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The Prevalence of Physical Illness in Defendants referred for Psychiatric Observation

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Declaration

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Part A: Protocol

The Prevalence of Physical Illness in Defendants referred for Psychiatric Observation

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Introduction

Forensic psychiatry is a sub-specialty of psychiatry that encompasses the interface between psychiatry and the law. Psychiatrists in this setting are called upon to practice in a manner that balances competing duties to the individual patient and the broader society.

Section 79 of the Criminal Procedure Act (Act 51 of 1977) provides for the referral of a defendant for psychiatric or psychological assessment. The accused is usually admitted to a state psychiatric hospital for 'an observation' for a period up to 30 days to determine whether, by reason of mental illness or defect, he is fit to stand trial or was criminally responsible at the time of the offence.

Therefore the primary task is to determine whether the accused actually is suffering from a mental illness, and if he does, to assess whether the disorder has compromised his competence. An integral part of the process is to exclude any medical illness, which could either be a cause of the accused's mental state or an important incidental finding. It should be noted that the DSM multi-axial diagnostic scheme provides for an Axis 3, on which important medical conditions that may significantly contribute to the individual's mental state are recorded. Consequently, all psychiatric evaluations have to include a physical examination.

Therefore, during the 30-day observation period, in addition to the psycholegal examination, every case is examined physically and routine blood tests are taken. These include a full blood count (FBC), urea and electrolytes (U&E), thyroid function tests, VDRL and an HIV test. Other investigations, including brain scans, are occasionally requested based on the clinical indications.

The rationale behind the routine investigations has been questioned for many years. Nair et al's study on the insanity defense found that selective investigations based on clinical suspicion yielded more positive results than the routine ones. They therefore found the cost-effectiveness of ordering routine investigations questionable. They did, however, conclude that although the practice of conducting selective investigations appeared more cost effective, psychiatrists might be forced into undue thoroughness due to legal pressure.¹

The relationship between physical and mental illness

The frequent co-occurrence of certain physical diseases and mental disorders has been corroborated by recent epidemiological data, although the precise causal relationship often is unclear.² Medical illnesses can present with psychiatric symptoms. Psychiatric disorders in themselves can cause medical disorders, either as a result of treatment or of neglect. Medical illness may also be unrelated to the psychiatric disorder, but may not be recognised because of the psychiatric disorder.

Both psychotic and manic symptoms frequently occur in patients with co-morbid medical disorders and present a diagnostic and treatment challenge.^{3,4} Physical health problems in patients with schizophrenia are common and contribute to excess mortality rates and decreased quality of life.⁵ In a recent review, the majority of patients with schizophrenia were found to have at least one chronic, co-morbid medical condition. The authors of this review noted with concern that in the absence of routine screening these conditions may not be brought to the attention of the clinician.⁶ Another thorough review corroborated the frequent occurrence of a number of physical conditions in patients with schizophrenia and, amongst other conditions, found a high prevalence of both HIV and hepatitis.⁷

The Special Case: HIV

South Africa has an exceptionally severe epidemic of HIV/AIDS. The estimated total prevalence, as reported in the 2007 DOH study, was 10,9% of the general population.⁸ HIV is associated with major psychiatric disorders. Adults with severe mental illness have a 13 - 76% times higher seroprevalence of HIV than the general population.⁹ The converse is also true; that HIV infected people have a higher prevalence of severe mental illness, particularly in the later stages of the disease.¹⁰

In South Africans who live with severe mental illness, undiagnosed HIV infections are particularly relevant because this predisposes them to greater risk of other infections, including sexually transmitted diseases and tuberculosis.^{11, 12} A recent review concluded that although much of the published data is from developed countries and is based on small sample sizes, there is evidence that persons with psychiatric conditions are at increased risk for both HIV and other sexually transmitted diseases. They conclude that given the existence of effective treatment, screening (particularly for syphilis and hepatitis) is strongly recommended.¹³

However, the nature of mental illness is such that patients often cannot give informed consent for testing, which is particularly important in HIV testing. The clinician needs to weigh up the potential harms and benefits of any interventions. Joska et al concluded that the high prevalence of HIV infection in South Africa (which is probably higher in those patients with severe mental illness), together with the availability of effective treatment, should require debate and the implementation of a clear policy regarding testing.¹⁴

Although client-initiated HIV testing remains the mainstay, the WHO has long recognised this dilemma. They have put forward guidelines on provider initiated testing and counselling (PITC).¹⁵ This is recommended in generalised epidemics and prioritises implementation in vulnerable groups. They recommend that PITC be subject to informed consent, right to refuse, availability of counseling and follow up of ARV's. However its prerequisites cannot be met in a large proportion of those who

are severely mentally ill. Therefore, there has also been much criticism of PITC as a concept.¹⁶

The ethical dilemma in the forensic setting is that the defendant has been ordered to undergo psychiatric examination. This may include investigations selected at the discretion of the examining hospital. Although PITC can be argued for those whose ability to consent is compromised, such as the severely mentally ill, only a proportion of those presenting for observation will be found to be mentally ill. Those who are suspected to be mentally ill, but are later found not to be, may have their right to autonomy compromised by PITC.

At Valkenberg, although all defendants are counselled, they are not given the choice to opt out of testing, but only to decide whether they would like the results disclosed to them. It could be argued that this is unethical practice. The position adopted by the unit is that the courts have mandated them to assess every defendant fully, which includes HIV testing. Studies also show that the prison population itself is a vulnerable population for HIV infection. International data shows HIV prevalence in prisons to be 6 - 50% higher than in general populations.¹⁷ High risk sexual and other risky behaviours in prisons increase the spread of HIV and STD's. These include unprotected sex, rape, sexual bartering, prison marriages, unsafe injecting practices, blood exchange and tattoos. Most prisoners are also from a high-risk segment of the population – sexually active males from 19 - 35.¹⁷ In-patient pre-trial detainees are also at increased risk for HIV infection.¹⁸ Despite their vulnerability and the stringent requirements of the law to do a thorough psycho-legal assessment, it could be argued that PITC may be inappropriate in this population group. The concept of PITC has had many arguments for and against it and its utility in the forensic system has not yet been verified. Within the South African context, where the prevalence of HIV positive cases is so high, and therefore the confluence of HIV, psychiatric disorder and criminal behaviour may occur frequently, the importance of diagnosing an offender's HIV status may be crucial.

