Medical Services

SUBSTANCE USE DISORDERS

1. Introduction

Misuse of drugs and chemicals has been the scourge of mankind for centuries and a plethora of terms have been used to describe the affliction caused by such misuse. Many of these terms are not appropriate for use in the setting of disability assessment. Fairly specific terms have been defined for use in the clinical context and health care professionals should, ideally, abide by these defined terms.

Two main classification systems exist: DSM–IV[1] groups them under the heading of *substance use disorder* whereas the phrase *disorders due to psychoactive drug use* finds favour in ICD–10[2].

The first step in both systems is to identify the substance or the class of the substance being used. Many drug users misuse more than one drug. The classes of substances misused are tabulated in **Appendix A**.

The next step is to identify the associated disorder. These are well-defined terms and the criteria outlined for their definition have to be met before these terms are used. The disorders are tabulated in **Appendix B**.

In both systems, *intoxication* is defined as a *transient* syndrome due to recent substance ingestion that produces clinically significant psychological and physical impairment.

The terms *abuse* (DSM–IV) and *harmful use* (ICD–10) are used to define maladaptive patterns of substance use that impair health.

Dependence is diagnosed in the presence of well-defined criteria, which are similar in both the classification systems. These criteria are tabulated in **Appendix C**.

Tolerance develops after repeated misuse of a drug, wherein a drug produces a decreased effect and increasing doses need to be administered to produce the same effect.

Withdrawal State is drug-specific and is a group of signs and symptoms occurring when the amount of drug is reduced or the drug completely withdrawn.

As alcohol misuse is described in a separate protocol, this protocol deals only with substances other than alcohol.

2. Description

2.1 Aetiology

Many factors have been implicated in the initiation of drug abuse but the most important factors seem to be the widespread and easy availability of drugs, vulnerable personality and adverse social and environmental factors.

Many people no longer regard occasional experimentation with drugs as abnormal, and illicit drugs are available very widely. Approximately 10% of people who experiment with drugs will develop problems with them in the long run[3].

It is surprising that many people who occasionally experiment with drugs do not develop any significant problems or dependence. There appears to be a correlation between vulnerable personality and developing dependence-related disorders. Poor school record, truancy, delinquency, sensation seeking and impulsivity are traits commonly associated with drug taking behaviour.

Disrupted families, divorce, psychiatric disturbances in families, social deprivation, unemployment, homelessness and peer pressure within groups are all social influences that are linked to an increased tendency to drug use. Rates of dependence are high in inner city areas.

2.2 Prevalence

Drug misuse often goes undetected and many of the quoted figures may be just the proverbial tip of the iceberg. The national register of persons (UK Home Office) notified as dependent on drugs was discontinued in 1997[3]. Other sources of information include criminal statistics, special surveys and hospital admissions.

One UK survey, published in 1996, found that 42% of 7722 school students aged 15 and 16 had tried illicit drugs at some time[3]. This cross-sectional study focused entirely on experimentation with drugs at some time and did not report on regular use. However this study reported a strong association between cigarette smoking and cannabis use. In the UK, poly-drug use is quite common in young people who are a part of the 'club scene'. It has been reported that 25% of 18-year-olds have used two or more illicit drugs[3].

In the UK Psychiatric Morbidity Survey, 2.2% of adults living in private households satisfied criteria for drug dependence, whereas the figure was 24% in homeless individuals. Men are twice as likely to be dependent on drugs as women and the commonest group afflicted is men aged 16-24. Prisoners tend to show the highest rate of drug use, with over half the surveyed sample reporting drug dependence and a large majority reporting illicit drug use[3,4].

2.3 Neurobiology of misuse

Experimentation and occasional use of drugs for recreational purposes is widespread and in most cases does not lead to misuse or dependence. Studies show that psychoactive drugs act on receptors in the brain to cause their clinical effects. The clinical effects then act as positive reinforcers for repeated drug use in some people. Long term use of drugs leads to adaptive changes in the receptors and in nerve terminals leading to unpleasant symptoms on withdrawal of the drug. These unpleasant effects then act as a negative reinforcement and thereby perpetuate continued use of the drugs. For a detailed description of the action of drugs at the receptor level, see **Appendix D**.

