohol excess. There is an increasingly wide range of non-alcoholic circumstances in which Wernicke's has been clearly described, involving the common theme of malnutrition. In an important study in 1947, de Wardener and Lennox described 52 prisoners of war who developed “cerebral beriberi” after weeks on a grossly imbalanced diet of polished rice. More recently, Wernicke's has been described in cases of cancer, hyperemesis gravidarum, anorexia nervosa, and following bariatric surgery.

Is thiamine deficiency a sufficient cause of Korsakoff syndrome?

Whether Korsakoff's syndrome occurs in non-alcoholic cases of thiamine deficiency is an interesting question. While there are articles purporting to describe non-alcoholic Korsakoff's syndrome, usually, either convincing evidence of disproportionate memory impairment is lacking, or there are factors (e.g., hypoxic brain damage) aside from thiamine deficiency which can account for the clinical features. It is difficult to find descriptions of non-alcoholic Korsakoff syndrome which are unequivocal. Suggested explanatory factors for the relative lack of cases of non-alcoholic Korsakoff syndrome include the rarity of non-alcoholic vitamin deficiency nowadays, the high mortality rate of non-alcoholic Wernicke's, and earlier recognition and treatment of non-alcoholic Wernicke's. It has been pointed out that alcoholic Korsakoff's syndrome may result from multiple subclinical episodes of thiamine deficiency and that the thiamine deficiency in alcoholics is likely to be more severe as reflected by their need for higher doses of thiamine than non-alcoholics. However, the lack of convincing accounts of non-alcoholic Korsakoff syndrome does not seem adequately explained. The hypotheses mentioned above do not account for the lack of well documented Korsakoff syndrome in other causes of chronic nutritional deficiency, for example anorexia nervosa. It is possible that an alcohol-related neurotoxic effect, in combination with thiamine deficiency, is necessary for the development of Korsakoff syndrome.

Clinical features

In addition to a marked impairment in new learning and a retrograde amnesia which may go back 30 years, disturbances of time sense involving rearrangements of chronological sequence and telescoping of repeated events into one, are common. Confabulation in chronic Korsakoff syndrome is not an invariable feature, but when it occurs, it tends to be of the momentary type, in which fleeting intrusion errors or distortions occur. It may be related to the disturbance of time sense.

There is no defect in immediate recall, provided the information to be retained is within the patient's 'memory span', no impairment of consciousness, and only mild or no general cognitive impairment. There may be personality change, with apparent apathy and lack of initiative, with a tendency towards self-neglect. In their seminal study of 1971, Victor et al. remarked that “the prevailing mood of these patients could best be described as one of placidity and their
that damage to the circuit involving the mammillary bodies, mammillothalamic tract, the anterior thalamus is critical, and the pathology may also involve major connections, such as the fornix, the retrosplenium, and thalamic–frontal projections.

While diencephalic lesions constitute the defining pathology in the Korsakoff syndrome, and cerebellar–cranial nerve pathways in Wernicke’s, there is also evidence that damage in frontal pathways is often important. Given that the underlying problem is thiamine deficiency, potentially affecting every cell in the brain, and indeed body, it is the localization of the damage which requires explanation. Thiamine is an essential cofactor for several enzymes involved in oxidative energy metabolism and the production of cell components. Higher rates of thiamine-related metabolism in affected brain regions may be part of the explanation of their differential sensitivity.

Investigations
The diagnosis of Wernicke’s and Korsakoff syndrome must be made on clinical assessment; and the main role of investigations is often to rule out other pathology. Serum thiamine can be measured using high performance liquid chromatography with fluorescence detection. Treatment with parenteral thiamine in suspected Wernicke-Korsakoff syndrome should never be delayed while awaiting the result of serum thiamine levels. Their value lies predominantly in helping to clarify diagnosis in complex cases eg a comatose patient on chemotherapy for leukaemia with multiple medical problems. In established Korsakoff syndrome, thiamine levels may be normal; neuropsychological assessment which can quantify the disproportion between memory impairment and general cognitive functioning is more likely to be useful.

Perhaps the most important point regarding neuroimaging is that a normal scan does not exclude Wernicke’s or Korsakoff syndrome. It may be valuable in eliminating other treatable causes of confusion common in alcoholic patients, such as a subdural haematoma. The most distinctive finding in acute Wernicke’s is cytotoxic and vasogenic oedema, represented by bilateral, symmetric hyperintensity alterations on T2–weighted MR images around the third ventricle, aqueduct, mammillary bodies and midbrain tectal plate. Established Korsakoff syndrome has a different neuroradiological signature from acute Wernicke’s; there is tissue shrinkage of selective

Neuropsychology
In 2012, Neuropsychology Review dedicated the June issue to an overview of Wernicke’s Encephalopathy and the Korsakoff syndrome. Sullivan and Fama pointed out that the amnesia of Korsakoff syndrome had set the stage for dissecting memory’s component processes, highlighting that memory is not a unitary function. An anterograde episodic memory impairment is the hallmark of Korsakoff syndrome. Whether this reflects a retrieval or an encoding problem is debated. Nondeclarative or implicit memory is relatively intact. (Jimmie G retained his previously learned skills at Morse code and touch–typing.) Patients with Korsakoff syndrome do not always have normal scores on tests of procedural learning and priming but it may be argued that they exhibit intact performance to the extent that the task minimizes contamination by other cognitive processes.

In addition to the predominant problem with new learning, there is impairment of remote memory with a marked temporal gradient (relative sparing of early memories). There are at least three main theories purporting to explain this temporal gradient (consolidation theory, multiple trace theory, and episodic–to–semantic shift theory), but each has its weaknesses, and this issue remains highly controversial. In addition, there may be a progressive anterograde component which occurred during the years of drinking.

Patients with Korsakoff syndrome have deficits in the explicit processing of contextual information and possibly in the binding of contextual information to targets. Implicit contextual learning seems to be relatively preserved.

Pathology
Macroscopic examination of the brain of a patient with the Korsakoff syndrome may show shrinkage and discolouration of the mammillary bodies and dilatation of the ventricular system. The most striking microscopic feature is gliosis. Although there has been controversy in the past about which lesion sites are critical for the memory deficit, the consensus now is that damage to the circuit involving the mammillary bodies, mammillothalamic tract, the anterior thalamus is critical, and the pathology may also involve major connections, such as the fornix, the retrosplenium, and thalamic–frontal projections.
syndrome, thiamine must be given parenterally initially.

In 1989, the Committee on Safety of Medicines had advised that the use of parenteral B vitamins should be restricted to patients for whom parenteral treatment was considered essential. This advice was based on reports of serious allergic reactions with use of Parentrovite, the high dose vitamin B formulation then licensed in the UK. The Commission on Human Medicines reviewed the safety of parenteral thiamine and reported that between 1975 and 1991, there were 65 reports, including 2 fatal, of serious adverse reactions for Parentrovite and between 1992 and 2006, there were 6 reports, including one fatal, for Pabrinex. Between 2001 and 2007, there were no reports of serious adverse reactions with Pabrinex.

The Medicines and Healthcare products Regulatory Agency / Commission on Human Medicines in September 2007 advised: “…such rare occurrence of serious allergic reactions should not preclude the use of parenteral thiamine in patients who need treatment by this route of administration – particularly those at risk of Wernicke-Korsakoff Syndrome for whom treatment with thiamine is essential.”

However, they went on to advise that: “treatment for anaphylaxis, including resuscitation facilities, should be available when parenteral thiamine is given”.

In 2010, the European Federation of Neurological Societies published helpful guidelines on the management of Wernicke’s in which they said: “…it has been suggested that thiamine should be given in circumstances where facilities for resuscitation are available. This is preferable, but because a delay in treatment may cause irreversible brain damage and is life-threatening we recommend to start treatment immediately, even in the absence of facilities for resuscitation.”

In summary, there is evidence that Wernicke’s is frequently missed and under–treated. It is likely to be worthwhile if clinicians try to treat earlier and for longer, with larger doses of parenteral thiamine. Our team generally gives 5 days of twice daily parenteral Pabrinex in the first instance. Adverse effects from over–treatment are not reported and the risk of serious allergic reactions is greatly outweighed by the very real risk of adverse consequences of under–treatment.
Because thiamine is essential for carbohydrate metabolism, it is generally believed that the administration of glucose to a patient who might be thiamine-deficient may precipitate Wernicke's and therefore, thiamine should always be administered before intravenous glucose. While this is clearly important, it should not cause delay in treating severe hypoglycaemia.

Magnesium acts as a cofactor for many thiamine dependent enzymes and may also be deficient\textsuperscript{a}. Deficiency of magnesium can cause patients to be refractory to thiamine treatment so replacement of magnesium should be considered.

Patients with established Korsakoff syndrome often need residential placement. A calm, well-structured environment will be beneficial\textsuperscript{a}. It has been shown that “errorless learning” (a style of presenting new information which does not permit the patient to guess and hence, prevents him or her from making errors) is superior to “trial and error” methods for these patients\textsuperscript{a}. Advice from a psychologist on practical strategies, e.g. an alarm if they go too far from the ward, is likely to be valuable. Abstinence from alcohol and good nutrition are important.

**Prognosis**

Systematic studies of the prognosis of Korsakoff syndrome are lacking. The data published by Victor and colleagues\textsuperscript{3} in 1971 remain credible: Of the 245 patients who presented with features of Wernicke's, 186 survived the acute illness and were available for subsequent observation. Of these 186 patients, 157 developed Korsakoff syndrome. Adequate information was available on 104 of these 157 patients. Of these 104 patients with Korsakoff syndrome, 22 recovered completely, 26 made a significant recovery, 29 made a slight recovery and 27 did not recover at all.

The concluding comments by Victor and colleagues\textsuperscript{3} in 1971 remain apt. They remark that Wernicke–Korsakoff syndrome:

“may serve as an important theoretical model for the understanding of other nutritional and metabolic disorders. The important practical implication is that the Wernicke–Korsakoff syndrome is preventable, with avoidance of permanent psychosis and all its untold suffering. This would involve an intensification of public health measures for the control of alcoholism and the fortification of foodstuffs with thiamine.”

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Management of Individuals with Alcohol-Related Brain Damage: Experience of a Specialist Service in Glasgow

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Introduction

Alcohol Related Brain Damage (ARBD) is a preferred term used to cover alcohol dementia, alcohol Korsakoff’s syndrome, Wernicke’s encephalopathy, alcohol related brain injury (ARBI) and alcohol amnesic syndrome. (McCrae and Cox, 2003)

The two commonest mechanisms of brain damage caused by alcohol dependence are direct neurotoxicity from alcohol (including alcohol withdrawal mechanisms) and indirect damage through malnutrition, particularly thiamine depletion. Wernicke’s encephalopathy and Korsakoff’s syndrome – the Wernicke–Korsakoff syndrome (Victor, Adams and Collins, 1971) – result from inadequate intake of Vitamin B1 (thiamine) with continued intake of carbohydrates. Symptoms can develop acutely and include confusion / drowsiness, and difficulties coordinating movements such as walking (gait ataxia) or eye movements (ophthalmoplegia). Unfortunately, this triad is present only in a minority of affected patients with subsequently proven diagnosis at post-mortem.

Wernicke’s encephalopathy is often overlooked or poorly managed. Thomson and colleagues (2013) found evidence that patients at risk of Wernicke’s encephalopathy did not receive appropriate treatment, despite availability of guidelines and protocols. They urge greater consideration of providing parenteral thiamine to those at high risk.

Korsakoff’s syndrome is a sequela of such undertreated or undetected Wernicke’s pathology. Symptoms include highly characteristic memory defects. In its purest form, recent memory / delayed recall is severely affected with preservation of general intellectual function, immediate recall and remote memory. In practice, patients present with a wider variety of intellectual deficits, particularly dysexecutive syndrome, and are best described as suffering from alcohol related brain damage. Most patients recover to some extent from Korsakoff’s Syndrome / ARBD. Approximately 25% recover completely, 25% show
significant recovery, 25% slight recovery, and 25% do not recover (Victor et al, 1971)

Thomson and colleagues (2009) reviewed evidence of cumulative risks for ARBD in the heavy drinking population. They conclude that the risk of development of ARBD is due to a number of co-existing and overlapping risk factors including:

- Poor self-care and diet
- Reduced absorption of thiamine
- Increased metabolic demand for thiamine
- Reduced hepatic storage of thiamine
- Direct neurotoxic effect of alcohol causing impaired utilization of thiamine.