The rationale of doing thorough medical screening of all psychiatric patients is clear, because there is a relationship between medical illness and mental illness. It remains unresolved which screening tests should be performed routinely in general psychiatric patients even though the prevalence of medical illness is relatively high. Even less is known about the prevalence of medical illnesses in criminal defendants referred for observation, most of whom do not have a serious psychiatric disorder.

Rationale

Special investigations may be necessary in the diagnosis of these medical conditions. Within the context of psychiatry as a whole, the population referred for forensic observation may be subject to more stringent investigation as a legal requirement. However there is little information available on this group regarding the prevalence of medical illnesses and the impact that these have on the psycholegal assessment.

This study will therefore seek to assess the current practice of routine investigations in assessing criminal defendants that have been referred to the forensic observation unit in order to assess whether these findings contribute significantly to the psycholegal assessment, and to determine the prevalence of medical illness in this population. It is hoped that it will be possible to decide whether there is utility to do routine tests, essentially by coercion, in this group.

Aims

- a. To determine the prevalence of medical illness in those referred for psychiatric observation.
- b. To assess whether routine special investigations contribute towards the diagnosis of medical illness.
- c. To assess the contribution medical illnesses may contribute to the mental state of these cases.
- d. To determine whether those who are eventually declared state patients have a higher rate of medical illness.
- e. To assess whether those with medical illnesses are more likely to be accused of violent crimes.

Hypotheses

- a. This group will not generally have a high prevalence of medical illnesses.
- b. Routine special investigations will not yield a high rate of abnormal results.
- c. The medical illnesses will not be significantly related to their mental state.
- d. Those who are found to be mentally ill and therefore incompetent to stand trial, or not to have had criminal responsibility, will not be more likely to have medical illnesses.
- e. The presence of medical illness will not have an impact on the level of violence of the crime.

Methodology

This was a retrospective study that included all cases admitted to the Valkenberg Forensic Mental Health Unit over a 6-month period from 1 July 2010 to 31 December 2010.

Data were collected from a folder review and were entered into a spreadsheet. Patients were identified by their hospital numbers only and names and personal information were kept confidential.

Data was collected in the following categories:

Demographic data

- Age
- Gender
- Employment status (employed, unemployed, disability grant)
- Highest level of education (primary, secondary, tertiary)
- Home (own home, family home, no fixed abode)

Psychiatric history

- Number of previous admissions and diagnoses
- Substance use

- Diagnosis on discharge (according to DSM IV)

Medical illness

- Medical history
- Results of special investigations (FBC, U&E, TSH, RPR, HIV)
- Other investigations requested (CTB, EEG)
- Diagnosis on discharge

Forensic history

- Number of previous offences
- Nature of charge (violent crime vs. non-violent)
- Recommendation to the court (i.e. state patient, involuntary patient, continue with trial)

Data analysis

In the first instance descriptive statistics were used to describe the characteristics of the sample and the prevalence of various medical illnesses within the population. Categorical data were analysed using Chi-square or Fisher's exact tests where appropriate.

Continuous data were analysed using student's t-test.

Non-parametric tests were used to analyse non-normally distributed data.

A significance level of $p < 0.05$ was used.

Ethical considerations

This was a retrospective review. Patients were identified by their hospital numbers only and names and personal information were kept confidential. Ethical approval for the study was obtained from The Committee for Human Research of the University of Cape Town and consent for access to clinical folders was obtained from the Medical Superintendent of Valkenberg Hospital.

References

1. Nair MG, Wessels WH. The insanity defense: a South African perspective. *Med law* 1992;11(3-4):297-302.
2. Iacovides A, Siamouli M. Comorbid mental and somatic disorders: an epidemiological perspective. *Curr Opin Psychiatry* 2008;21(4):417-421.
3. Patker AA, Mago R, Masand PS. Psychotic symptoms in patients with mental disorders. *Curr Psychiatry Rep* 2007;6(3):216-224.
4. Arora M, Draughton J. Mania in the medically ill. *Curr Psychiatry Rep* 2007;9(3):232-235.
5. Von Hausswolf-Juhlin Y, Bjartveit M, Lindstrom E, Jones, P. Schizophrenia and physical health problems. *Acta Psychiatr Scand Suppl* 2009;438:15-21.
6. Mitchell AJ, Malone D. Physical health and schizophrenia. *Curr Opin Psychiatry* 2006;19(4):432-437.
7. Leucht S, Burkard T, Henderson J, Mai M, Sartorius N. Physical illness and schizophrenia: a review of the literature. *Acta Psychiatr Scand* 2007;116(5):317-333.
8. Department of Health, 2007. National HIV and syphilis antenatal seroprevalence survey in South Africa: 2007
9. Carey MP, Carey KB, Kalichman SC. Risk for human Immunodeficiency Virus (HIV) infection among persons with severe mental illness. *Clin Psychol Rev* 1997;17:271-291.
10. Cournos F, McKinnon K. HIV seroprevalence among people with severe mental illness in the United States: a critical review. *Clin Psychol Rev* 1997;17:259-269.
11. Celum CL. Sexually transmitted infections and HIV: Epidemiology and interventions. *Top HIV Med* 2010;18(4):138-142.
12. Havlir DV, Getahun H, Sanne I, Nunn P. Opportunities and challenges for HIV care in overlapping HIV and TB epidemics. *JAMA* 2008;300(4):423-430.