3. Diagnosis

3.1 Symptoms and signs

Misuse of drugs and dependence leads to self-neglect which is evident on observation. Unkempt and dishevelled appearance, injection scars and wearing long sleeves in summer are some informal observations of significance. A disorientated person with a glazed look or an extremely drowsy individual is likely to be under the influence of drugs.

The individual is likely to understate or overstate their drug use for secondary gain. History is often unreliable and detailed questions have to be asked to establish the pattern of drug use. History of typical drug use during the day, or alternatively during a week should be sought. A careful account of the number of substances abused, route of ingestion, dangerous practices like injecting in the groin and sharing needles, craving, withdrawal symptoms, attempts at detoxification and rehabilitation, history of hospital admissions, hepatitis and other complications should be recorded.

Physical signs include needle tracks, thrombosis of veins and subcutaneous abscesses.

3.2 The Mental State Examination

Appearance and Behaviour

Drug dependence may lead to varying degrees of self-neglect, which may be evident on observation of appearance and behaviour.

Cognitive Function

Cognitive function relates to concentration and memory. Drug dependence may lead to varying degrees of cognitive impairment.

Mood

Anxiety and depression often coexist with drug misuse. Eye contact and verbal interaction is poor in the depressed individual. They may be tearful and appear low in mood. An anxious individual is likely to be edgy, irritable and worried about minor things. It may be difficult putting an anxious person at ease.

Thoughts and Perceptions

Some drugs are associated with psychotic mental illness. This may be either *residual* or *late onset psychotic disorder* as described in ICD - 10^2. In this disorder the psychotic symptoms occur as a result of drug intake, but persist beyond the period during which a direct effect of the substance would be expected. Signs such as suspiciousness, pressure of speech, thought blocking, distractibility, or the experience of hallucinations would suggest psychosis.

Insight and Motivation

Motivation to stop drugs and *insight* into the drug problem and its far-reaching effects are good prognostic factors. Conversely, poor insight and motivation are poor prognostic features.

3.3 Laboratory investigations

- Urine testing is less invasive than blood tests.
- Rarely blood and hair analysis may be used.

3.4 Differential diagnosis

Neuroadaptive changes in brain function and changes in synaptic transmission and receptor sensitivity may lead to permanent mental disorders (e.g. residual or late-onset psychotic disorder).

There might be other mental disorders in addition to substance abuse or dependence. Dual diagnosis (i.e. mental disorders like schizophrenia, PTSD, depression etc. and substance abuse) may present diagnostic difficulties. The presence of pre-existing mental problems pre-dating drug use may need to be differentiated from the mental effects of psychoactive drug abuse.

Cognitive impairment and behavioural disorders after head injury might present with features similar to intoxication and drug abuse.

4. Treatment

Prevention should be the cornerstone of all efforts to reduce the social burden of drug misuse. Steps to lessen social deprivation, education programmes and enforcement of law and order are some examples of preventive measures.

Specialist inpatient and outpatient units with psychiatric facilities deal with the treatment of drug misuse and dependence. General practitioners also manage the day-to-day care of individuals with drug problems. Counselling, group therapy, therapeutic communities and other such support facilities provide the much-needed rehabilitation during and after withdrawal from drugs.

Withdrawal

This process is called detoxification. Detoxification for most drugs including opioids can be accomplished on an outpatient basis. For individuals with a history of prolonged use of very high doses of hard drugs like opioids, this is best done in a hospital setting.

Maintenance

When withdrawal is not possible due to non-compliance, it may be prudent to prescribe an alternative drug which is relatively safer, while efforts are made to convince the person to accept withdrawal. Drugs with slower action are prescribed and therefore are less addictive; e.g. methadone is prescribed as a replacement for opioid dependence. The rationale behind the replacement approach is as below:

- It removes the need to obtain "street drugs".
- It is easier to retain individuals in the programme when they are on replacement than those in drug-free programmes. Long-term retention is associated with better long-term results.
- Harmful practices (like sharing injection needles) are controlled or eliminated.