Those with ARBD often suffer other alcohol related harms – including neurological, hepatic and psychiatric disabilities. For example, Gilchrist and Morrison (2003) in their study of those with probable ARBD in a Glasgow homeless population found that 42% also reported a head injury that had required admission to hospital. The ring-fencing of scarce neurorehabilitation resources for those with ARBD from resources for those with Acquired Brain Injury (particularly caused by Traumatic Head Injury and Cerebrovascular Disease) therefore presents a challenge when patients have a mixture of conditions causing cognitive dysfunction.

Prevalence

Numbers with ARBD were thought to be increasing throughout the 1980s and 1990s with increased alcohol consumption in the UK population, withdrawal of parenteral multi-vitamins (Parentrovite) for a period followed by a subsequent lower level of use (Pabrinex), coupled with increased awareness of the condition are given as explanations for the increasing prevalence. (Ramayya and Jauhar 1997; Jacques and Stevenson, 2000; Smith and Flanigan, 2000)

In the 1980s, Scottish surveys showed that 10–20% of patients under 65 years who remained in psychiatric care for longer than 1 year had a diagnosis of Organic Brain Disease, mostly ARBD (Smith and McColl, 1994). With the closure of large mental hospitals such individuals are now cared for in residential and nursing homes, with some claiming expertise in managing ARBD.

Current Scottish figures are imprecise but in Greater Glasgow (population 900,000) it is estimated that three to four new cases of ARBD present each week and over 500 established cases with long-term care needs are known to services in this one area. Also the prevalence of ARBD has been shown to be higher in areas of social deprivation. Gilchrist and colleagues’ Glasgow survey of homeless hostel residents (2003) found that 21% of the entire sample had probable ARBD.

Early studies had found a lower age at first presentation in women, with a shorter drinking history, compared to men, and this with a suspected higher rate of ARBD in women was taken to imply increased vulnerability to this form of end-organ damage. (Victor, Adams and Collins, 1971). If this still holds true there may be a bias in those referred for rehabilitation as this gender and age difference hasn’t been found in referrals to the specialist ARBD service in Glasgow. (Smith in Thomson et al, 2012) Overall the ARBD population is younger than the typical dementia population, it has different needs and this has resource and training implications for management and rehabilitation. (Cox et al, 2004)

Who Should Treat?

There has always been considerable debate about who should provide clinical services for this patient group – addiction services, general and old age psychiatric services or a broader-based neurorehabilitation service have all been proposed – but in most locales clear care pathways haven’t been agreed and often conflict ensues (Wilson, 2011). There is also debate about which agencies are best placed to provide rehabilitation. Those potentially involved include the NHS, social work, private and voluntary agencies. While there is evidence that specialist hospital treatment is more effective than community-based treatment of ARBD (Price et al, 1987) different systems may work equally well. There has been little evaluation of different practices.

In Scotland, a dedicated ARBD team has been set up in Glasgow to deal with this group of patients. Specialist nursing home beds have also been developed. The aim of the ARBD team is to promote optimal functional recovery and to maximise the potential for independent living in those with a recent diagnosis of ARBD. The team also aims to help and support other services to work with this patient group, providing assessment, support and rehabilitation in tandem with existing care managers. The Glasgow team provides
neuropsychological assessment, to aid diagnostic certainty, as recommended in the document ‘Closing The Gap’ (Scottish Government, 2007).

**Assessment and early treatment**

Patients with ARBD present to various services including acute and emergency medicine, social services, liaison psychiatry and services for dementia and the elderly. The general hospital is often the first point of contact and staff in emergency departments must be alert to the wide range of presentations.

Individuals with ARBD have clinical needs that relate to:

- Alcohol dependence syndrome
- ARBD itself
- Other physical illnesses
- Other psychological illnesses

Those with global confusional states should be managed initially in a general medical setting. It is not possible to assess either the presence or severity of ARBD until the acute brain syndrome settles.

Post-acute management requires a careful history, mental state examination and, if at all possible, a collateral history. A review of the literature on outcome suggests prognosis in ARBD is poorer in sudden-onset than in insidious onset cases. Prognosis is also better with more global cognitive impairment than in the purer amnesic syndrome, provided there is abstinence from alcohol (Smith and Hillman, 1999).

Laboratory and neuroradiological investigations should form part of a general assessment, and help exclude other causes of memory impairment. Co-morbid physical and psychological disorders are likely to be present and there should be a high degree of clinical suspicion. Treatment of depressive or psychotic disorder, infection, or metabolic abnormalities related to poor nutrition is important.

If there is still evidence of ARBD once the patient is detoxified and co-morbid conditions treated, fuller neuropsychological testing and Occupational Therapy assessment is needed.

Suggested comprehensive neuropsychological assessment of those with ARBD (see Closing the Gaps (2007) for a recommended test battery) should include measures of frontal lobe function, premorbid IQ, current IQ and current memory quotient (MQ). The results are likely to reveal a range of deficits which allows classification of patients along the two axes of ‘dementia’ (discrepancy between premorbid IQ and current IQ) and amnesia (discrepancy between IQ and MQ). This analysis has implications for prognosis in conjunction with information on mode of onset.

Occupational therapy assessment may include home-based assessments to see if a return home, with or without support of relatives, is feasible. Obviously the presence of supportive carers is an important factor in rehabilitation. However, estrangement from family is very likely in this population.

All of the above should complement a community care assessment carried out by a trained social worker familiar with the provisions of the relevant Mental Health and Incapacity Acts. A third piece of legislation in Scotland to protect vulnerable adults is also relevant (Adult Support and Protection Act) given such powers as being able to ban others from visiting a vulnerable individual.

In practice, such detailed neurocognitive and behavioural assessments won’t always be possible, or practical. Abstinence is a requirement for such testing to be valid and time is needed to carefully consider differential diagnoses and co-morbid conditions. A more pragmatic approach may be needed if resources are limited.

**Legal issues**

The use of the Mental Health Act should be considered with those in the early stages of the illness if they are clearly incapable of independent living, uncooperative with treatment and have no adequate family support. At a later stage Incapacity legislation may be needed to access suitable accommodation. Additional legal measures can be considered for management of financial affairs. Restrictions on personal finances can be effective in limiting further misuse of alcohol and potentially increase personal freedom when settled into a particular placement. It is essential that such measures are regularly reviewed, in order that restrictions on personal freedom are kept to a necessary minimum and that the autonomy of those with this long-term brain injury is respected.
Intermediate and Longterm Management
Assessment should be directed towards appropriate placement for rehabilitation. There is a well-argued case for the local development of specialist provision in areas where the condition is prevalent, as described by Smith and Hillman (1999) and now implemented in some areas (Smith in Thomson et al, 2012; Wilson in Thomson et al, 2012; Wilson et al, 2012).

Specialist ARBD services arguably have a role in researching and evaluating placements for those with ARBD. This would address the current concerns of bodies such as the Mental Welfare Commission for Scotland (MWC Scotland, 2006; MWC Scotland, 2010) about inappropriate detention and placement of these patients. An ARBD team or person should coordinate, track and support people with ARBD through assessment, rehabilitation and placement and organise multidisciplinary reviews.

Rehabilitation in ARBD
Rehabilitation has been described by Bennett (1978) as "a process in which people with physical or psychiatric disability are enabled to make the best use of residual abilities in order to function optimally in as normal a social situation as possible."
The following general principles for psychiatric rehabilitation seem relevant in the long term management of those with ARBD:

1. Regular review required in first year after diagnosis
2. Eventual placement determined by careful multidisciplinary assessment.
3. Consideration of Mental Health Act and guardianship if necessary.
4. Efforts to improve social functioning should include the use of memory rehabilitation techniques.
5. Design of environment should aim to maximise independent living.

In addition, efforts to deter further use of alcohol should be prioritised.

Cognitive rehabilitation uses specific techniques to encourage memory and executive function rehabilitation: it considers the design of environments, use of memory prostheses and styles of nursing used to promote new learning. There is a large literature on cognitive rehabilitation in general, but less on cognitive rehabilitation in ARBD.

Brooks & Baddeley (1976) demonstrated that ARBD patients are capable of new learning, particularly if information is cued and of certain types. ‘Errorless’ has been shown to be superior to ‘errorful’ learning (Baddeley & Wilson, 1994). Patients with ARBD are able to recall more information over a longer period when they are not allowed to guess. Those with a pure amnestic deficit may be more motivated to make up gaps in memory using cognitive rehabilitation techniques. Those with more global deficits may have more apathy and show reduced intellectual functioning, impairing their response to specific memory rehabilitation.

A poor response to memory rehabilitation may be due to undiagnosed anxiety or depressive disorders, or to social isolation and loneliness. Memory groups may have a role here in reducing anxiety, social isolation and encouraging modelling of new learning techniques. In Glasgow one such group helped produce a calendar for 2013 (see illustration). Carers may benefit from contact with a support group.

Pharmacological Treatments
As well as crucial thiamine supplementation programmes, other pharmacological interventions have been explored. Alcohol withdrawal is a toxic time for the brain, with rapid surges in glutamate and excitotoxic cellular damage. Studies have shown that ‘anti–glutamatergic’ compounds can reduce cell death. Some clinicians use more ‘antiglutamatergic’ drugs during alcohol withdrawal, e.g. anticonvulsants, or add in acamprosate rather than solely ‘GABA–ergic’ drugs such as benzodiazepines. Lingford–Hughes (in Thomson et al, 2012) has postulated that a ‘super pill’ containing drugs to reduce inflammation, replace vitamins, reduce glutamate and boost GABA might be advantageous, and advocates continued research in this area as an important part of improving management of ARBD.

There have been attempts to identify pharmacological agents to treat the cognitive deficits in established ARBD. Agents researched include clonidine, fluvoxamine, reboxetine, memantine and donepezil (Lingford–Hughes et al, 2004). No satisfactory evidence as yet supports their use in routine clinical practice.

Those with ARBD are at increased risk of various psychiatric syndromes (Lennane, 1986). In particular they may develop depression once cognitive deficits...
are well-established. Depression may be a direct consequence of the organic condition. Depressive syndrome may worsen with lack of stimulation or poorly considered placement. It may also be a response to partial insight into the extent of deficits. Newer antidepressants especially SSRIs are useful in treating such depression. It is advisable to avoid older drugs with anticholinergic properties.

Patients with established amnestic deficits may still have the urge to drink. Others may completely lose this. This has obvious impact on planning suitable placements. All measures to discourage the use of alcohol should be pursued. Acamprosate and Naltrexone may both be used and should be prescribed and monitored under specialist guidance. Disulfiram is of little value, as its successful use requires a good comprehension of the alcohol-disulfiram reaction, and the potential serious consequences of ingesting alcohol during treatment.

Conclusion
This remains an evolving area of practice particularly in those geographical areas where ARBD is highly prevalent. It is likely that greater resources and improved coordination of services will be required to prevent the neglect of patients with this condition as documented in recent reports from organisations entrusted with maintaining high standards in our mental health services.

The calendar images were taken people with ARBD, as part of a community project run by Addictions Occupational therapy. The project OT was Lesley Blair. Occupational Therapy Lead for Glasgow addictions is Maureen Sullivan.
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Introduction

FAS is at the severe end of the spectrum of conditions. First described in 1973, Smith, Jones, Ulleland, and Streissguth were among the first to advance scientific knowledge in their submission of “Pattern of Malformation in Offspring of Chronic Alcoholic Mothers” to The Lancet. The research compiled cases of children with prenatal alcohol exposure (PAE) in terms of cognitive impairment, growth deficiencies and morphological abnormality. Since then, mounting evidence about the impact of maternal alcohol consumption and its effects has been advanced through autopsy, rodent models, longitudinal, structural and functional imaging studies but much remains to be understood about the behavioural phenotype, epigenetics and teratogenic effects in this heterogenic group.