13. Campos LN, Guimares MD, Carmo RA, Melo AP, Oliveira HN, Elkington K, McKinnon K. HIV, syphilis and hepatitis B and C prevalence among patients with mental illness: a review of the literature. *Cad Saude Publica* 2008;24Suppl4:607-620.
14. Joska JA, Kaliski SZ, Benatar SR. Patients with severe mental illness: A new approach to testing for HIV. *S Afr Med J* 2008;98:213-217.
15. World Health Organisation. *Guidance on Provider-initiated HIV Testing and Counseling in Health Facilities*. Geneva: World Health Organization, 2007.
16. Human Rights Watch. *Comments on WHO/UNAIDS draft 'Guidance on Provider Initiated HIV Testing and Counseling in Health Facilities' Submission to WHO by Human Rights Watch*.
17. ACTAfricaWorld Bank, UNAIDS, UNODC assisted by WHO/AFRO: *HIV and Prisons in Sub-Saharan Africa: Opportunities for action*. 2007.
18. Schwartz-Watts D, Montgomery LD, Morgan DW. Seroprevalence of human immunodeficiency virus among inpatient pretrial detainees. *Bull Am Acad Psychiatry Law* 1995;23(2):285-288.

Part B: Literature review

Objectives of literature review

The objectives of this literature review are as follows:

1. To review recent literature regarding the association between physical illness and severe mental illness.
2. To specifically assess the literature on prevalence of physical illness in the remand population and the association between physical illness and psychiatric disorders in this group.
3. To gain an appreciation of international and local trends and norms in terms of laboratory screening for concomitant medical illness in patients with severe mental illness.
4. To review the literature on the utility of special investigations in the remand population referred for psychiatric assessment.
5. To determine what still needs to be researched regarding routine screening procedures and laboratory testing in such patients.

Literature search strategy and quality criteria

Three databases, namely Psycinfo, Pubmed and Medline, were searched using the following search terms:

1. Severe mental illness AND screening AND physical illness
2. Severe mental illness AND screening AND (HIV OR syphilis)
3. Severe mental illness AND physical illness AND (crime OR prisoners OR forensic)

Further articles were obtained by hand searches of local journals – the South African Medical Journal and the South African Journal of Psychiatry. Hand searches were also done of relevant papers referenced within review articles that were identified by searching the databases.

Articles were included if they were review or original articles studying the relationship between physical and mental illness and the screening thereof in human

subjects. They also needed to be submitted to peer-reviewed journals and be accessible in the English language.

Articles were excluded if they were not English or in peer-reviewed journals or if they did not pertain to the subject being studied. The review focused on articles published in the past ten years (2002-2012); however older articles were included if they were deemed to be of historical importance or if they presented data not replicated in later studies.

Review articles were included if they used a well-documented, systematic search strategy. Original articles were included if their research methodology was considered sound. Soundness was assessed based on whether sampling methods and sample size were designed to minimise bias and maximise generalisability of the results; if the methods of data analysis were described and valid; and if the discussion included the limitations and potential bias of the study and comments on the generalisability of the results.

Summary of literature

The association between physical and mental illness

The relationship between mental illness and medical illness is complex, but well established. The frequent co-occurrence of certain physical diseases and mental disorders is corroborated by recent epidemiological data, although the exact nature of the relationship generally remains unclear.¹

Both psychotic and manic symptoms frequently occur in patients with co-morbid medical disorders and present a diagnostic and treatment challenge.^{2, 3} Physical health problems in patients with schizophrenia are common and contribute to excess mortality rate and decreased quality of life.⁴ In a recent review, the majority of patients with schizophrenia were found to have at least one chronic, comorbid medical condition.⁵

Much of the literature examines the relationship between chronic medical illnesses such as hypertension or diabetes, which may be associated with metabolic complications of treatment utilised in these patients. However evidence seems to suggest that medical illnesses associated with psychiatric disorders are not solely related to medication side effects. A large study conducted in Taiwan showed a 2.46-fold higher risk of admission for a number of acute and chronic medical conditions after excluding the conditions of diabetes, asthma and hypertension. This study emphasises the vulnerability of this population group to both acute and chronic illnesses.⁶ Another thorough review corroborated the frequent occurrence of a number of physical conditions in patients with schizophrenia and, amongst other conditions, found a particularly high prevalence of infectious diseases such as HIV and hepatitis.⁷

It is important to examine the increased prevalence of infectious diseases in this population as these are often preventable, highly treatable and if missed can have negative consequences for both the patient themselves and the wider population due to the contagious nature of infectious disease.

In South Africa there is much clinical emphasis on the psychiatric sequelae of HIV. A critical review of literature in the United States showed that HIV infected people have a higher prevalence of severe mental illness, particularly in the later stages of the disease.⁸ Mental illness in these patients may manifest across the full spectrum of psychiatric illness and may include neurocognitive disorders⁹, chronic depressive symptoms¹⁰, other affective disorders and suicidal ideation.^{11, 12}

Not only do people infected with HIV tend to have psychiatric sequelae, but also the converse is true. Adults with severe mental illness have a 13-76% higher seroprevalence than the general population.¹³ Findings across samples suggested that seroprevalence varied with geographic location and presence of comorbid psychoactive substance use disorders, but was consistently high. Few African studies have investigated HIV seroprevalence in psychiatric settings. A South African study undertaken in KwaZulu-Natal found 26.5% of psychiatric patients tested to be HIV positive.¹⁴ A similar study done in Uganda also demonstrated a high seroprevalence of 18.4%.¹⁵ This demonstrates that in the midst of a generalised AIDS epidemic, people with mental illness remain more vulnerable.