Psychological treatment

Individual counselling is offered in most cases. Group psychotherapy helps develop insight into personal and inter-personal problems. Counselling is reported to be very effective in cocaine misuse[5]. Therapeutic communities conduct open discussions on the detrimental effects of drug misuse.

Cognitive-behavioural therapy focuses on increasing alternate recreational and personal skills and making the individual less reliant on drugs as a source of pleasure and satisfaction.

Stressful situations act as triggers for relapses. Gradual repeated exposure to such stressful stimuli is carried out with the aim of desensitising the individual and reducing chances of relapse.

Rehabilitation

The abstinent individual needs to be integrated back into normal society. Work and social contact in sheltered surroundings should be attempted first. Gradual introduction into society is then attempted. Unless this can happen, the treatment will fail. Rehabilitation is a team effort and involves occupational therapists and social workers in addition to the psychiatric team. Social support is indispensable during this transition period, and for some time after.

5. Prognosis

In heroin dependent individuals there is a 10-15% mortality at 10 years. The overall abstinence in the same group is 50% at 10 years, suggesting a tendency towards natural remission in the survivors.

Drug dependence cannot be cured completely; it can only be effectively controlled. Relapse is the greatest challenge, and reversion to full-blown dependence is all too common.

The abstinent individual experiences intense craving for the drug, and there is a tendency to initiate self-administration. This situation usually arises after administration of a very small dose of the drug even years after the last drug dose. This has been attributed to the "priming effect" of the drug on which the individual was dependent[6].

Craving and relapses are not the exception, but the rule. Successful treatment depends on management of cravings and relapses.

Contrary to popular belief, craving in *abstinent* individuals is not produced by the absence of the drug, but by its presence. Hence avoidance of exposure to a drug-related environment may be an important aspect in improving the prognosis[6].

The morbidity of drug misuse is very high. Self-neglect, venous thrombosis, abscesses, endocarditis, pneumonia and other infections, HIV, hepatitis, accidental overdoses and associated psychiatric morbidity are some of the detrimental consequences of drug misuse.

In addition, there is a high tendency on the part of drug dependent individuals to resort to crime to fund their drug habit.

6. Opioids

- The group includes morphine, heroin, codeine, pethidine, methadone and dipipanone.
- They exhibit strong analgesic, euphoriant and anxiolytic effects. Other effects include respiratory depression, constipation, reduced appetite and decreased libido.
- Routes of administration include intravenous injection, subcutaneous injection (*skin-popping)*, snorting (*sniffing*) and inhalation (*chasing)*.
- Withdrawal syndrome includes intense craving for the drug, restlessness, insomnia, muscular pains, runny nose and eyes, sweating, abdominal cramps, diarrhoea, vomiting, pilo-erection, dilated pupils, tachycardia and disturbance of temperature control.
- There is a significant mortality (10-15%) over 10 years in opioid abusers, but 50% abstinence has been reported at 10 year follow-up.
- Methadone is as potent as morphine but has a longer half-life and hence is used in replacement therapy. It is then gradually reduced over time. Other drugs used in treatment include metoclopramide or loperamide for gastrointestinal symptoms, anti-inflammatory tablets for aches and pains, and lofexidine for its α_2-antagonist action.
- It may be difficult to achieve abstinence, and in these cases, long-term methadone maintenance with the aim of reducing harmful practices (like sharing injections) should be the goal. There are programmes in place, which supply fresh injection needles (Needle Exchange), with a view to reducing the risk of hepatitis and HIV.
- Individuals who successfully terminate methadone replacement therapy have a more stable and a better quality of life compared with those who continue long-term methadone replacement[7].
- Naltrexone, a long-acting opioid antagonist, is used to prevent relapses in abstinent individuals.