Figure 1: Hogarth's 1751 painting, 'Gin Lane' which depicts a baby possibly affected with Foetal Alcohol Spectrum Disorder. © Trustees of the British Museum

Medical historians have searched for evidence that the characteristics of FAS were recognised long before its modern description. The 'gin epidemic' in 18th century
London, and the depiction of this period in William Hogarth’s, “Gin Lane” may reflect an awareness of the facial characteristics of FAS, a notion that has stirred a debate in the artistic and scientific communities. Rodin², described the child falling from the drunken woman’s arms as having ‘a shorter than normal palpebral fissure (eye opening) resulting in relatively round, ‘Orphan Annie’ eyes’ (Figure 1). This feature is not found in the faces of other infants in Hogarth’s other engravings.

FASD is not just a childhood disorder; difficulties that emerge in childhood often are reflective of a convergence of genetic, neurophysiological and environmental factors that persist into adulthood³. There is also a predictable long-term progression of the disorder into adulthood, with increased risk for mental health disorders and poor social functioning and in which maladaptive behaviours present the greatest challenge to management⁴.

Diagnostic features
FAS and the disorders related to intrauterine alcohol exposure are increasingly thought about in the differential diagnosis of children with social and developmental difficulties. Children have a pattern of defects including prenatal and postnatal growth deficiency, small head size, and facial abnormalities allowing for recognition of the disorder in infancy⁵. Figure 2 shows facial abnormalities, characterized by small eyelid openings, a smooth ridge on the upper lip (absence of a philtrum), and a thin upper lip border⁶. Research has examined the diagnostic heterogeneity of this group, with some studies reporting a significant relation between general cognitive functioning, postnatal growth deficiency and facial abnormalities’ and others revealing that the majority of children with prenatal alcohol exposure may not present with the physical abnormalities necessary for a diagnosis of FAS yet represent a profile with significant neurodevelopmental impairments. The presence or absence of facial dysmorphology, or growth features, do not clinically correlate with neuropsychiatric sequelae or structural brain damage in FASD⁷.

Diagnostic Classification
The classification of FAS and alcohol related effects are commonly reported in the literature. Table 1 outlines the classification system purported by American Academy of Paediatrics committees on Substance Abuse and Children with Disabilities⁸.

Fetal Alcohol Syndrome

![Figure 2: Diagnostic facial features associated with Foetal Alcohol Spectrum Disorders](image)
**Foetal Alcohol Syndrome (FAS) with confirmed maternal exposure**

- Confirmed Exposure to Alcohol (a)
- Facial Anomalies (b)
- Growth Retardation (c)
- Central Nervous System Abnormalities (d)
- Cognitive Abnormalities (e)
- Birth Defects (f)

**FAS without confirmed maternal exposure**

- Confirmed Exposure to Alcohol (a)
- Facial Anomalies (b)
- Growth Retardation (c)
- Central Nervous System Abnormalities (d)
- Cognitive Abnormalities (e)
- Birth Defects (f)

**Partial FAS with confirmed exposure**

- Confirmed Exposure to Alcohol (a)
- Facial Anomalies (b)
- Growth Retardation (c)
- Central Nervous System Abnormalities (d)
- Cognitive Abnormalities (e)
- Birth Defects (f)

**Alcohol-related birth defects**

- Confirmed Exposure to Alcohol (a)
- Facial Anomalies (b)
- Growth Retardation (c)
- Central Nervous System Abnormalities (d)
- Cognitive Abnormalities (e)
- Birth Defects (f)

**Alcohol-related neurodevelopmental disorder**

- Confirmed Exposure to Alcohol (a)
- Facial Anomalies (b)
- Growth Retardation (c)
- Central Nervous System Abnormalities (d)
- Cognitive Abnormalities (e)
- Birth Defects (f)

Note: The etiological specificity of most of these anomalies to alcohol teratogenesis remains unclear. Alcohol related effects indicate clinical conditions in which there is a history of maternal alcohol exposure and clinical or animal research has linked maternal alcohol ingestion to an observed outcome.

(a) Confirmed maternal alcohol exposure indicates a pattern of excessive intake characterised by substantial, regular intake or heavy episodic drinking. Evidence of this pattern may include frequent episodes of intoxication, development of tolerance withdrawal, social problems related to drinking, legal problems related to drinking, engaging in hazardous behaviour while drinking, or alcohol related problems such as hepatic disease.

(b) Evidence of a characteristic pattern of facial anomalies includes features such as short palpebral fissures and abnormalities in the premaxillary zone (e.g., flat upper lip, flattened philtrum, and flat midface).

(c) Evidence of growth retardation, including at least one of the following: low birth weight for gestational age, decelerating weight over time not caused by nutrition, and proportionally low weight to height.

(d) Evidence of central nervous system neurodevelopmental abnormalities including at least one of the following: decreased cranial size at birth; structural brain abnormalities (e.g., microcephaly, partial or complete agenesis of the corpus callosum, cerebral hypoplasia); and neurological hard or soft signs (at appropriate age), such as impaired fine motor skills, neurosensory hearing loss, poor tandem gait, and poor hand-eye coordination.

(e) Evidence of a complex pattern of behaviour or cognitive abnormalities that is consistent with development level and cannot be explained by familial background or environment alone, such as learning difficulties, deficits in school performance; poor impulse control, problems in social perception, deficits in higher level receptive and expressive language, poor capacity for abstraction or metacognition, specific deficits in mathematical skills, or problems in memory.

(f) Birth defects associated with alcohol exposure include cardiac (atrial septal defects, abberant great vessels; ventricular septal defects, tetalogy of Fallot), skeletal (hypoplastic nails, clinodactyly, shortened fifth digits, pectus excavatum and carinatum, radioulnar synostosis, Klippel–Feil syndrome, flexion contractures, hemivertebrae, camptodactyly, scoliosis), renal (aplastic, dysplastic, hypoplastic kidneys; ureteral duplications; hydronephrosis; horseshoe kidneys), ocular (strabismus, refractive problems, retinal vascular anomalies), auditory (conductive hearing loss, neurosensory hearing loss), and other (virtually every malformation has been described in some patient with foetal alcohol syndrome).

**Teratogenic Factors**

Although prenatal alcohol exposure has detrimental effects on the developing brain, not every child prenatally exposed to alcohol meets diagnostic criteria for FAS*. Several factors contribute to the severity and extent of intrauterine alcohol exposure on the developing foetal brain including the stage of pregnancy at which the fetus is exposed to alcohol, the level and pattern of consumption. Despite advances in research, the specific threshold for the teratogenicity of alcohol remains unknown.*16*

**Prevalence**

Despite an increase in public, media and academic interest in the condition, there is a lack of knowledge among doctors and health-related professionals of the exact nature of the risks associated with heavy alcohol consumption during pregnancy and the prevalence rates with the populations investigated. Prevalence rates vary from 0.5 to 3.0 per 1,000 live births, with American studies reporting ranges of 0.5–2 and 10 per 1,000 live births for FAS and ARND respectively. Canadian studies report similar prevalence with 1–6 per 1,000 live births and incidence rates in the UK lacking in consistency and reliability at present.*16* The high levels of discrepancy in quoted prevalence rates may be linked to variable diagnostic convergence and the methodological variations, including potential observer bias from participation of clinicians with special interest in FAS*. *

**Genetic Diagnosis**

The field of epigenetics has contributed significantly to the area in recent history in both research and practice, with genetic opinion regularly sought in assessment of a child with suspected FASD. In the past three years alone research has advanced significantly with examples such as the Northwestern Medicine study being the first to identify a direct genetic mechanism of behavioural deficits caused by foetal alcohol exposure in rats*19* and research from Harvard Medical School and Veterans Affairs Boston Healthcare System identifying for the first time a signaling pathway that might determine genetic susceptibility for the development of FAS*. At the recent International FASD Conference, Michele Ramsay summarized the cutting edge developments in epigenetics including: the genome composition of the mother and the fetus, epigenomes, in-utero alcohol exposure, folate levels, DNA methylation and behavioural phenotype outcomes. As most of the evidence in the area is a result of investigations using rodent models, the current understanding of epigenetics in alcohol teratogenesis is a work in progress with an exciting potential for research and practice alike.

**Comorbid Psychiatric Disorders**

High rates of mental disorders within the FASD and PAE population were found to be consistently reported for both externalizing and internalizing disorders and this is seen as a result of increased vulnerability to common psychiatric disorders rather than as a direct consequence of having FASD. Disorders such as Attention Deficit Hyperactivity Disorder (ADHD), Early Childhood Trauma, Post-Traumatic Stress Disorder (PTSD), Reactive Attachment Disorder, Mood and Anxiety Disorders, Social Communication Disorders, Substance Misuse Disorders and psychosis are commonly associated with FASD. Brown et al. categorises the comorbid mental health problems associated with Foetal Alcohol Syndrome into six groups: attention problems, depression, suicidal threat, panic attacks, “hearing voices and seeing things”, and suicide attempts.*20*

Primary and secondary psychiatric disorders have been described specifically for FASD group. Primary presentations include problems with emotion or emotion regulation that are reminiscent of other early neurodevelopmental disorders. Many children on the foetal alcohol spectrum may show behaviours very similar to those described for autism spectrum disorder, i.e. difficulties in tolerating environmental stimuli (i.e. habituation problems), hyperactive, labile and difficult to settle, slow to warm up and to interact reciprocally with parents and careers. A significant sensory thread runs through neurodevelopmental disorders, and children with FASD can generally add sensory integration disorder to their long list of challenges. In a literature review of ADHD presentation in young people with FAS, O’Malley and Nanson*20*, determined that ADHD was likely to be earlier in onset and more typically, although not exclusively, of predominantly inattentive subtype. There were also more likely to have co–morbidities with neurodevelopmental, psychiatric and medical conditions.

Secondary psychiatric disorders by their nature appear to be due to environmental stressors such as Reactive Attachment Disorder of Infancy or Early Childhood that develop on the background of separation from birth mother or multiple foster/ care placements and PTSD in cases of exposure to trauma. Visual and auditory hallucinations are described in the context of PTSD or
not only the diagnosis of the effects of prenatal alcohol exposure and its consequences but will facilitate focus being placed on the development and implementation of effective interventions for ARND. The neuropsychological and neurobehavioural effects of prenatal alcohol exposure have life-long negative consequences on brain function and behaviour, even in individuals with modest prenatal exposure to alcohol who do not receive a diagnosis of ARND/FAS.

Advances in neuroimaging has resulted in a dearth of research and evidence identifying specific alterations in the brains of living individuals exposed prenatally to high doses of alcohol with and without a diagnosis of ARND. The main structural abnormalities commonly reported in a review of brain changes are outlined in Table 2.

### Table 2: Brain Structure Abnormalities commonly reported in ARND/FASD.

<table>
<thead>
<tr>
<th>Brain Structure</th>
<th>Reported Abnormalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain Size and Shape</td>
<td>Overall reduction of the cranial vault and the concomitant reduction of brain size</td>
</tr>
<tr>
<td></td>
<td>Shape abnormalities in the perisylvian and parietal regions and reduced brain growth</td>
</tr>
<tr>
<td></td>
<td>in the ventral portions of the frontal lobes</td>
</tr>
<tr>
<td>Cerebellum</td>
<td>Reductions in cerebellar volume, but changes not uniform (anterior vermis was</td>
</tr>
<tr>
<td></td>
<td>reduced in size; posterior vermis unaffected)</td>
</tr>
<tr>
<td>Corpus Callosum</td>
<td>Agenesis of the Corpus Callosum, significant changes in the size and shape of the</td>
</tr>
<tr>
<td></td>
<td>structure</td>
</tr>
<tr>
<td></td>
<td>Most anterior and posterior regions of the midsagittal section of the corpus callosum</td>
</tr>
<tr>
<td></td>
<td>smaller in individual with FASD when compared to controls</td>
</tr>
<tr>
<td></td>
<td>Corpus Callosum significantly displaced more anteriorly and inferiorly in posterior</td>
</tr>
<tr>
<td></td>
<td>regions (impairment in Verbal Learning in individuals with FAS)</td>
</tr>
<tr>
<td>Basal Ganglia</td>
<td>Reduced basal ganglia volume — Caudate more reduced in FASD than controls after</td>
</tr>
<tr>
<td></td>
<td>controlling for brain size.</td>
</tr>
</tbody>
</table>

The well-recognised physical stigmata and cognitive deficits described as ARND are likely to represent the extreme end of a spectrum of impairment while milder cases may not be identified. Thus a robust neuropsychological and neurobehavioural profile will be difficult to achieve. The comorbidity of other neuropsychiatric disorders will also be significant confounding variables in the identification of a coherent profile. However, research in this area suggests that common neuropsychological and neurobehavioural changes are reported with this group. Heavy prenatal alcohol exposure is associated with a wide range of neuropsychological deficit, including impairment in overall IQ, memory and learning, language, attention, speed of information processing (reaction time), visuospatial abilities, executive functioning, fine and gross motor skills, social cognition (social information processing) and social and adaptive functioning. Table 3 outlines the neuropsychological sequelae reported with ARND.
### Neuropsychological Sequelae associated with ARND.