Undiagnosed HIV infections are particularly dangerous because this predisposes patients to a greater risk of other infections, including sexually transmitted diseases and tuberculosis.^{16, 17} This is significant in patients with severe mental illness as, independent of HIV status; high rates of non-HIV sexually transmitted diseases have been found among patients treated in psychiatric units.¹⁸ These include syphilis, Hepatitis B and Hepatitis C. Although the studies in developed countries tend to focus on patients with a dual diagnosis of mental illness along with substance use disorders, and not mental illness alone, the results of these studies are consistent in portraying an increased prevalence of infectious diseases among individuals with severe and persistent mental illness. This is confirmed in the developing world by a systematic review of data published on infectious diseases within psychiatric populations in Brazil and other developing nations which also concluded that persons with psychiatric conditions are at increased risk for both HIV and other sexually transmitted illnesses.¹⁹

While considering infectious diseases, it is important to specifically examine the literature on syphilis due to the worldwide resurgence of this disease with the advent of HIV. Due to similar patterns of transmission, patients who are at risk of contracting HIV also have a higher risk of contracting syphilis, which, if present, may in turn be worsened by HIV. Several case studies and archival reports are documented in the literature, which show that syphilis, particularly neurosyphilis can present as acute mental illness.^{20, 21, 22} Syphilis should therefore still be considered in the differential diagnosis within the context of psychiatric conditions.

Physical illness, psychiatric illness and the remand population

The literature documenting the associations between physical and mental illness in those accused of crime is scarce. The risk of serious mental illness in the remand population is higher than that of the general population.²³ Although several studies attempt to examine the role of mental illness in criminal behaviour or violent acts, none of these studies have explored the role of comorbid physical illness.

Kelly chronicles the complex history of the insanity defense and provides a background to some of the institutions for the criminally insane in the nineteenth century. One of the key themes identified was that of the conditions in the asylums with specific emphasis on physical illness and asylum deaths. Infectious diseases presented particular challenges and many patients' experienced chronic and recurring physical illnesses. The death rates in forensic psychiatric facilities were higher than the general population and it is speculated that overcrowding and infectious illnesses may have played a large role. Although several vignettes describe physical illness already present in cases found "insane on arraignment", no mention is made of specific diagnoses nor is it documented as to whether the physical illness played a role in the assessment process or crime.²⁴

More recent studies document the high prevalence of physical illness in prison populations. In particular, the prison population as a whole is a vulnerable population for HIV infection. International data show HIV prevalence in prisons to be 6-50% higher than in general populations.²⁵ High risk sexual and other risky behaviours in prisons increase the spread of HIV and STD's. In-patient pre-trial detainees are also at increased risk for HIV infection.²⁶ However, none of these studies investigated whether those who are mentally ill in the prison population are also more likely to be physically ill.

Routine screening of infectious illnesses in patients with severe mental illness

Hence there is a strong relationship between physical illness and mental disorders. However, the reduced ability of some mentally ill patients to provide a history and cooperate in physical or technological examinations makes the diagnostic and therapeutic management of physical disease very difficult. Clinicians may also neglect to examine these patients if they are not attuned to the possibility of a medical illness. There seems to be a disproportionate reliance on laboratory information in the diagnosis of physical illness in such patients.²⁷

Another difficulty is that while the presence of mental illness may complicate the identification of a medical illness, it may also impair a person's ability to consent to investigations. This presents the clinician with the ethical challenge of which actions

are justifiable and which are not in the search for diagnosis. In highly stigmatised illnesses, such as HIV and other sexually transmitted diseases, testing without informed consent is controversial. Even when stigma is not an issue, there are cost restraints that determine which investigations can be performed. Several studies have demonstrated the limited utility and high costs of routine screening. Surveys of lab investigations show a wide variation in the number of tests performed. Routine screening tests of non-geriatric patients are frequently used in circumstances where the result is of no apparent value.²⁸ Currently there are few recommendations or protocols for the routine screening of patients that present with psychiatric disorders.

Anfinson et al reviewed the data concerning the use of such screening profiles in psychiatric patients in 1992.²⁹ They found that widespread use of extensive screening batteries is not indicated in the majority of psychiatric patients. Such investigations result in many abnormal findings, most of which are clinically insignificant and do not affect patient management and outcome. They found that most abnormal results could be predicted by information obtained from a careful history, review of systems, and physical examination. Certain populations appear to benefit from more extensive evaluation, including those older than 65 years of age or of low socioeconomic status. They recommended a few tests that have merit as broader screening tests in asymptomatic patients, such as serum glucose, blood urea nitrogen, creatinine, and urinalysis. Nevertheless, they also concede that further prospective data need to be collected to develop cost-efficient, population-specific diagnostic strategies.

However, very few such studies have been done. Catalano et al attempted to assess the utility of a routine panel of tests and conducted a study reviewing the results of serum vitamin B12 levels, folate levels, thyroid stimulating hormone levels and syphilis serology of patients who had been admitted to hospital for a non-psychiatric condition, but had either a preexisting psychiatric condition or developed a mood or cognitive spectrum disorder during hospitalisation. Only the incidence of vitamin B12 and folate deficiencies was higher in these patients and the authors advocated for screening for these vitamin deficiencies.³⁰

The results of these studies may lead to a more circumspect approach, where laboratory investigations are tailored to the individual patient. A more selective

approach may mean that a minority of cases is missed, but that the cost burden is greatly reduced. The danger here is if tests are conducted solely on clinical suspicion then some cases will be missed, especially if they only present with psychiatric symptoms.