7. Cannabis

- It is derived from the plant Cannabis sativa. It contains many psychoactive substances, the most powerful being *δ-9-tetrahydrocannabinol*.
- It is used either as the dried vegetative parts in the form of marijuana or grass, or as the resin secreted by flowering tops of the female plant. Cannabis is commonly smoked with tobacco, but can also be ingested in food products.
- Cannabis acts via specific cannabinoid receptors. The endogenous ligand for these receptors is anadamide.
- A third of the population of USA have used cannabis at least once in their life, and 13% are current users.
- Cannabis exaggerates the pre-existing mood. It causes distortion of perception of time and space, reddening of eyes, dry mouth, tachycardia, irritation of respiratory tract and coughing.
- It also causes anxiety, mild paranoid ideation, and at higher doses, can cause toxic confusional states and psychosis in clear consciousness.
- Inhaled cannabis irritates the respiratory tract and is potentially carcinogenic.
- Tolerance may develop when high doses are used for long periods, but is rare on intermittent use of small doses. The vast majority of those who use cannabis do not develop dependence nor do they misuse the drug.
- Withdrawal symptoms from high doses include irritability, nausea, insomnia and anorexia.

8. Stimulant drugs

- This group includes amphetamines, phenmetrazine and methylphenidate. Cocaine, although a stimulant, is considered separately.
- Their effects arise due to their ability to release and block the re-uptake of dopamine and noradrenaline in the brain.
- Amphetamines are the most commonly used stimulants in the UK, whereas cocaine is the more popular in the USA.
- 10-15% of young people in the UK have tried amphetamines by the age of 19. In specialist drug centres, 10% of those presenting use amphetamine as their main drug, and a further 10% use it as a secondary drug.
- The street drug is known as *speed or whizz*. It can be taken orally or intravenously and can also be snorted or smoked.
- Clinical effects include over-talkativeness, over-activity, insomnia, dryness of lips, mouth and nose, anorexia, dilated pupils, tachycardia and high blood pressure. Larger doses can lead to cardiac arrhythmia, severe hypertension, stroke and rarely circulatory collapse. Further higher doses can lead to fits and coma.
- Acute adverse effects include dysphoria, irritability, insomnia, confusion, anxiety and panic. Obstetric complications include miscarriage, abruptio placentae and premature delivery.
- Prolonged use can lead to repetitive stereotyped behaviour and paranoid psychosis. Features of the psychosis are persecutory delusions, auditory and visual hallucinations and rarely dangerously hostile behaviour. It usually lasts for a week, but can in rare cases, persist for months.
- Most users do not progress to misuse and dependence. In persistent users, withdrawal leads to low mood, severe depression, anxiety, fatigue, lethargy and nightmares. Intense craving and suicidal thoughts are sometimes seen.
- Benzodiazepines may be useful in the management of withdrawal. Psychosis settles within a week, but may need treatment with anti-psychotic drugs. Antidepressants may be needed if the resultant depression is severe and persistent.

9. Cocaine

- It is a stimulant drug, and can cause strong dependence in persistent users.
- It acts by blocking the re-uptake of dopamine in the nucleus accumbens in the midbrain dopamine system.
- It is administered by injection, smoking and sniffing. Sniffing cocaine can lead to nasal septal perforation.
- "Crack" cocaine is a form of free base cocaine. It is not soluble in water and is smoked. Smoked crack cocaine reaches the brain even faster than injected cocaine and produces an immediate "high" or "rush". It is extremely addictive and may lead to compulsive cocaine abuse to the exclusion of all other activities.
- It is the primary drug of misuse in 4% of the drug users presenting to specialist clinics, but over 10% use it as a secondary drug in addition to opioids.
- Its use leads to excitement, increased energy, euphoria, grandiose thinking, impaired judgement and sexual disinhibition. Higher doses can cause hallucinations, paranoid ideation and aggressive behaviour. Prolonged use of high doses can result in paranoid psychosis with violent behaviour.
- Physical effects of cocaine use include dilatation of pupils, tachycardia, and increased BP. Severe effects include cardiac arrhythmias, myocardial infarction, myocarditis, cardiomyopathy, stroke, fits and respiratory arrest. Obstetric complications are similar to those of amphetamines.
- Sometimes cocaine use leads to formication (cocaine bugs) - a sensation as if insects are crawling under the skin.
- Withdrawal symptoms include dysphoria, anhedonia, fatigue and hypersomnolence. Severe withdrawal is seen in prolonged use of high doses, and symptoms include intense craving, depression and suicidal thoughts.
- Acute intoxication is treated with benzodiazepines and with antipsychotics. Concurrent medical crises mentioned above need appropriate management.
- In the management of severe dependence and craving, the use of the tricyclic antidepressant desipramine is indicated.
- Withdrawal followed by cognitive behavioural therapy, relapse prevention and cue exposure are preferred lines of treatment.