<table>
<thead>
<tr>
<th>Neuropsychological Domain</th>
<th>Reported Difficulties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Intellectual Performance</td>
<td>Diminished intellectual functioning in FASD is well documented. Average IQ scores range from Borderline to Low Average. IQ below 70 reported in around 25% of cases.</td>
</tr>
<tr>
<td>Learning and Memory</td>
<td>Verbal Memory deficits are reported – further analysis suggests that deficits in verbal memory resulted from difficulties with acquisition of information instead of ability to remember information. Hippocampus affected by prenatal alcohol exposure – resulting in difficulty with spatial learning/memory. Difficulties with Free Recall of Information. Overall difficulty learning verbal and visual information.</td>
</tr>
<tr>
<td>Language</td>
<td>Poor performance on word comprehension, grammar comprehension and naming ability. Complex language tasks involving phonological working memory and social pragmatics.</td>
</tr>
<tr>
<td>Attention</td>
<td>Overlap with ADHD (Comorbid). Attentional deficits widely reported, not necessarily global in nature. Deficits in visual attention more pervasive.</td>
</tr>
<tr>
<td>Speed of Information Processing</td>
<td>Interhemispheric transfer of information affected resulting in FASD individuals having difficulty in rapidly processing relatively complex information.</td>
</tr>
<tr>
<td>Visual Perception and Visual Construction</td>
<td>Unimpaired at simple perceptual tasks. Impaired at tasks requiring visual motor integration.</td>
</tr>
<tr>
<td>Executive Functioning</td>
<td>Deficits on tests assessing executive control skills – difficulty with more complex tasks of executive functioning than less complex tasks. Difficulty with letter fluency that category fluency (semantic) observed. Difficulty with planning and working memory also observed which becomes more pronounced with an increase in task demands. Global difficulties of executive functioning reported. These global deficits may be related to deficits in perseverative tendencies, attentional problems and spatial memory. Working memory and response inhibition difficulties.</td>
</tr>
<tr>
<td>Fine and Gross Motor Skills</td>
<td>Delayed motor development. Fine motor dysfunction (including tremors, weak grasp and poor hand–eye coordination). Poor fine motor speed and co–ordination reported. Impaired balance associated with damage to the cerebellum. Balance deficits that are central in nature are affected.</td>
</tr>
<tr>
<td>Social Cognition</td>
<td>Comparisons between children with Autism and FASD on the Autism Diagnostic Observation Schedule found that the two groups differed in social interaction and communication. Children with FASD displayed socially inappropriate behaviours and difficulty with peers. Social Information Processing is impaired in FASD – FASD group have maladaptive processing patterns both in the generation and evaluation of responses to social situations. FASD children exhibit deficits in social problem solving that can be closely related to higher–order executive functioning control disabilities such as decision making and strategic planning.</td>
</tr>
<tr>
<td>Adaptive and Social Skills</td>
<td>Social deficits may be stunted and not just delayed. FASD leads to impairment in social, attention and aggressive domains. FASD leads to higher ratings in parental reports for hyperactivity, disruptive, impulsive and/or delinquent behaviour.</td>
</tr>
</tbody>
</table>
The associated neurobehavioural deficits associated with ARND result in a poor socio–behavioural prognosis for adults. The neurobehavioural consequences of ARND present considerable demand on educational, intellectual disability, medical, judicial, correctional and social services. The existence of comorbid mental health difficulties put further strain on services and affects the overall prognosis for the individual. While early intervention is recognised as the most effective approach to limiting the behavioural consequences of ARND, the early and clear detection of ARND and interventions such as parent training, educational and cognitive interventions, adaptive skills training and social skills training are paramount to alleviating the neurobehavioural sequelae commonly associated with this disorder.

Affected individuals and families who live with disabilities related to PAE face extraordinary challenges on a daily basis and don’t fare well in the long term. Outcome data of children with FASD identify poor prognosis, particularly in terms of behavioural, mental health and adaptive and executive behaviour. Table 4 provides a summary of the outcomes associated with prenatal alcohol exposure.

Table 4: Summary of outcomes with prenatal alcohol exposure

<table>
<thead>
<tr>
<th>Behavioural</th>
<th>Mental Health</th>
<th>Adaptive and Executive Functioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antisocial behaviour</td>
<td>Alcohol problems</td>
<td>Socialisation</td>
</tr>
<tr>
<td>Delinquent Behaviour</td>
<td>Mood disorder</td>
<td>Employment Difficulties</td>
</tr>
<tr>
<td>Classroom/school behaviours</td>
<td>Bipolar disorder</td>
<td>Independent living difficulties</td>
</tr>
<tr>
<td>Learning Behaviours</td>
<td>Depression</td>
<td>Inhibitory control</td>
</tr>
<tr>
<td>Externalising Behaviour</td>
<td>Panic disorder</td>
<td>Cause and effect reasoning</td>
</tr>
<tr>
<td>Aggressive Behaviour</td>
<td>Hyperkinetic disorders</td>
<td>Planning and organising</td>
</tr>
<tr>
<td>Criminal Activity</td>
<td>Emotional disorders</td>
<td>Learning from mistakes</td>
</tr>
<tr>
<td>Maladaptive behaviour</td>
<td>Conduct disorders</td>
<td></td>
</tr>
<tr>
<td>• Impulsivity</td>
<td>Sleep disorders</td>
<td></td>
</tr>
<tr>
<td>• Dishonesty</td>
<td>Abnormal habits</td>
<td></td>
</tr>
<tr>
<td>• Avoiding work/school</td>
<td>Stereotypical behaviour</td>
<td></td>
</tr>
<tr>
<td>• Bullying</td>
<td>Other psychiatric disorders (PTSD,</td>
<td></td>
</tr>
<tr>
<td>• Sexual inappropriateness</td>
<td>obsessive compulsive disorder</td>
<td></td>
</tr>
<tr>
<td>• Self–injury</td>
<td>and oppositional defiant disorder/</td>
<td></td>
</tr>
<tr>
<td>• Alcohol/drug use</td>
<td>conduct disorder</td>
<td></td>
</tr>
</tbody>
</table>

From a neurobehavioural perspective, the profile of individuals with ARND is characterised by general deficits in intellectual ability and relative deficits in executive function, visual attention, verbal and non–verbal learning, motor function, social skills, externalising behaviours and adaptive function. Relative strengths are reported in auditory attention, retention of verbal information and basic language function.

Given the overlap in presentation with other clinical groups and the lack of biological and physical markers with which to identify individuals that have been prenatally exposed to alcohol a multi–disciplinary approach to assessment and intervention is warranted. While the identification of a neuropsychological and neurobehavioural profile for ARND has advanced and large body of evidence on further differentiation of the cognitive, behavioural, emotional, and functioning deficits associated with PAE has emerged in the last years, further research is required.

Interventions

Interventions for individuals with FASD suffer universally from a serious lack of rigorous scientific investigation and robust clinical trial data. Systematic evaluation of randomised clinical trials and quasi–experimental studies of interventions for children from birth to age 18 years with a diagnosis of FASD or evidence by Premji et al revealed the gap in the available literature and identified an urgent need for relevant collaborative research. However, the
current understanding of the neuropsychological and neurobehavioural profile of FASD has facilitated the development of guidelines for interventions that may be useful in the management of children, adults and affected families with FASD including psycho–educational, psycho–social, pharmacological and novel approaches such as nutritional and physical therapies.

Professionals must be mindful of the enduring cognitive and social blueprint that each child represents, varying by multi–factorial genetic and teratogenic manifestations from PAE. It is thus essential that treatment plans be targeted at a family systems level, incorporating person centered approaches specific to the individual's areas of difficulty for each stage of development. All treatment programmes should start with psycho–education for the family on the manifestations of FASD, the associated risks, neurobehavioural profile and available interventions. Interventions should draw from evidence–based practice and address the specific needs of each individual. Interventions addressing the neuro–cognitive and social aspects of the disorder should focus on a strengths based model in order to compensate for the identified weaknesses in each individual. Family strategies have been focusing on resilience–amplifying interventions and working on enhancing family coping strategies. The efficacy of a child friendship training (CFT) versus a delayed treatment control (DTC) was assessed for 100 children with FASD. Children aged 6 to 12 years in the CFT group showed clear evidence of improvement in their knowledge of appropriate social behaviour, and CFT resulted in improved social skills and fewer problem behaviours compared with DTC with gains maintained at 3–month follow–up.

In relation to pharmacological treatment of FASD, there is no specific medication treatment for FASD, but most psychotropic groups are used generically for the treatment of active symptoms of comorbid psychiatric disorders. Most interest in the literature on FASD was generated around the use of stimulants and O’Malley and Hagerman and O’Malley and Nanson reviewed the action of the stimulants and their usage in FAS, PFAS and ARND. They concluded that the response to standard psycho–stimulant medication used for ADHD might be unpredictable because individuals with FASD have disturbed brain neurochemistry and oversensitive corpus callosum.

**Specialist services**

Understanding the complexities of FASD related presentations arising from the interplay between neurobiological, environmental and adaptive factors require a range of skills and clinical expertise. No one discipline can meet the trajectory of need related to FASD in children and youth and it is our view that dedicated child and adolescent neuropsychiatric/neuropsychological teams should play a central role in the initial assessment and diagnosis of these conditions, as early identification and intervention for children with complex neuropsychiatric presentation, including FASD will enhance the likelihood of positive outcomes.

Specialist centres will offer a high level of expertise and care to those who need this level of input. Shared care arrangements (care shared between a specialist centre and a local hospital and community services) enable specialist clinicians to focus on assessment and setting of treatment plans whilst allowing the treatment to be carried out in a more local setting. The concept of a network of care is particularly important for these specialist services and they should establish vertical and lateral care pathways with primary care health teams, early interventions teams, child and adolescent mental health teams, disability services and other relevant service providers. Similar adult services have a lifelong role in meeting the care needs of this vulnerable group.

**References**


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Stress as Seizure Precipitant in Adults with Epilepsy: A Comprehensive Review of Association

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Introduction
Stress is a difficult to define term. It can occur in various forms; emotional, physical, psychological and physiological. For the purposes of this review various definitions from the work of key figures (Kaplan & Sadock, 1998 & Michie, 2002) were amalgamated. They define stress as

"...a psychological and physical state that results when the resources of the individual are insufficient to cope with the challenges of the situation."

Clarke et al (2009) define epilepsy in their standard textbook as

"... a disorder of brain characterised by an ongoing liability to recurrent epileptic seizures. An epileptic seizure is defined as the transient clinical manifestations that result from an episode of epileptic neuronal activity"

The relationship between stress and epilepsy is complex. Furthermore, stressors may influence each other, for example, emotional stress can lead to sleep deprivation or vice versa. The emotional stress may lead to excessive alcohol consumption as a coping strategy, but the latter might also lead to anxiety and increased psychological stress. Exposure to stress occurs throughout life. However throughout this short review, the focus is on the effect of various stressors on epilepsy in adult life.