Syphilis, with its array of heterogeneous, and often psychiatric, presentations may easily be overlooked if not actively screened for. This is particularly true in patients with comorbid HIV. The majority of authors recommend a high index of suspicion and routine screening tests in the psychiatric field.³¹

A South African study investigated referral patterns, initial diagnoses and clinical features of patients with neurosyphilis who presented with psychiatric manifestations. The possibility of neurosyphilis was not considered at all by the referring primary care workers. Only in the minority of the cases was the diagnosis considered on admission to the psychiatric ward before serological test results were known.³²

The literature notes that a number of infections may present in such a way. Furthermore, because of the markedly increased risk in psychiatric patients, the contagious nature of infectious diseases and the existence of effective treatment, several authors have concluded that routine testing (particularly for syphilis and hepatitis) is strongly recommended.¹⁹

In recent years, the stigma of HIV has led to much debate regarding ethical testing and screening policies for HIV. A review in 2009 summarised knowledge about HIV testing prevalence, correlates and interventions among individuals with severe mental illness and found that fewer than half of those individuals had been tested for HIV in the previous year.³³ This can be understood in the context of the nature of mental illness, which is such that patients often cannot give informed consent for testing, which is particularly important in HIV testing. The clinician needs to weigh up the potential harms and benefits of any interventions. Joska et al concluded that the high prevalence of HIV infection in South Africa (which is probably higher in those patients with severe mental illness) together with the availability of effective treatment should require debate and the implementation of a clear policy regarding testing.³⁴

Although client-initiated HIV testing remains the mainstay in South Africa, the WHO has long recognised this dilemma. They have put forward guidelines on provider initiated testing and counselling (PITC).³⁵ This is recommended in generalised epidemics and prioritises implementation in vulnerable groups. They recommend that PITC be subject to informed consent, the right to refuse, availability of counselling and follow up of ARV's. However, its prerequisites cannot be met in a large proportion of those who are severely mentally ill and there has been much criticism of PITC as a concept.³⁶

The utility of special investigations in the remand population referred for psychiatric assessment

Within the context of psychiatry as a whole, the population referred for forensic observation may be subject to more stringent investigation as a legal requirement. However, there is little information available on this group regarding the prevalence of medical illnesses and the impact that these have on the psycho-legal assessment, nor are there recommendations for special investigations in this population.

A South African study conducted on the insanity defense explored routine and clinician initiated investigations on a group of defendants referred for observation. The routine tests done at this time were a full blood count, blood sugar, Wasserman reaction (syphilis), chest, skull and thigh X-ray (to screen for cysticercosis). HIV was not tested in this study. Syphilis was detected in 10% of the patients. However, they found that none of the positive results were related to the mental state at the time of the alleged offence and that the selective investigations yielded more positive results than the routine ones. They therefore questioned the cost-effectiveness of ordering routine investigations but concluded that psychiatrists might be forced into undue thoroughness due to legal pressure.³⁷ The assessments conducted on remand prisoners are by court order. This implies that all possible causes of mental illness (including medical illness), and hence lack of competence, have to be explored or excluded. There are few data to guide forensic assessments as to which medical investigations should therefore be routinely done in this population.

Areas for further study

The literature review reveals clear associations between physical illness and severe mental illness. While the presence of a medical illness in a remanded prisoner may just be an incidental finding, a number of medical illnesses may be associated with psychiatric disorders, which can present with difficult behaviours. Certain criminal behaviours may thus be related to an underlying medical disorder (that presents with psychiatric symptoms). There is minimal literature documenting the possibility of these phenomena and it warrants further investigation. A subsidiary question is whether those who are referred for observation actually have a high rate of medical illness that needs attention.

The current literature does not offer definitive guidelines for the routine testing of psychiatrically ill patients, and offers less guidance on routine testing in remand cases for whom the courts order a thorough enquiry. This is therefore an area that warrants further review of the utility of routine and clinician initiated testing in this population.

References

1. Iacovides A, Siamouli M. Comorbid mental and somatic disorders: an epidemiological perspective. *Curr Opin Psychiatry* 2008;21(4):417-421.
2. Patker AA, Mago R, Masand PS. Psychotic symptoms in patients with mental disorders. *Curr Psychiatry Rep* 2007;6(3):216-224.
3. Arora M, Draughton J. Mania in the medically ill. *Curr Psychiatry Rep* 2007;9(3):232-235.
4. Von Hausswolf-Juhlin Y, Bjartveit M, Lindstrom E, Jones, P. Schizophrenia and physical health problems. *Acta Psychiatr Scand Suppl* 2009;438:15-21.
5. Mitchell AJ, Malone D. Physical health and schizophrenia. *Curr Opin Psychiatry* 2006;19(4):432-437.
6. Lin HC, Huang CC, Chen SF, Chen YH. Increased risk of avoidable hospitalization among patients with schizophrenia. *Can J Psychiatry* 2011;56(3):71-78.

7. Leucht S, Burkard T, Henderson J, Mai M, Sartorius N. Physical illness and schizophrenia: a review of the literature. *Acta Psychiatr Scand* 2007;116(5):317-333.
8. Cournos F, McKinnon K. HIV seroprevalence among people with severe mental illness in the United States: a critical review. *Clin Psychol Rev* 1997;17:259-269.
9. Lescure FX, Omland LH, Engsig FN, Roed C, Gerstof J, Pialox G, Kronborg G, Larsen CS, Obel N. Incidence and impact of mortality of severe neurocognitive disorders in persons with and without HIV infection: a Danish nationwide cohort study. *Clin Infect Dis* 2011;52(2):235-243.
10. Cook JA, Grey D, Burke J, Cohen MH, Gurtman AC, Richardson JL, Wilson TE, Young MA, Hessol NA. Depressive symptoms and AIDS-related mortality among a multi-site cohort of HIV positive women. *Am J Public Health* 2004;94(7):1133-1140.
11. Nebhinani N, Mattoo SK, Wanchu A. Psychiatric morbidity in HIV-positive subjects: a study from India. *J Psychosom Res* 2001;70(5)449-454.
12. Carrico AW, Johnson MO, Morin SF, Remien RH, Charlebois ED, Steward WT, Chesny MA, NIMH Healthy Living Project Team. Correlates of suicidal ideation among HIV-positive persons. *AIDS* 2007;21(9):1199-1203.
13. Carey MP, Carey KB, Kalichman SC. Risk for Human Immunodeficiency Virus (HIV) infection among persons with severe mental illness. *Clin Psychol Rev* 1997;17:271-291.
14. Collins PY, Berkman A, Mestry K, Pillai A. HIV prevalence among men and women admitted to a South African public psychiatric hospital. *AIDS Care* 2009;21(7):863-867.
15. Maling S, Todd J, Van der Paal L, Grosskurth H, Kinyanda E. HIV-1 seroprevalence and risk factors for HIV infection amongst first time psychiatric admissions in Uganda. *AIDS Care* 2011;23(2):171-178.
16. Havlir DV, Getahun H, Sanne I, Nunn P. Opportunities and challenges for HIV care in overlapping HIV and TB epidemics. *JAMA* 2008;300(4):423-430.
17. Celum CL. Sexually transmitted infections and HIV: Epidemiology and interventions. *Top HIV Med* 2010;18(4):138-142.