10. MDMA (Ecstasy)

- The use of 3,4 methylenedioxymethamphetamine (MDMA), popularly known as ecstasy, has increased dramatically over the last 10 years.
- It is a stimulant with mild hallucinogenic effects.
- It stimulates the release of dopamine and 5-hydroxtryptamine (5-HT) in the brain.
- It produces euphoria, sociability, intimacy, new insights and heightened perceptions. Physical effects include loss of appetite, tachycardia, sweating and compulsive grinding of teeth.
- Adverse reactions include hyperthermia, which can be a cause of sudden death. There have been reports of arrhythmia, hypertensive crisis and intracerebral bleed, although pre-existing cardiac disease may have played a role. It has been linked with paranoid psychoses and with 'flashbacks' weeks or months after ingestion of the drug.
- It has the potential to cause long-term neurological damage.

11. Anxiolytic and hypnotic drugs

- It is estimated that about 10% of the population of Europe use benzodiazepines. Misuse often results from prolonged medical use and most long-term users are older women.
- In younger people, benzodiazepine misuse is often associated with alcohol dependence and polysubstance use.
- The most frequently misused drugs in this group are benzodiazepines. Other drugs of this group that are misused are chlormethiazole, chloral hydrate and very rarely, barbiturates.
- These drugs act by facilitating brain GABA function.
- Withdrawal symptoms include anxiety, irritability, sweating, tremor, sleep disturbance, altered perception, depersonalisation, derealisation, hypersensitivity, abnormal sensations, depression, psychosis, seizures and delirium tremens.
- Treatment aims to achieve gradual withdrawal with counselling. Benzodiazepines with shorter half-life and high potency, may be replaced by longer-acting drugs like diazepam before withdrawal is attempted.
- Barbiturate misuse is rare. Abrupt withdrawal of barbiturates can be dangerous. In-patient detoxification is advisable if the dose is high. Replacing the barbiturate by a benzodiazepine and then gradual withdrawal may be an option.

12. Hallucinogens

- Drugs in this group include lysergic acid diethylamide (LSD), dimethyl tryptamine and methyldimethoxyamphetamine. LSD is the most commonly used drug from this group in the UK.
- Hallucinogens exert their effects by acting as partial agonists at brain 5-HT2A receptors.
- It has been reported that lifetime hallucinogen use amongst US high school students rose from 7.7% to 13.6% between 1988 and 1997. Similar trends and figures have been reported in the UK.
- Physical effects are usually not severe and include hypertension, tachycardia and dilated pupils. In the presence of pre-existing cardiovascular pathology, hypertension can precipitate adverse myocardial and cerebrovascular events.
- Psychological effects include distortion and intensification of sensory perception, and confusion between sensory modalities (synaesthesia). The passage of time appears to be slowed. Body image may be distorted with a feeling of being outside one's body. This may lead to panic with fears of insanity. There is a risk of suicidal and homicidal tendencies.
- Anxiolytics are effective in treatment.
- Tolerance can occur, but dependence is very rare.
- Flashbacks of psychedelic experiences, weeks or months after use of the drug have been reported.
- Controversy exists over an association between the use of LSD and long-term abnormalities in thinking and behaviour and even schizophrenia; the evidence for such an association is very dubious.