Aims & methods
The aim of this review was to elucidate the role of stress in precipitating epileptic seizures. The database searched were Pub Med, Cochrane Library and Metalib. Relevant journals include: Epilepsia, Lancet Neurology, Current Opinions in Neurology, and Epilepsy & Behavior were also searched. The search strategy involved the terms " stress", "epilepsy", and "seizure". The time limitation was set from 1980 to 2011. In addition, important references were hand searched and cited. Throughout the literature review, relevant textbooks were also cited (please see Reference section below for full bibliography).

Literature review
Temkin and Davis (1984) monitored 12 adults with severe epilepsy for 3 months. They found that stressful daily hassles and events were associated with increased seizure frequency in 58% of the sample. Seizure frequency was also found to be increased by negative life events in a study examining 272 patients in Hungary (Rajna and Veres, 1989). Interestingly, the same authors also found that positive life events were associated with decreased seizure frequency. Although this could have been related to better adherence to medication, two other studies (Koe et al, 2009, Kazl et al, 2009) found that positive experiences such as environmental enrichment may have favourable effects on epilepsy.

During the 1991 Gulf War, Neufeld et al (1994) studied the association between the missile attacks on Tel Aviv and frequency of epileptic attacks in 100 patients with epilepsy. They found that 8% of patients displayed increased seizure frequency. The age of patients was significant as the mean age of those who has increased seizure frequency was about 10 years less than those who did not. 3% of patients who had increased seizure frequency...
frequency also reported disturbed sleep. In this study, the authors reported two important findings. Firstly, in a significant number of patients the sound of the siren precipitated the seizure, and several also reported insomnia. It can be concluded that the sound and the sleep deprivation could have been either indirect factors mediating between stress and seizures or additional stressors precipitating epilepsy. Both of these factors are known to decrease the seizure threshold and to precipitate seizures. Secondly, those with generalised seizures had more seizures following the attacks than those with partial seizures. In contrast, in a survey of 400 patients, Frucht et al (2000) found that those with temporal lobe epilepsy reported stress as seizure precipitant more frequently than those with other epilepsy syndromes. Patients with cryptogenic generalized epilepsy were the least likely to report stress as seizure precipitant.

Greig and Betts (1992) reported six cases in which epileptic seizures were triggered by sexual abuse. Three of these patients had sexual feelings during their seizures and one had sexual automatism. In a controlled study, Swinkles et al (1998) found increased seizure frequency in 30 evacuated individuals during the 1995 flood in Gelderland province in the Netherlands compared to matched controls. From the patient’s perspective, there have been various studies to date investigating the relationship between stress and seizures. In a retrospective study of 89 patients with epilepsy in the U.S.A., Haut et al (2003) found that 64% believed that stress increased the frequency of their seizures.

Nakken et al (2005) asked 1670 patients with epilepsy in Denmark, Norway, and the USA about their seizure precipitating factors. Emotional stress, sleep deprivation, and tiredness were among the most frequently reported. In percentages, these were 20.9, 11.6 and 9.3 respectively. Unlike Neufeld’s study, the type of seizures did not seem to have any influence on the sensitivity of patients towards the emotional stress. Klein et al (2005) evaluated the 9/11/2001 attack related emotional stress among 66 patients with epilepsy in an area of Washington, DC. The authors included patients who kept seizure diaries before and after the attacks. Additionally, patients completed a questionnaire stating the severity of their emotional stress. The average seizure frequency of patients experiencing stress as a result of 9/11 one month after the attacks was 2.08 seizures/patient/month compared with 1.44 (p = 0.18) three months before. Analysis of the study indicated that seizure worsening was recorded in 50% of those directly affected by the attack and also in a higher proportion (29%) in those who were subjectively stressed. Overall, 68% of the patients reported worsening of their seizures due to the stress. In this sample, 91% had focal and 9% had idiopathic generalized epilepsy.

In the state of Victoria, Australia, a study of 600 adults who either had epilepsy or cared for a person with epilepsy revealed that the most common among 42 possible triggers were tiredness, stress and sleep deprivation (Pinikahana & Dono, 2009). Notably, the same study showed that all participants used one or more techniques of stress management to stop seizures. Among these techniques were resting, relaxation and breathing exercises.

In another study, Dionisio et al (2010) investigated triggers and seizure termination techniques in 223 patients with epilepsy whose mean age was 42.7 years. The authors observed that stress was a trigger in 67% of the sample. This was followed by sleep deprivation (58%).

Koutsogiannopoulos (2009) interviewed 19 patients with epilepsy in a phenomenological qualitative study using a semi-structured interview guide. The mean age of patients was 42. The authors found that significant life events were associated with the onset of first seizure in all patients. They noted gender difference in relation to the type of life events precipitating seizures. Men identified more work related negative events while women generally identified relationship issues.

Da Silva Sousa et al (2005) interviewed 36 male and 39 females with juvenile myoclonic epilepsy in Brazil. Stress was reported by 83% as a seizure precipitant followed by sleep deprivation (77%). Significantly, the authors found that highly educated patients identified seizure precipitants more easily highlighting the importance of education in identifying stress as a seizure precipitant.

Discussion
It appears that stress is a common seizure precipitant reported by patients across studies (Temkin & Davis, 1984; Frucht et al, 1990; Swinkles et al, 1994; Spatt et al, 1998; Haut et al, 2003; Nakken et al, 2005; Sperling et al, 2008; Koe et al, 2009; Pinikahana & Dono, 2009). In many of the reviewed studies, it was the most common seizure precipitant followed by sleep deprivation, fever,
tiredness, menstruation and non-compliance. The range of seizure facilitation by stress in this review was 15.1–83% (table 1). Previous studies have given estimates of 14–67% and 30–83% (Klein et al, 2005; Cods & Gruenthal, 2006).

This review found a clear association between stress and seizures across many cultures and geographical areas.

### Table 1: an overview of studies evaluating stress as a seizure-inducing factor:

<table>
<thead>
<tr>
<th>Authors</th>
<th>Country</th>
<th>Study type</th>
<th>Stress as inducing factor in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Konishi et al (1992)</td>
<td>Japan</td>
<td>Survey</td>
<td>15.1</td>
</tr>
<tr>
<td>Pinikahana &amp; dono (2009)</td>
<td>Australia</td>
<td>Survey</td>
<td>49.5</td>
</tr>
<tr>
<td>Temkin &amp; Davis (1984)</td>
<td>Usa</td>
<td>Survey</td>
<td>55.9</td>
</tr>
<tr>
<td>Dionisio et al (2010)</td>
<td>Usa</td>
<td>Survey</td>
<td>64</td>
</tr>
<tr>
<td>Da silva sousa (2005)</td>
<td>Brazil</td>
<td>Survey</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>83</td>
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Various types of stress both in animals and humans have been reported to be associated with seizures. The obvious debate has been between daily hassles and life events. It has been previously reported that the above two might create different psychological and biochemical reactions in humans (Beldhuis et al, 1993). The studies reviewed indicate that in animal models, restraint, isolation and early maternal separation are associated with seizures. In humans, various stressors such as maternal separation, war, natural disasters, physical threat, everyday hassles and life events were all associated with increased seizure frequency.

It has been suggested that epilepsy syndromes may be differently affected by stress. Neufeld (1994) and Bosnjac et al (2002) reported that stress induced more generalised than partial seizures. In contrast, Frucht et al (2000) found that patients with temporal lobe epilepsy reported stress as seizure precipitant more frequently than those with generalized epilepsy (46% versus 15%). Lanteaume et al (2009) found that 55% of patients with temporal lobe epilepsy reported a link between emotional stress and seizures. Other studies (Nakken et al, 2005 and Koutsogiannopoulos, 2009) concluded that generalized and partial seizures were equally affected. Taken together, studies have reported inconsistent results. Nevertheless, they show that most epilepsy syndromes can be precipitated by
stress. Further studies are needed however with larger samples comparing the relationship between different epilepsy syndromes and stress.

The reviewed studies reported inconsistent results regarding age as a variable modifying the association of stress with epilepsy. Two studies reported that seizures in younger patients were more likely to be induced by stress (Neufeld et al, 1994 and Pinikahana & Dono, 2009). Another study (Frucht et al, 2000) however found the opposite to be the case.

Regarding gender differences, the reviewed studies are consistent in that women reported stress as a precipitating factor more than men (Frucht et al, 2000; Christensen et al, 2007; Pinikahana & Dono, 2009). Animal studies have been less consistent. Fye & Bion (1998) showed that prenatal stress in rats lowered seizure threshold more in females. Chadda & Devaud (2004) however found that under stressful conditions, female rats displayed less seizure susceptibility than males. It is difficult to compare the aforementioned studies as they were performed on rats in different stages of their life cycle.

Despite the strong association between seizure precipitation and stress, several points are worthy of note. Firstly, in humans, many of the above studies used retrospective surveys to study the association. Therefore potential bias may have been introduced. Future researchers should choose other research methods such as prospective cohort and case control studies.

Secondly, it is difficult to extrapolate some animal models of stress to human beings. Some stress models like foot shocks or immobilisation may not be representative of daily stressful events. Another point that hinders generalisation is that, biologically, different species may not react equally to stress (Rae et al, 1990).

Although it has been reported that certain types of stress might have anticonvulsant effect, in this review only two animal studies would verify this view. Drugan et al (1994) observed biochemical reactions in two groups of rats exposed to escapable and non-escapable stress. The rats that had control over the stressful situation had three fold increases in benzodiazepine–like substances in the brain. It is well recognised that benzodiazepines potentiate the action of inhibitory neurotransmitters in the brain. Rats able to escape also showed a significant increase in latency to seizure induced by picrotoxin in comparison to unable to escape rats.

Perićić et al, 2007 have demonstrated that swim stress had anticonvulsant properties in mice. In another study, oliverio et al 1983 showed that immobilization stress protected rats against induced seizures. In contrast to the above animal studies suggesting that certain types of stress may have anticonvulsant effects, there are several animal studies which suggest the converse (table 2).

The anticonvulsant effect of stress could be due to many reasons: firstly, Selye (1907–1982), famous for his work on the organism’s response to stress, divided stress into two types; eustress and distress. Stress, according to Selye, is an ‘eustress’ when it enhances function. Distress, in contrast, occurs when coping mechanisms fail to resolve the stressful situation. Furthermore, Selye also suggested three stages of stress in animals; alarm, resistance and exhaustion. On reviewing each of Selye’s stages, different authors have suggested that they may vary in their biochemical and physiological manifestations (Majewska, 1991; Zinder & Dar, 1999).

Stress is a dynamic process starting with a homeostatic imbalance which is followed by response that attempts to restore homeostasis. The level and type of hormonal release has been found to change in relation to the nature and duration of stress. This has been found to determine the pro or anti-convulsant effect of various stressors.

Secondly, the cognitive appraisal of stress, resilience, and outcome of the stressful situation seems to be important in determining the impact of stress in animals and humans (Dubrovski, 2005). It has been found that resilience reduces release of corticotrophin hormones in stressful situations (Ahmed, 2007). Furthermore, victory in overcoming stress has been found to protect against bicuculline-induced seizures and increase circulating noradrenalin that has anti-seizure effect (Beldhuis, 1993; Joëls, 2009).

Thirdly, in case of forced swim stress, the physical exercise and gamma-aminobutyric acid (GABA) release as a result of metabolic acidosis could be the reason for its anticonvulsant effect (Adria, 2009).
Summary
The relationship between stress and epilepsy remains an under researched subject. While reviewing the literature, it became evident that standard psychiatry textbooks do not as yet cover this area in depth. Consistent with previous studies, this review shows that stress can be a common seizure precipitant. Additionally, this review newly demonstrates that this is a finding that is to be found in different cultures across the world.

The nature of stress and the particular individual-stress interaction both contribute in determining the final impact on epilepsy. Despite reported anticonvulsant properties of certain types of stress, the results of this review show that stress in its emotionally unpleasant type is overall proconvulsant.