18. Sitzman BT, Burch EA Jr, Bartlett LS, Urrutia G. Rates of sexually transmitted diseases among patients in a psychiatric emergency service. *Psychiatr Serv* 1995;46(2):136-140.
19. Campos LN, Guimares MD, Carmo RA, Melo AP, Oliveira HN, Elkington K, McKinnon K. HIV, syphilis and hepatitis B and C prevalence among patients with mental illness: a review of the literature. *Cad Saude Publica* 2008;24Suppl4:607-620.
20. Friedrich F, Gesau A, Griesenegger S, Ossege M, Aigner M. Manifest psychosis in neurosyphilis. *Gen Hosp Psychiatry* 2009;31(4):379-381.
21. Kelly BD. Syphilis, psychiatry and offending behavior: clinical cases from nineteenth century Ireland. *Ir J Med Sci* 2009;178(1):73-77.
22. Saik S, Kraus JE, McDonald A, Mann SG, Sheitman BB. Neurosyphilis in newly admitted psychiatric patients: three case reports. *J Clin Psychiatry* 2004;65(7):919-921.
23. Fazel S, Danesh J. Serious mental disorder in 23000 prisoners: a systematic review of 62 surveys. *Lancet* 2002;359:545-550.
24. Kelly BD. Criminal insanity in 19th century Ireland, Europe and the United states: cases, contexts and controversies. *Int Law Psychiatry* 2009;32(6):362-368.
25. ACTAfrica World Bank, UNAIDS, UNODC assisted by WHO/AFRO. HIV and prisons in Sub-Saharan Africa: Opportunities for action. 2007.
26. Schwartz-Watts D, Montgomery LD, Morgan DW. Seroprevalence of Human Immunodeficiency Virus among inpatient pretrial detainees. *Bull Am Acad Psychiatry Law* 1995;23(2):285-288.
27. Kampmeier RH. Diagnosis and treatment of physical disease in the mentally ill. *Ann Intern Med* 1977;86(5):637-645.
28. White AJ, Barraclough B. Benefits and problems of routine laboratory investigations in adult psychiatry admissions. *Br J Psychiatry* 1989;155:65-72.
29. Anfinson TJ, Kathol RG. Screening laboratory evaluation in psychiatric patients: a review. *Gen Hosp Psychiatry* 1992;14(4):248-257.
30. Catalano G, Catalano MC, O'Dell KJ, Humphrey DA, Fritz EB. The utility of laboratory screening in medically ill patients with psychiatric symptoms. *Ann Clin Psychiatry* 2001;13(3):135-140.

31. Hutto B, Adimora AA. Syphilis in psychiatric inpatients: prevalence, treatment and implications. *Gen Hosp Psychiatry* 2000;22(4):291-3.
32. Roberts MC, Emsley RA. Psychiatric manifestations of neurosyphilis. *S Afr Med J* 1992;82(5):335-337.
33. Senn TE, Carey MP. HIV testing among individuals with severe mental illness: review, suggestions for research and clinical implications. *Psychol Med* 2009;39(3):335-363.
34. Joska JA, Kaliski SZ, Benatar SR. Patients with severe mental illness: A new approach to testing for HIV. *S Afr Med J* 2008;98:213-217.
35. World health organization. *Guidance on Provider-initiated HIV Testing and Counseling in Health Facilities*. 2007.
36. Human Rights Watch. Comments on WHO/UNAIDS draft "Guidance on Provider-initiated HIV Testing and Counseling in Health Facilities". Submission to WHO by Human Rights Watch.
37. Nair MG, Wessels WH. The insanity defense: a South African perspective. *Med law* 1992;11(3-4):297-302.

Part C: Manuscript prepared for submission to the South African Medical Journal

Abstract

Background. Under South African law, Section 79 of the Criminal Procedure Act (Act 51 of 1977) provides for the referral of a defendant for psychiatric assessment. As there are several physical conditions that could play a role in the development, continuance or exacerbation of psychiatric symptoms, an essential part of the evaluation is to exclude any medical illness. This may include special investigations.

Objectives. There is a lack of clinical data documenting physical illness in the remand population sent for psychiatric assessment in South Africa. There is also a scarcity of available guidelines as to which laboratory investigations should be included in the routine screening.

Methods. A retrospective chart review of defendants admitted for psychiatric observation at Valkenberg Hospital was conducted for the period 1 July 2010 to 31 December 2010. Relevant demographic, forensic and clinical data were recorded.

Results. Results suggest a high prevalence of physical illness in this population. Although this was not significantly associated with psychiatric illness or the recommendations to the court, it nonetheless has clinical implications for the burden of care required by these defendants. Utility of routine and clinician initiated laboratory tests are described. Routine testing of syphilis and HIV were seen to be the most expedient. A positive HIV test was significantly associated with both the diagnosis of a psychiatric disorder as well as with the recommendation to the court.

Conclusions. High levels of physical illness in this population have been observed. Further studies in the remand population may assist in improving health outcomes for defendants. The variable utility of current testing policies has been demonstrated. We aim to highlight the need for a rationalised approach to routine laboratory screening protocols, with the implication of providing adequate medical care for the remand population.

Article

Background and aims

Forensic psychiatry is a sub-specialty of psychiatry that encompasses the interface between psychiatry and the law.