13. Volatile substances

- Volatile solvents probably act by increasing brain GABA function and by increasing the fluidity of neuronal cell membranes.
- In the UK, up to 20% of young people have tried sniffing solvents at least once. It is predominantly a group activity amongst young men. There is an association of volatile substance use with dissocial personality disorders. Prolonged use is not common.
- Substances commonly used include solvents, adhesives (glue sniffing), petrol, cleaning fluid, aerosols, butane, agents used in fire extinguishers, toluene and acetone.
- Clinical effects are similar to alcohol consumption. The nervous system is first stimulated and then depressed. The stages of intoxication are - euphoria, blurred vision, slurred speech, incoordination, staggering gait, nausea, vomiting and coma. There may be frightening visual hallucinations.
- Sudden death may occur. The main causes are cardiac arrhythmias and respiratory depression. Other causes of sudden death include trauma, asphyxiation when using plastic bags over the head, and inhalation of stomach contents.
- Chronic users display evidence of neurotoxicity and peripheral neuropathy. There may be evidence of impaired cerebellar function, encephalitis and dementia. Other vital organs may also suffer damage.
- Dependence can occur, but physical withdrawal symptoms are very rare. Withdrawal symptoms include irritability, nausea, sleep disturbance, tachycardia and rarely hallucinations and delusions.

14. Phencyclidine

- It was developed as a disassociative anaesthetic agent, but its use was abandoned due to adverse reactions like delirium and hallucinations.
- It is very different from the hallucinogens and hence merits a separate mention.
- It can be ingested, smoked or injected.
- It acts at the N-methyl-D-aspartate (NMDA) receptors in the brain.
- Its use is not common in the UK.
- At small doses it produces ‘drunkenness’, analgesia of fingers and toes and anaesthesia. Intoxication is prolonged and marked by agitation, depressed consciousness, psychotic features, aggression, high BP and nystagmus. With higher doses there is a likelihood of ataxia, muscle rigidity and absence of response to stimuli with eyes wide open.
- With serious overdoses, an adrenergic crisis with its attendant complications may result. Death may result from cardiovascular or cerebrovascular events or from respiratory failure. There is a finite risk of suicide as well.
- Chronic use leads to aggression with amnesia. Tolerance and dependence can occur, but withdrawal symptoms are very rare indeed.
- Treatment of intoxication depends on the symptoms. Haloperidol and/or diazepam may be given. Respiratory and cardiac manifestations are dealt with accordingly.

15. Main Disabling Effects

The drugs most commonly misused include cocaine, cannabis, heroin, benzodiazepines and amphetamines. An increasing evidence of use has been reported for drugs like ecstasy and solvents. Polysubstance misuse is also common.

Many young drug users remain employed and their drug use is viewed as a harmless recreational activity by their peer group. Many people do not regard occasional use and experimentation with drugs as abnormal. However, drug users in employment have a high absenteeism rate and a higher incidence of accidents and injuries[8]. Though many **drug users** remain employed, the employment rates for **drug dependent** individuals are very low[9].

Drug dependence by itself is not covered by the Disability Discrimination Act 1995[8].

The disability arising from drug use is highly variable.

15.1 Assessing the Claimant

A mental health assessment must always be done in individuals with a history of substance abuse.

A thorough perusal of all available evidence on file is necessary. It must be borne in mind that the effects of drug abuse include aggressive and potentially violent behaviour. These situations have to be sensitively dealt with according to the guidelines listed in the CME module **"Dealing with Potentially Violent Situations"**.

If drug misuse is an unexpected finding then the claimant's GP must be notified. Informed consent from the claimant must be obtained for this.

History must include pattern, duration, extent, severity and type of drug use. Variability over a period of time should be noted. A note must be made of attempts at detoxification, if any. A history of current functional impairment(s) should be obtained along with an account of a typical day. If the individual leads a haphazard existence, an account of a typical week may be more helpful.

If the claimant is in a state of intoxication, consideration should be given to aborting the examination, if it is clear that it will not be possible to carry out an appropriate assessment. This may be because of threatening or persistent uncooperative behaviour.