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Textbooks


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In the past, many researchers have studied the individual components of psychotherapy. However, it is the therapist–patient relationship that has been shown to predict outcome. The concept that the degree of therapeutic alliance, but not the modality of psychological therapy, predicts a good outcome has been borne out by time. In fact, a critical review of the literature showed a lack of therapist empathy to be the best predictor of a poor outcome in psychotherapy (reported in). This is a very striking finding, which muddies the waters of research into comparing different psychological therapy techniques. We find ourselves in a quandary,
comparable to the difficulties researchers faced in pharmacological trials before they realized that they had to control for the placebo effect. It is common knowledge now that in pharmacological research, the active ingredient of a medication can be tested only by comparing it to an inert but otherwise identical placebo. Randomized controlled double-blind studies, which are the gold standard of research, are designed to eliminate all forms of psychological confounders. Only by following this rigorous process can the true effect of a new medication be determined. Can we apply these principles to comparative psychotherapy research?

A whole issue of the Journal of Clinical Psychology in 2005 was devoted to exploring the interplay between the placebo effect and the therapeutic relationship*. One line of thought has been that psychotherapy is nothing but a placebo, where a placebo is defined as “a sham treatment that may be used clinically to placate a patient”*. Others have argued that the “common factors”, e.g. therapist empathy and the strength of the therapeutic alliance, are essential ingredients to all psychotherapy success*. These common factors may show more variation between therapists than between different types of therapy. However, they are not a placebo, as they are “essential” and as such cannot be eliminated*. In other words, the common factors cannot be defined as a placebo, because they are not inert, but rather an integral part of the mechanism of action of psychotherapy.

According to Lambert problems with interpreting the results of comparative studies, as well as the common finding of no difference in outcome for patients who undergo dramatically different treatments, have led to calls for an end to the funding of these studies*. Nevertheless, a solution for this problem is essential to promote the evidence–based practice of psychotherapy*. As Wood suggests: “the research focus should now move from establishing the effectiveness of any one technique, towards studying what common mechanisms underlie all therapeutic contact”*. As yet, there is no objective way to measure or control for the quality of the therapeutic relationship*. Even though some studies include a questionnaire for both therapist and patient on the strength of the therapeutic bond, this is not sufficient*. Asking the patient what they feel about the therapeutic alliance is better than nothing, but does not have sufficient scientific rigor. In pharmacological studies it has been shown that it is not enough to ask a patient whether they think they have been given a placebo or not, one has to actually administer it in a double-blind controlled way.

Some may ask why we would want to know which type of therapy is the most effective if the data shows that it depends on the therapist–patient alliance, rather than the therapy? This is a fair point. However, if it were possible to get accurate data comparing the value of different types of psychotherapy, it would be invaluable for service planning, as the cost of different therapies varies widely. The government is currently promoting the cheapest option in the IAPT – initiative (Improving Access to Psychological Therapies), but is this really the best way forward? Also, a better understanding of how and why the therapeutic bond is so important may be useful in the training of therapists of all the different modalities to further improve success rates.

**Back to basics: The evil stepmother**

We now have a reasonable understanding of how a single brain works. What is less well understood, and more difficult to research, is what happens when two brains interact, as in psychotherapy. A recent publication examining the interaction between two individuals states that “social interaction is fundamentally different when we are in interaction with others rather than merely observing them”, and refers to “social encounters” as the “dark matter”, of which very little is yet known”.

Several similarities exist between the therapist–patient and mother–infant interaction. Let us therefore first consider what is known of the communication between mother and infant brains, before turning to the neuroscience underlying the therapeutic relationship.

It is conceivable that the basis for all relationships is found in the mother’s regulation of her infant*. Babies are born in a very immature state and are absolutely dependent on their caregiver for survival. Developmental psychologists have shown in elegant experiments how the good–enough mother modulates the infant’s psychobiological state*. These experiences, which fine–tune the baby’s neurodevelopment, are embedded in the communications between the mother’s mature and baby’s immature right brain hemispheres*. Shore, in his recent book “The Science of the Art of Psychotherapy”, has convincingly shown that visual, auditory and tactile stimuli are communicated between the right brains of both mother and child*. These include non–verbal components of communication, such as tone of voice, gestures,
psychopathology. These are the people who are likely to be overwhelmed and are more susceptible to all forms of trauma in later life. Therefore, they tend to have a limited ability to regulate affect, which can lead to an intergenerational transmission of trauma. As Schore has shown, the ability to regulate affect is imbedded in the right hemispheric cortical–subcortical circuits. If individuals suffer trauma in childhood, they suffer unregulated hyperarousal of terror in abuse, or the unregulated hypoarousal of neglect. These states tend to occur for prolonged periods of time, as the caregiver who abuses or neglects, typically does not provide interactive repair. If a child has too few experiences of being regulated, and the input to their right hemisphere through the input from the left side of the visual field, the left ear, and sensory input from the left side of the body.

Mother are external regulators of their infant’s psychobiology. This occurs through various different stages, which all occur and reoccur within milliseconds. First there is attunement, i.e. the mother needs to be open to receive information from the infant. Auditory and visual information is received through her senses. This activates her mirror neurons, which internally reproduce the infant’s psychobiological state. Once she has understood that how the infant is feeling, she can modulate this by interacting with her infant. For example, if the infant cries, the good–enough mother picks up this distress, reflects back that she is concerned and is willing and able to help, and the baby is consoled. The role of the caregiver is to help down-regulate negative affect, but also to up-regulate positive affect like curiosity and play.

This process does not need to be error–free. In contrast, it is often the misattunements, which are recognized and repaired, that are most important for the internalization of self–regulating capabilities. As the baby’s brain matures, these external regulations of its affect can be internalized and the individual can progressively master the ability to self–regulate affect.

The ability to regulate one’s own internal state while tolerating and mirroring the distressed state of another is an emotionally demanding task, as parents and therapists will know. Mothers, who have suffered trauma themselves, may be overwhelmed by their infant’s distress and thus be unable to down–regulate it, which can lead to an intergenerational transmission of trauma. As Schore has shown, the ability to regulate affect is imbedded in the right hemispheric cortical–subcortical circuits. If individuals suffer trauma in childhood, they suffer unregulated hyperarousal of terror in abuse, or the unregulated hypoarousal of neglect. These states tend to occur for prolonged periods of time, as the caregiver who abuses or neglects, typically does not provide interactive repair. If a child has too few experiences of being regulated, it cannot internalize self–regulating capabilities and therefore tends to have a limited ability to regulate affect in later life. These individuals are easily overwhelmed and are more susceptible to all forms of psychopathology. These are the people who are likely to end up being referred for psychotherapy.

To summarize: in situations where the initial experience of care was mostly “good enough”, the child manages to internalize self–regulating capabilities. However, if the initial care experience fell short of the minimum requirements, often through neglect or abuse, this can be apparent in the inability to regulate affect in later life, predisposing such individuals to psychological problems and a need for psychotherapy.

Parallels in psychotherapy: the enchanted forest
Just as the mother–infant relationship is fundamentally a psychobiological dyadic system of emotional communication and affect regulation, this same system underlies subsequent relationships, including the therapeutic alliance. The aim of psychotherapy is to help an individual develop the ability to navigate their life without continued support from a therapist. It can be argued that the role of psychotherapy is similar to that of a parent, in the sense that it promotes self–regulating ability, by providing external regulation until self–regulation capabilities are sufficient. As in the mother–infant relationship, the processes of attunement, understanding and reflecting back in a more containing way forms the basis of all psychotherapy. It is conceivable that there may be an overlap between the qualities, which typify the good–enough parent, and that of the effective therapist.

The success of psychotherapy may depend on it serving as a corrective relational experience. The attachment literature has many examples of the benefits of a corrective relational experience. For example, children who have even a single good attachment relationship may be protected from long–term damage of abuse or neglect. Also, adults can become “earned secure” through a good relationship experience, whether this is through a partner, friend or therapist.

Different psychotherapy modalities rest to a large degree on verbal left–brain to left–brain communication. Between adults, this would rest on hearing and understanding language and being able to formulate and express answers. Psycho–education, cognitive therapies and interpretations are thus, at least in theory, primarily left–brain, verbal processes. However, what patients may need most is a corrective relational experience, which is provided by right–brain to right–brain non–verbal emotional communication. I propose the “common factors” among different
therapeutic modalities to be the mainstay of psychotherapy, because they rely on right−brain to right−brain communication between therapist and patient. In the delightful book “Clinical Intuition in Psychotherapy”, such processes as therapist empathy, warmth, clinical hunches, play and humor are all shown to be right−brain processes. In the therapeutic relationship between a therapist and patient, this non−verbal understanding is the key to therapy and healing.

As in mother−infant research, it seems that when we see gestures and facial expressions, or hear the pitch, rhythm and prosody of speech, we have a way of copying these in our minds. Mirror neurons fire in response to observing an action in someone else. For example, if I see someone who is standing up, gesticulating wildly, frowning and shouting, my mirror neurons replicate these actions in my brain. I then feel my heart speed increasing, my blood pressure rising and my face frowning and become aware that it is anger that I am feeling. As my limbs and face have not really moved, I get the feedback that this anger is not my own, but that of the person I have been observing. I thus understand what he feels by unconsciously replicating his actions in a select few neurons in my brain, just enough to give me a taste of what he is experiencing so that I can understand it. This process can be so powerful that people with intractable phantom pain from an amputated limb can get relief by seeing someone else’s limb being massaged.

Mirror neurons act by non−consciously mimicking facial expressions and postures of others, letting us feel what others are experiencing. The neurobiology of empathy thus relies on mirror neurons. Even though the research on mirror neurons is relatively new, the process of internally experiencing what other are feeling was described by Freud more than a century ago. Freud coined the term countertransference to describe the feelings, which the patient elicited. Personal therapy has been considered an important part of a psychoanalyst’s training in order to become aware of their own issues, so that they may become more accurate in their use of countertransference to understand what the patient was feeling. In other words, if it is your job to accurately perceive what another is feeling, it is essential to polish your metaphorical mirror first. A central tenet in psychodynamic psychotherapy is to reflect one’s own feelings with curiosity, to wonder if they could be a reflection of what the patient is feeling, and to not automatically react to them. This creates a space for new possibilities, in which the therapist may respond in a way that would be helpful, rather than a knee−jerk reaction to what is projected on them by the patient.

In other words, accurately perceiving what another is feeling is just the first step. If one just reflected it back unchanged, that would be mocking and probably increase the other person’s distress. In order to be a helpful therapist, one needs to rework this communication and reflect it back in a more contained manner. In mother−infant research it has been shown that the good−enough mother attends to her infant’s distress, but then modulates it back in a less threatening way, so that the infant feels understood and contained. A mother may for example pick up an angrily crying baby, while frowning and smiling simultaneously and speaking with exaggerated prosody. This lets the infant feel that the mother “got it”, but is not overwhelmed and can help. In the therapeutic relationship, clinicians similarly need to let the patients know that they understand their distress, but are not (as) upset themselves and are still in a position to think clearly and to be able to help.

But how does this process get communicated back to the patient? It works the same way. Patients have mirror neurons too. A patient looks at the therapist and listens to their tone of voice, and hopefully if they are not too distressed they will be able to listen to what is communicated verbally as well. If the process runs smoothly, the patient will realize that the therapist has understood them, but is not overwhelmed. This realization may have a calming influence.

Also, the process of putting feelings into words enables the left and right hemispheres to become integrated. This enables people to create coherent life narratives, which are associated with a secure attachment and ability to self−regulate affect. Likewise an effective therapist is well−grounded in theory and technique (left−hemisphere processes), but also able to sense, express and regulate both the patient’s and their own affective states, which are right−hemispheric processes.

Although the process of therapist empathy is now better understood, there is still no way to objectively measure therapist skill at sensing the patient’s non−verbal communications.
The role for Neuroscience: the prince on the white horse

In order to be able to do comparative studies between different types of psychological therapies, one would need to control for the quality of the therapeutic bond, which is determined mainly by therapist empathy and right–brain to right–brain non-verbal communication. Thus, in order to develop a way of controlling for right–brain communications, so that left–brain techniques can be compared, a biological measure would be helpful. Also, if a reliable biomarker could be found, it could potentially guide a course of treatment and predict treatment outcome, instead of having to rely on costly trial–and–error approaches. Psychologists are unlikely to have the necessary expertise and this is where neuroscientists can potentially come to the rescue. However, unfortunately many neuroscientists are not interested in psychotherapy. Of course it may all be part of the greater mind–body divide in which neuroscience and psychology are not happily integrated. But if one could bridge the gap, there are many potential avenues that could be explored.