Under South African law, Section 79 of the Criminal Procedure Act (Act 51 of 1977) provides for the referral of a defendant for psychiatric assessment. The accused is usually admitted to a state psychiatric hospital for a 30-day period of observation to determine whether, by reason of mental illness or defect, he is fit to stand trial or was criminally responsible at the time of the offence. In Cape Town this occurs at Valkenberg Hospital, which is a large, government-funded, tertiary psychiatric hospital and is the main teaching hospital for the University of Cape Town's Department of Psychiatry.

An integral part of the assessment process is to exclude any medical illness. Recent epidemiological data corroborates the frequent co-occurrence of certain physical diseases and mental disorders¹. There are several physical conditions that could play a role in the development, continuance or exacerbation of psychiatric symptoms. As these psychiatric symptoms may present with behavioural problems, which may lead to criminal behaviour, it is imperative to thoroughly evaluate this relationship in all forensic assessments. To our knowledge there has been no previous study specifically examining this occurrence in the remand population that is referred for psychiatric assessment. This study thus aimed to assess the prevalence of physical illness present in the defendants examined at the Valkenberg Observation Unit and to determine whether the presence of medical illness had any influence on the final outcome of the assessment.

In order to exclude a medical illness, a full physical examination is done on admission. Only a portion of those referred is mentally ill. However, the reduced ability of some mentally ill patients to provide a history and cooperate in physical

examinations or special investigations makes the diagnosis of physical disease in such patients difficult and there is a disproportionate reliance on laboratory information.² A battery of special investigations is therefore also done routinely at this time. This is not without controversy. While the presence of mental illness may hinder the identification of medical illness, it may also impede a person's ability to consent to investigations. This presents the clinician with the challenge of determining which investigations are ethically justifiable in the search for diagnosis. In highly stigmatised illnesses, such as HIV, testing without informed consent is controversial. In addition to stigma, cost restraints must also be considered in determining which tests should be performed. Several studies have demonstrated the limited utility of routine screening tests.³ However, as many medical illnesses may be asymptomatic or not suspected clinically, the practice of routine screening is still promoted. In psycho-legal assessments even more rigorous evaluations are advocated. As the literature thus far does not document recommended protocols for special investigations in this population, the study also aimed to examine the yield of the routine and clinician initiated investigations in the remand population.

Methods

A retrospective review of clinical records of all patients admitted to the forensic observation unit at Valkenberg Hospital was undertaken for the period 1 July 2010 to 31 December 2010. All patients referred by the court for observation under Section 79 of the Criminal Procedure Act (Act 51 of 1977) were included in the study. All available clinical notes, discharge summaries, court documents and nursing notes were reviewed. Results of laboratory investigations were obtained by printouts in the folders, or telephonically from the lab. Patients were identified by their hospital numbers only and names and personal information were kept confidential.

At Valkenberg Hospital, the existing protocol for initial medical assessment includes a medical history, physical examination and both routine and clinician initiated special investigations.

The routine investigations done are:

- A full blood count (FBC)
- Thyroid stimulating hormone (TSH)
- Rapid Plasma Reagin (RPR) to exclude syphilis
- An HIV test

Clinician initiated tests are based upon individual patient's medical histories and physical examination and may include further blood tests, CT scans and EEG's.

Other variables that were extracted from the records included:

- Demographic details
- The index charge and criminal history
- Psychiatric, medical and substance abuse histories
- Results of medical examination and investigations
- Recommendations to the court

Ethical approval for the study was obtained from The Committee for Human Research of the University of Cape Town and consent for access to clinical folders was obtained from the Medical Superintendent of Valkenberg Hospital.

Data were entered into Epi-Info version 3.5.3 for coding and statistical description and analysis. Associations between categorical variables were tested using cross tabulation and the Chi-square test. In cases where the numbers were small, Fisher's exact test was used. Significant differences were determined at a 5% significance level ($p < 0.05$).

Results

There were 81 admissions for observation under Section 79 of the Criminal Procedure Act (Act 51 of 1977) during the 6-month period.

Sample characteristics (Table 1)

Demographic characteristics. The majority of the admissions were men, with less than 5% being female. The mean age of the patients was 32.06 years (SD 11.47; range 18-73). The records did not always document the exact level of schooling and patients were thus grouped into those who had stopped formal schooling in their primary school years (grades 1-7), secondary school years (grades 8-12) and those who had attained a tertiary qualification. Almost half of the group (48.1%) had ceased their schooling prior to grade 8 and only 2 (2.5%) had gone on to tertiary level. The majority of the patients were unemployed at the time of observation (70.4%), although a small percentage (18.5%) received a Disability Grant. Of those, 13 received it on a basis of mental illness and the remaining 2 for physical ailments. 14.8% of those reviewed lived independently, either on their own, or with a spouse and/or children. The majority, however, were dependent on family members, with 77.8% reporting that they stayed with family (parents, siblings or extended family). 6 Patients (7.4%) reported that they had no fixed abode prior to admission.

Forensic context. With regard to the index offence, the majority were violent crimes (66.7%), the most frequent being murder (20%), then rape (18%), and assault with grievous bodily harm (16%). Of the non-violent offences, the most frequent were burglary and theft, each comprising 11% of the total offences. Although a substantial proportion of the subjects were charged with their first offence (42.3%), the majority had previously committed a crime. The mean number of previous offences was 1.65 (SD 2.41; range 0-15).

Psychiatric history. 41.9% of the patients had previously been admitted to a psychiatric hospital for treatment. The majority of these (23.5%) had only one previous admission. The mean number of admissions was 1.09 (SD 2.62; range 0-20). Of the 34 patients who had a previous psychiatric history, the majority (25)

reported a previous psychotic disorder: substance induced psychotic disorder (n=15), schizophrenia (n=6), schizoaffective disorder (n=2), brief psychotic episode (n=1) and psychosis NOS (n=1). Other diagnoses included bipolar mood disorder (n=3), major depressive disorder (n=1), substance induced mood disorder (n=1), mood disorder secondary to head injury (n=1), mild mental retardation (n=1), moderate mental retardation (n=1) and unsure diagnosis (n=1).