15.1.1 Informal Observation

Informal observation may be of immense help in corroborating the history and any documentary evidence. The following observations may be made informally:

- General appearance
- Gait, posture and balance
- Eye contact
- Involuntary movements and mannerisms
- State of self care and personal hygiene
- Facial expressions.

15.1.2 Physical Assessment

This may be appropriate if there are any reported or claimed physical disabilities. General physical features to be noted include:

- General appearance and weight
- State of self care
- Smell of breath
- Gait and posture
- Skin colour, needle marks and scars.

15.1.3 Mental State Examination

It may be difficult to assess the mental state in some cases. It is important to be sensitive and non-judgemental in order to be able to gather as much information as possible. The following areas need to be assessed:

- Appearance
- Behaviour
- Speech
- Mood
- Thoughts and perception
- Intellect and cognition
- Insight and motivation.

Drug use may lead to poor concentration causing inability to read, watch TV and enjoy leisure activities. It may be necessary to repeatedly prompt the claimant. There may be a history of multiple accidents around the home due to poor concentration and poor memory.

Daily living activities may be neglected. All time and effort is concentrated on obtaining and using drugs. Self-neglect may be evident and the claimant may not follow a set daily routine.

Anxiety and panic may result from use of some drugs. Fatigue, lack of interest and initiative may lead to a complete disregard of routine tasks.

Some drugs may cause inappropriate temper outbursts and even physical aggression. The ability to communicate and interact with other people may be lost. The drug dependent person may prefer solitude or the company of other drug users.

All information elicited (evidence from file, history, account of typical day, informal observation and formal assessment) should be used to assess the overall disability and functional impairment. Variability must be fully addressed, and consideration given to the severity and duration of the condition so that appropriate prognostic advice may be given to the decision maker.

15.2 IB-PCA Considerations

In the IB-PCA, the harmful mental and physical effects of drug use may be of sufficient severity to merit exemption from examination. As per current guidelines, features that allow consideration of exemption include:

- Drug dependency to a degree, which severely and adversely affects a person's behaviour, which severely restricts social functioning and requires or is undergoing treatment in a detoxification unit or residential rehabilitation unit.
- The person's mood and/or behaviour are so adversely affected that they are likely to pose a real threat or danger to others (work colleagues or members of the public).
- Severe psychotic behaviour resulting from drug abuse.
- Depressive disorder of a degree which satisfies the severe mental illness exemption criteria.
- Concomitant abuse of alcohol which satisfies the exemption criteria, as outlined in the protocol **"Alcohol related disorders".**
- Neurotoxicity, cerebrovascular accident, or other forms of central nervous system damage resulting from drug abuse.
- The presence of AIDS related disease might enable exemption advice to be given on the usual grounds for immune deficiency diseases.

Appendix A - Classes of Substances Misused

DSM - IV[1]	ICD – 10[2]
Alcohol	Alcohol
Amphetamines	Other stimulants including coffee
Caffeine	
Cannabis	Cannabinoids
Cocaine	Cocaine
Hallucinogens	Hallucinogens
Inhalants	Volatile solvents
Nicotine	Tobacco
Opioids	Opioids
Phencyclidine	
Sedatives, hypnotics or anxiolytics	Sedatives or hypnotics
Polysubstance	Multiple drug use
Other	

NB: The order of entry in ICD – 10 has been amended to mirror the entries in DSM - IV

Appendix B - Substance-related disorders

DSM - IV[1]	ICD - 10[2]
Intoxication	Intoxication
Abuse	Harmful use
Dependence	Dependence syndrome
Withdrawal	Withdrawal state
Withdrawal delirium	Withdrawal state with delirium
Psychotic disorders	Psychotic disorder
Dementia	
Amnestic disorder	Amnestic Syndrome
Mood disorders	Residual and late onset psychotic disorder
Anxiety disorders	Other mental and behavioural disorders
Sexual dysfunction	
Sleep disorders	