In the intersubjective space between two individuals, who interact with each other, it is important to consider all aspects of their communication. Ideally one would like to measure as many parameters as possible in these interactions, to find out what gives the greatest reliability. Ian McGilchrist has written a remarkable book, called “The Master and his Emissary”, in which he convincingly argues that the right hemisphere is the mastermind, controlling affect, the autonomic nervous system and the hypothalmo–pituitary adrenal axis. The left hemisphere, with its powers of language and logical thought, may be overvalued in Western Societies, to the detriment of the right hemisphere, which is able to grasp the whole, regulate affect and see the bigger picture.

The right hemisphere controls both the sympathetic and parasympathetic parts of the nervous system. As it is not possible yet to directly measure unconscious central nervous system activity in real–time during psychotherapy, mapping the peripheral physiological response may be sufficient to deduce these. Adler says: “To the extent that we are emotionally responsive to someone, we are physiologically responsive to them.” Several studies have shown physiological changes in patients during psychotherapy, including changes in muscle tension, respiration rate, finger temperature and skin conductance (reviewed in).

Let us first consider the sympathetic nervous system. One of the central neuroanatomical structures identified in neuroimaging structures of empathy is the anterior cingulate cortex, which overlaps significantly with the brain structures that control fluctuations in skin conductance. It may thus be possible to measure skin conductance, which is a result of sympathetic nervous system activation, to track changes in the anterior cingulate cortex and thus empathy. Measuring skin conductance as a measure of sympathetic nervous system activation in both therapist and patient has been shown to be helpful therapeutically in a few studies (reviewed in), and has recently been done with good results in a case study, leading to increased understanding by the patient and deepened empathy by the therapist.

On the other hand, changes in heart rate variability between therapist and patient may accurately reflect parasympathetic nervous system activation. The right hemisphere is in parasympathetic control of the heart via its connections with the right vagal nerve in adults. It is thus conceivable that heart rate variability, which gives a good measure of parasympathetic control of the heart, may also serve as an indirect measure of right hemisphere activity. Heart rate variability analysis provides a non–invasive way to monitor and record not only baseline sympathetic/parasympathetic balance, but also the magnitude and direction of instantaneous shifts in the autonomic balance in response to cognitive and emotional processes. An increase in heart rate variability is thought to accompany an improvement in physical and/or psychological state and may thus also serve as a measure of therapeutic success after a course of therapy.

There are two kinds of relationships between the measures of therapist and patient which may be of interest: a concordant relationship occurs when the variables move in the same direction, whereas a discordant one occurs if they move in opposite directions. Both may be necessary for therapy to be successful, as therapists sometimes need to challenge their patients by seeking clarification, offering interpretations or confronting beliefs. This is similar to the mother–infant literature, in which misattunements and rupture–repair sequences are essential for the development of self–regulating capabilities. If we now consider the endocrinological system, it is known that the circulating levels of the majority of hormones are directly or indirectly under neurological
control. Although instantaneous changes, such as emotional shifts during therapy cannot be assessed through changes in hormone levels, it may be possible to evaluate the effect of a course of psychotherapy. Oxytocin is an obvious choice. Also termed the “hormone of empathy”, it is known to be high in women after delivery and while breastfeeding, facilitating mother–infant bonding. Vasopressin possibly fulfills a similar role in men. There is some evidence that administering oxytocin as a nasal spray may improve scores in empathy tests for individuals on the Autism Disorder Spectrum. The hypothalamus, which produces oxytocin, is controlled by the right hemisphere. It would be interesting to know whether therapist oxytocin levels correlate with therapeutic success rates. Other potential biochemical markers would be: endogenous opioids for placebo–mediated analgesia and central cholecystokinin, which is involved in the nocebo response. The Hypothalamo–Pituitary–Adrenal axis is affected in depression and can be modified by psychotherapy, thus cortisol may be modified as well. The possibility of investigating cortisol and oxytocin in saliva may make this a more acceptable option to patients and therapists alike.

The immune system is increasingly recognized to act both as a regulatory and sensory system. Immune processes are known to affect emotions and behaviour, e.g. when ill with flu, we feel miserable and curtail our actions. Pro-inflammatory cytokines such as Interleukin–1, Interleukin–2, Interleukin–6 and Tumour necrosis factor–alpha have repeatedly been shown to alter the functioning of a variety of neurotransmitters. On the other hand, thoughts and emotions can also influence immune processes, e.g. depressive rumination is associated with an increase in pro-inflammatory cytokines, which can adversely affect health. It is known that proinflammatory cytokines are under tonic inhibitory control via the vagus nerve, with important implications for inflammatory diseases, including depression. Psychological intervention in cancer patients has reduced both the levels of inflammatory markers and of depression scores. It would be interesting to measure immune parameters before and after a course of psychotherapy, to see if therapeutic success could be linked to immune changes as well.

However, a proper understanding of physiologic responses to social interactions cannot be achieved by examining only one member of the sociophysiologic feedback loop and thus the biological responses of both patient and therapist may need to be measured. There may be a resistance on the part of therapists to be monitored. Perhaps some therapists themselves are unaware that they are not really “neutral” and as such form an integral part of the relationship through which the patient changes.

It is possible that the mere act of measurement can change the therapeutic interaction. However, new totally non-invasive recording equipment and measures in saliva are available that all but eliminate this effect.

**Conclusion: the happy ending**

My hope is that this paper will stimulate a fruitful cooperation between Neuroscience and Psychotherapy. A marriage between these two disciplines will enable greater integration, to the benefit of both. Neuroscientists may learn more about the interaction between two brains in real time. Psychotherapists may learn how to measure and possibly improve the quality of their mirror neuron activity and right-brain processes. If a reliable biomarker were found, the strength of the therapeutic relationship could be controlled for in comparative psychotherapy research. This may provide the answer to the age–old question: Mirror, mirror on the wall, who is the fairest psychotherapy princess of them all?

**References**


This year’s British Neuropsychiatry Association (BNPA) Annual General Meeting was held on the 7th and 8th of February at the Institute of Child Health in Guilford Street, London, a strategic location which has become the traditional venue for this important event. The BNPA meeting has now turned the quarter of a century and reflects the health status of an expanding association, which recruits from both psychiatry and neurology specialties, as well as from a number of allied disciplines. The list of delegates included 190 members from all over UK, thus confirming the continuing popularity of clinical neuropsychiatry.

The meeting opened on the Tuesday morning with a session chaired by Eileen Joyce on “Stress and the brain”. The invited speakers were Sandi Carmen, who talked about the impact of stress on the social brain, with focus on the psychopathological implications and neurobiological mechanisms, and Guillén Fernández, who showed combined neuroimaging and neuropharmacological findings about the neural underpinnings of acute threat response in an inspiring lecture titled “Equipped to survive: comprehensive response to threat enables optimal behaviour”. The following three lectures revealed the multifaceted impact of stressful internal and external environments on the brain, often resulting in challenging neuropsychiatric presentations. Chris Brewin talked about the brain mechanisms underpinning post-traumatic stress disorder (PTSD), Neil Harrison focused on the psychiatric components of inflammation in conditions as widespread as the common cold, and Jeremy Hall illustrated the far-reaching consequences of childhood stress on mental health.

This year’s Journal of Neurology, Neurosurgery and Psychiatry (JNNP)–sponsored keynote lecture was chaired by Alan Carson, associate editor of the JNNP, who introduced Neil Greenberg’s talk on “Stress and war: the limits of neuropsychiatry”. Neil Greenberg is an inspiring expert on this topic, having served in the armed forces for more than 20 years: his lecture was a real eye-opener about the impact of being in the military on mental health, which extends far beyond PTSD.
This year's choice was consciousness, a timely topic as over the last decade neuroscience research has been able to reveal important new insights into the neural correlates of altered conscious states.

The afternoon session continued with three selected members' platform presentations, which exemplify the broad range of research topics undertaken by BNPA members: these included the role of the subgenual prefrontal cortex in temporal lobe epilepsy and affective disorders, the effects of early childhood posterior fossa tumours in IQ, and the neural correlates of Freudian "repression" in conversion disorder. The first day closed with the BNPA neuropsychiatry research update session, which covered two rapidly expanding areas of clinical research such as deep brain stimulation for neuropsychiatric disorders (Eileen Joyce) and neuropsychiatric presentations of autoimmune disorders, with focus on non-paraneoplastic limbic encephalitis (Tim Nicholson).

The morning session of the second day, chaired by Markus Reuber, was entirely devoted to epilepsy. Recent advances in the pathophysiology of epilepsy were explained from the point of view of both cellular mechanisms (John Jefferys) and brain networks (Mark Richardson). These excellent talks paved the way to the clinical aspects. Christoph Helmstaedter's talk focused on the association between epilepsy and cognitive impairment, including the effects that antiepileptic drugs can have on cognition, whilst Andres Kanner took us through a fascinating 360 degrees tour of affective and anxiety disorders, which are the most common psychiatric co-morbidities in patients with epilepsy.

The meeting closed, as usual, with a session on the borderlands of neuropsychiatry, exemplifying the contribution of neuropsychiatry to what has recently been defined as "neuroculture", i.e. the widespread impact of neuroscientific knowledge to aspects of life which extend beyond pathology and influence both culture and society.

Peter Halligan chaired this final session, which featured Geraint Rees' fascinating talk on "Decoding consciousness" (the state of the art of the rapidly expanding consciousness science). This engaging and flamboyant speaker was followed by Robin Carhart-Harris', who explained his intriguing hypothesis on the shared neurobiology of psychosis, psychedelic states and spontaneous spiritual experiences. With sessions like this final one, the BNPA meeting continues to provide inspiration to neuropsychiatry trainees, who are offered a chance to appreciate the ramifications of a genuinely proteiform discipline, literally stretching "from the molecules to the soul!"
DNA Polymorphism in Wernicke–Korsakoff Syndrome

Your chance to contribute to an exciting study.

Professor Hugh Gurling and his research team in the Molecular Psychiatry Laboratory at University College London are carrying out a study on Genetics of Alcoholism and Wernicke–Korsakoff Syndrome (WKS).

The UCL research group found that four single nucleotide polymorphism genetic markers in the high affinity thiamine transporter (SLC19A3) were associated with WKS in a sample of 120 cases compared to controls. The team is seeking a second sample of 120 cases to attempt a replication. They believe that a genetic vulnerability, possibility through a high dietary requirement for thiamine my cause susceptibility to cognitive deficit and brain damage in alcoholics. After the replication study of the SLC19A3 gene the plan is to carry out a genome wide association and exome sequencing study of the whole WKS sample to identify other gene loci associated with susceptibility to WKS.

Wernicke–Korsakoff Syndrome is a serious medical emergency and can be fatal. Korsakoff Psychosis with chronic loss of short term memory (KP) can result if WKS is not treated with either IV or IM thiamine in the acute WKS phase. Many sufferers require long-term or life-long care. Although effective treatment exists if diagnosed early, the classic triad of signs and symptoms used to diagnose WE are only evident in 16% of patients who suffer from it. By the time the signs of KP are established, the neurological lesions can become irreversible. One contributory cause of WKS is an inadequate dietary supply of thiamine and it is also known that alcoholism impairs gut absorption of thiamine which is why oral thiamine treatment is ineffective. Transport into the brain may also be impaired for genetic reasons. A high requirement of thiamine in genetically susceptible individuals becomes critical when dietary thiamine intake is too low and when thiamine stores are depleted. There is no simple laboratory test to diagnose this condition. A genetic test to identify abnormalities in the genes encoding thiamine dependent enzymes and other thiamine related proteins could help develop new treatment and preventative strategies.