Appendix C - Criteria for diagnosing dependence

DSM – IV[1]	ICD – 10[2]
Diagnosis of dependence is made if 3 or more of the following have been experienced or exhibited at any time in the same 12-month period	**Diagnosis of dependence is made if 3 or more of the following have been experienced or exhibited at some time during the last year**
1. Tolerance defined by either need for markedly increased amounts of substance to achieve intoxication or desired effect, or markedly diminished effect with continued use of the same amount of the substance	1. A strong desire or sense of compulsion to take the substance
2. Withdrawal, as evidenced by either of the following: the characteristic withdrawal syndrome for the substance, or the same (or closely related substance) is taken to relieve or avoid withdrawal symptoms	2. Difficulties in controlling substance-taking behaviour in terms of its onset, termination, or levels of use
3. The substance is often taken in larger amounts over a longer period of time than was intended	3. Physiological withdrawal state when substance use has ceased or has been reduced, as evidenced by either of the following: the characteristic withdrawal syndrome for the substance, or use of the same (or closely related) substance with the intention of relieving or avoiding withdrawal symptoms
4. Persistent desire or repeated unsuccessful efforts to cut down or control substance use	4. Evidence of tolerance, such that increased doses of the psychoactive substance are required in order to achieve effects originally produced by lower doses
5. A great deal of time is spent in activities necessary to obtain the substance, use of the substance, or to recover from its effects	5. Progressive neglect of alternative pleasures or interests because of psychoactive substance use and increased amount of time necessary to obtain or take the substance or to recover from its effects
6. Important social, occupational, or recreational activities given up or reduced because of substance abuse	6. Persisting with substance use despite clear evidence of overtly harmful consequences (physical or mental)
7. Continued substance use despite knowledge of having had a persistent or recurrent physical or psychological problem that was likely to have been caused or exacerbated by the substance	

Appendix D - Neurobiology of drug misuse and dependence

The target for action of most psychoactive drugs seems to be the *nucleus accumbens* in the *midbrain dopamine system*. The ingestion of certain drugs increases the release of dopamine in the nucleus accumbens and leads to feelings of euphoria and reduction in anxiety. Dopamine pathways also form a reward system, and drugs acting on it act as positive reinforcing agents, heightening the feelings of euphoria, and thereby increasing the propensity for misuse[3,10].

Learning and conditioning factors after prolonged misuse of drugs are important in the development of tolerance, withdrawal syndrome and dependence[3].

Neuroadaptive changes and altered brain function are responsible for phenomena such as anhedonia, craving and dysphoria resulting from discontinuation of drugs after long-term dependence.

Other drugs act by enhancing the brain *GABA function*. On long-term use of these drugs, there are changes in the sensitivity of the GABA and benzodiazepine receptors. This down-regulation of receptor sensitivity could be responsible for development of *tolerance* and the need for higher doses to produce the same effects. Adaptive changes in the receptors tend to persist, and on abrupt discontinuation of drugs, (e.g. anxiolytics) there is sharp drop in GABA activity leading to anxiety, insomnia and seizures.

This common pathway of brain action may be responsible for cross-tolerance between anxiolytics, alcohol and hypnotics, and it also helps the clinician to treat alcohol withdrawal with a benzodiazepine.

Cannabis exerts its effects via specific cannabinoid receptors in the brain. The receptors may be responsible for the effects of endogenous cannabinoids, cannabis, certain other drugs and even chocolate cravings[10].

Opioids, in addition to acting on opioid receptors, also act on noradrenaline cell bodies in the brain stem[3,10]. Adaptive changes occur in opioid receptors and the firing of noradrenaline cell bodies is reduced. If opioids are suddenly withdrawn, the rate of firing of noradrenaline cells increases, resulting in sweating, tachycardia, hypertension and anxiety. Hence alpha-2 receptor antagonists like clonidine and lofexidine are used in the management of opioid withdrawal[3].

Positive reinforcing actions of drugs promote drug use and similarly withdrawal effects play an important part by negative reinforcement, i.e. dependent individuals try to avoid unpleasant withdrawal effects by continued use of drugs.

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