You are very welcome to join us in the quest for a better understanding of the genetics behind this serious disorder. You could play a crucial role in this exciting project by identifying suitable patients with alcoholism and WKS who have English Irish Welsh or Scottish ancestry to recruit into the study. This study has current ethical approval in about 20 English foundation trusts and is an NIHR Mental Health Research Network portfolio project. Your Trust can benefit too because it can be paid for each patient collected.

The Team is keen to recruit patients who present acutely with WE but are equally interested in patients who have Korsakoff Syndrome and are either being followed in your clinic, being cared for at home or are in long-term care. Recruiting is simple and involves the patient signing a consent form and you completing a simple checklist and an MMSE. Finally a blood sample must be collected and sent by Royal Mail to the Laboratory at UCL. More details on this and all the materials for the recruitment would be provided by the research Team.

Apart from knowing that you have helped with the research, significant participation in the study can be acknowledged by the UCL research team and if you get quite a few samples you can be included as a co-author. The research team lead by Prof Gurling has a strong track record in seeing psychiatric genetics research projects through to successful publication. If you are interested in taking part, please get in touch with: Dr Raquin Cherian (rcherian@nhs.net) or Professor Hugh Gurling (h.gurling@ucl.ac.uk).
Neuropsychiatry of Movement Disorders Group

This is the newest working group in the Section of Neuropsychiatry of the Royal College of Psychiatrists. Over the last couple of months, the group has already had two successful meetings organised by consultant neuropsychiatrist Dr Elvina Chu, where members expressed an encouraging level of interest. At the last meeting on the 7th February 2013, the group agreed to a number of objectives. Members were particularly keen on enhancing training opportunities for core psychiatric trainees as well as higher trainees who have special interest in this area.

By way of achieving this, colleagues have highlighted the need for a web page that would flag up the group’s activities and in particular would inform trainees of available training opportunities. Those could range from spending specified periods within identified services for training purposes (e.g. special interest sessions) or developing education materials including possible training videos.

The group has also looked into the need to organise educational events for trainees that would particularly look at the neuropsychiatric aspects of movement disorders. Similarly, the group wants to point trainees to other already existing resources and events from relevant organisations.

In addition to its training perspective, the group intends to discuss clinical cases to ensure that our practice continues to be evidence based; utilising standardised assessments and management strategies.

If you are interested in joining this group please get in touch with Kitti Kottasz at the Royal College of Psychiatrists to add your name and contact details to the list: kkottasz@rcpsych.ac.uk

Dr George El-Nimr
Consultant Neuropsychiatrist/Clinical Tutor
Clinical Lead for Neuropsychiatry and Older Adult Psychiatry Services in North Staffordshire
Executive Committee Member of the Section of Neuropsychiatry at the Royal College of Psychiatrists
It is with considerable pleasure that we would like to invite you to attend a **Masterclass in Learning Disability**, taking place at Chancellors, University of Manchester on 18th June 2013.

Bespoke Professional Excellence (BPE) is a healthcare education company for non–medical and medical staff which has at its core a vision of **Creating Educational Excellence for Excellent Healthcare Professionals.**

Although you may be unfamiliar with BPE, the personnel involved have a reputation for delivering extremely successful pharmaceutically sponsored meetings as STAC Consultancy, including Masterclasses, and it is possible that you may have attended one of these in the past.

There are however certain therapy areas and topics that are not able to easily attract such sponsorship and therefore BPE has been created to provide a solution in these areas of educational need. There are two guiding protocols that BPE will abide by:–

- **a** The views and needs of the customer are the most important criteria governing the agendas delivered.
- **b** All educational events will be totally independent of any third party sponsorship being funded by registration fees only.

This Masterclass in Learning Disability is designed to provide consultants, specialist registrars and specialist nurses with specific information related to the medical management and service provision for patients with learning disability. During the programme there will be an overview lecture led by the faculty chairman, and four interactive tutorials on different subjects, each led by a member of the faculty. All attendees will be able to attend all subjects during the course. The number of attendees is limited to optimise the educational experience.

The overall objective is to ensure delegates gain an improved clear understanding of the areas covered within the Masterclass. The faculty chairman Professor Mike Kerr has been integral to the design and selection of the elements of the programme and each faculty member has provided competency based learning objectives for each subject. **This meeting is suitable for your CPD programme and would qualify for 5 points.**

The Masterclass will commence with registration at 09.30 and close at 17.00. Details of the programme and learning objectives are attached. Confirmation of places will be sent upon receipt of the attached registration form and payment.

We hope that you find this educational initiative to be of interest and look forward to welcoming you to the Learning Disability Masterclass in February.

Kind regards,

**Patrick Stokes**  
Managing Director  
Bespoke Professional Excellence

**Professor Mike Kerr**  
Welsh Centre for Learning Disabilities Cardiff
Keynote Address – Healthcare for People with a Learning Disability. Professor Mike Kerr – Welsh Centre for Learning Disabilities, Cardiff

Learning Objectives
1. To understand the epidemiology of health need in PWLD.
2. To recognize the value of health indicators in people with a learning Disability.
3. To understand the impact and implementation of health checks.
4. To recognize the views of PWLD and carers relating to health care.

Tutorial – Consent, Capacity and Best Interest in Clinical Decisions. Dr Glyn Jones – Abertawe Bro Morgannwg University Health Board, Cardiff

Learning Objectives
1. To understand the frequent and complex issues surrounding the assessment of the capacity to consent of PWLD.
2. To recognise and assess appropriately the detrimental effects of intellectual impairments, communication difficulties and the potential for acquiescence on the capacity to consent.
3. To understand the principles and practice of the Mental Capacity Act 2005 through the use of clinical scenarios.
4. To understand how the Mental Capacity Act may interface with other current relevant legislation.

Tutorial – Learning Disability and Dementia. Dr Rohit Shankar – Consultant Neuropsychiatrist & Hon. Associate Professor, Peninsula Medical and Dental School, Exeter

Learning Objectives
1. To understand the differences in diagnosing, investigating and treating dementia in PWLD as opposed to people in the general population.
2. To understand issues relating to access to mainstream services and the potential use of care pathways.
3. To understand and recognise the expected outcomes for PWLD and dementia.
4. To understand and recognise good practice and be able to suggest practical solutions.

Tutorial – Autism. Dr Howard Ring – University of Cambridge, Cambridge

Learning Objectives
1. To be aware of current conceptions and controversies within the definition of autism spectrum conditions.
2. To understand the strengths, weaknesses and utility of models of autism.
3. To be aware of current and currently researched management approaches – and their limits.

Tutorial – Treatment of Mental Illness. Dr Angela Hassiotis – University College London, London

Learning Objectives
1. To understand the range of treatments for mental disorders and comorbid conditions in PWLD.
2. To understand existing and new evidence on a range of treatments for mental disorders and comorbid conditions in PWLD.
3. To understand specific practice issues relating to the treatment of mental illness in adults with learning disabilities with reference to NICE guidelines and other sources of good practice.
4. To recognise good practice across a range of complex cases.
Please use Block Capitals

Please indicate... Male Female

Full Name Mr / Ms / Miss / Mrs /Dr / Prof

Job Title

Full Hospital Name & Address

Postcode

Work phone Home phone

Fax Mobile

e-mail

Preferred method of contact (email/fax/etc)

Special dietary requirements...

Masterclass Registration Fee £350 + VAT = £420
Early Bird Masterclass Registration Fee – if payment received by 28th March 2013 £300 + VAT = £360

Payment may be made in one of the following ways:

a By returning this form to the address at the top of the page with a cheque payable to Bespoke Professional Excellence
b By faxing the form with details of where to invoice with an appropriate Purchase Order number if required by your trust
c By BACS – Account Details: Sort Code: 30–98–73 Account No. 31227060

Please fax your registration and BACS remittance as proof of payment and advise us of your BACS reference:

Places are limited and will be allocated in the order that registration forms/payments are received.
E-mail confirmations will be sent in response to payments received. Please contact us if you do not receive confirmation within 7 days of payment being sent.
Cancellations may be made in writing up to four weeks before the event subject to an administration fee of 10%. We regret that after this deadline no refunds will be made but substitute delegates will be accepted at any time.
BPE will process your personal data for the purposes of this meeting and to allow invitation to similar meetings. Please tick the box if you Do Not wish to receive this information. In extreme circumstances we reserve the right to change speakers/subjects without prior notice.
National Confidential Inquiry into Suicide and Homicide by People with Mental Illness
## Safer mental health services: a toolkit

Suicide and homicide by mentally ill people are major concerns for mental health care providers. The National Confidential Inquiry has made recommendations for clinical services over a number of years. In this toolkit these recommendations have been formulated into quality and safety statements regarding clinical, organisational and training aspects of care. This toolkit is intended to be used as a basis for self-assessment by mental health care providers and responses should ideally be based on recent local audit data or equivalent evidence.

We would welcome your feedback on this toolkit

**email**: nci@manchester.ac.uk

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**Clinical Care**

| There is a mechanism to ensure that formal care planning\(^1\) is consistently used for high-risk groups, such as those with severe mental illness, severe personality disorder and substance | Out of a total 6,367 cases, 436 patients who died by suicide were not subject to enhanced CPA despite a combination of severe mental illness and previous self-harm or previous admission under the Mental Health Act. Similarly, 18 patients who were convicted of homicide were not subject to enhanced CPA despite a combination of severe mental illness and previous violence or previous admission under the Mental Health Act | Avoidable Deaths (2006) |


\(^1\) Formal care planning refers to: CPA in England, Care and Treatment Planning as stipulated in Mental Health Measure 2010 in Wales, formal care planning as stipulated in Promoting Quality Care in Northern Ireland, and care programme approach in Scotland (including CPA and enhanced CPA for patients with complex needs with multi-agency input).
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**Clinical Care**

- There is a standard response/protocol for in-patients who abscond or escape.
- There are measures in place to prevent absconding/escaping through better monitoring of acute in-patient ward entry and exit points, specifically:
  1. technology to improve monitoring of exit/entry points (including CCTV, swipe card access)
  2. staffing, observation protocols (or similar non-technological measures)

- Multi-disciplinary care planning meetings involving community staff occur in the majority of discharges.
- Follow-up of patients discharged from psychiatric in-patient care occurs within 7 days in all cases.

In England, there were 375 in-patients who had absconded from the ward over a 10 year period, 24% of all inpatient suicides, an average of 34 deaths per year ([Annual Report, 2012](#)).

1,563 deaths by suicide occurred during the transition from ward to community, making this the period of maximum suicide risk. 484 patient deaths occurred just before or just after discharge. ([Avoidable Deaths, 2006](#)).

### Note

2 Care planning meetings refer to: Care and Treatment Planning as stipulated in Mental Health Measure 2010 in Wales, Promoting Quality Care in Northern Ireland.
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<td>Alcohol dependence</td>
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<td>training)</td>
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<td>procedure or protocol for</td>
<td>for prescribing Tricyclic Antidepressants (TCAs)</td>
<td>The most common substances used in deaths by self-poisoning in England and Wales were opiates, tricyclic antidepressants and paracetamol/opiate compounds Annual report (2012)</td>
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<td>written policy on</td>
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<td>patients who are not</td>
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<td>an average of 158 deaths per year (Annual Report, 2012)</td>
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- There has been a redesign/removal on acute in-patient wards (including PICU, forensic units) of:
  i. non-collapsible curtain rails
  ii. low lying ligature points (e.g. door handles)

- Community mental health services include a crisis resolution team offering home treatment

- Community mental health services (include assertive outreach which works with adults with severe mental illness or personality disorder, who have difficulty engaging in services, and have complex needs)

- There is a specific written policy on information-sharing with criminal justice agencies
### Organisational safety

- Following a suicide death, a multidisciplinary review occurs routinely
- Post discharge multidisciplinary reviews and learning were significantly associated with a fall in the suicide rate in implementing Trusts

- Following a suicide death, sharing of information with families occurs routinely

- Front-line clinical staff receive training in:
  - i. management of *suicide risk* at least every 3 years
  - ii. management of *violence risk* at least every 3 years
  - iii. management of *substance misuse*

### Quality / Safety Standard

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