After the psychiatric assessment, of the 34 defendants who had reported a previous psychiatric admission, there was insufficient evidence of mental illness in 18 defendants and 16 of the previous diagnoses were upheld. A further 18 patients with no prior history were assessed to having a psychiatric disorder, thus totalling 34 patients (41.9%) again who were found to be mentally ill. The most common diagnoses were: mild mental retardation (n=11), schizophrenia (n=7), dementia (n=5), bipolar disorder (n=4), and schizoaffective disorder (n=3). Other diagnoses included: psychotic disorder NOS (n=1), major depression disorder (n=1), delirium (n=1) and alcohol abuse (n=1).

Substance history. 81.5% of the patients admitted to using at least one substance with the majority reporting using several substances concurrently. The mean number of substances used was 2.09 (SD 1.58; range 0-7). The most frequently used substances were cannabis (50.6%); cigarettes (45.7%); alcohol (45.7%) and methamphetamine (39.5%).

Recommendations to the court. The majority of the patients (80.2%) were found fit to continue with their trials. In only 16 cases (19.8%) was the patient found not fit to stand trial and a recommendation of on-going care made, either as a state or involuntary patient.

A psychiatric diagnosis was made in all 16 of the cases who were recommended for certification, either as a state patient or as an involuntary patient. The most common diagnoses were schizophrenia (n=6) and dementia (n=5). Other diagnoses included: schizoaffective disorder (n=2); psychotic disorder NOS (n=1); delirium (n=1); and bipolar disorder (n=1).

Table 1: Sample Characteristics

		Total	%
Age	16-25	29	35.8%
	26-40	35	43.2%
	41-60	14	17.3%
	>61	3	3.7%
Gender	Male	77	95.1%
	Female	4	4.9%
Highest level of education	≤ Grade 7	39	48.1%
	Grade 8-12	40	49.4%
	≥ Grade 12	2	2.5%
Employment status	Disability Grant	15	18.5%
	Unemployed	57	70.4%
	Employed	9	11.1%
Place of residence	Family	63	77.8%
	No fixed abode	6	7.4%
	Own home	12	14.8%
Nature of current offence	Non-violent	27	33.3%
	Violent	54	66.7%
Number of previous offences	0	36	44.4%
	1-4	38	46.9%
	5-9	6	7.4%
	≥ 10	1	1.2%
Number of previous admissions	0	47	58.0%
	1	19	23.5%
	2-4	10	12.3%
	≥ 5	5	6.2%
Any substance use		66	81.5%
Fit to stand trial		65	80.2%
Total not fit to stand trial		16	19.8%
State patient		9	11.1%
Involuntary patient		7	8.6%

Nature of physical illness

Previous medical history. A number of patients reported a prior history of medical illnesses (55.6%). The most commonly reported illnesses were head injuries (n=11) and epilepsy (n=6). 3 Patients were aware of their HIV status, although only one of the three was receiving antiretrovirals at the time of admission. 5 Patients reported a prior history of TB. Other conditions included asthma (n=2); chronic cough (n=1); back injury (n=1); hearing impairment (n=1); stroke (n=1); knee injury (n=1); peptic ulcer (n=1); and previous stab wound to abdomen (n=1).

Routine special investigations. Table 2 documents the abnormalities found through the routine tests. A number of patients had more than one abnormality.

Clinician initiated special investigations. Further investigations were requested for 27 of the patients (33.3%), based on their history or clinical presentation. Several patients required more than one additional investigation. Of the 51 additional tests done, only 22 (43.1%) yielded a positive result.

In addition to the TPHA's and lumbar punctures done on patients with a positive RPR, CD4 counts were done on 5 of the 6 patients who tested positive for HIV. Sputum's for AFB's were taken from 4 patients, yielding 2 positive results. A lymph node biopsy done also revealed tuberculosis in a 3rd patient. 2 Chest X-rays done were normal. 4 CT brains were ordered, 2 of which were normal and 2 that showed pathology. 2 Normal EEG's were done. 11 Renal function tests (urea and electrolytes), 4 liver function tests and 1 calcium, magnesium, phosphate were all within normal limits.

Prevalence of medical illness on discharge. Despite 55.6% of the accused reporting a previous medical history, only 43.2% were diagnosed with a medical condition on discharge. Several patients had more than one illness. The most commonly diagnosed illnesses were: syphilis (n=11); prior head injury (n=11); epilepsy (n=10); and HIV (n=6). Other diagnoses included: tuberculosis (n=3); hypertension (n=2); hearing impairment (n=1); back injury (n=1); urinary tract infection (n=1); knee injury (n=1); previous cerebral infarct (n=1); microcytic anaemia (n=1); and asthma (n=1).

Table 2: Physical Illness Data

	Total	%
Any previous medical history	45	55.6%
Any abnormality on routine tests	19	23.5%
Abnormal FBC	19	3.8%
Abnormal TSH	2	2.6%
HIV reactive	6	7.8%
RPR reactive	13	16.1%
Patients who required clinician initiated investigations	27	33.3%
Patients with abnormal clinician initiated investigations	12	14.8%
Any physical illness diagnosed on discharge	35	43.2%

The contribution of special investigations to diagnosis of medical illness

Approximately half (54.2%) of the 35 accused who were diagnosed with a medical disorder on discharge had an abnormal special investigation. The majority of these investigations were routine syphilis or HIV tests.

While the thyroid function tests and FBC yielded no significant results, there was a significant association of RPR with a diagnosis of medical illness, but not with psychiatric diagnosis or recommendations to the court. The HIV test results were significantly associated with both diagnosis of medical and psychiatric illness and with the ultimate recommendation made to the court (Table 3).

Table 3: Contribution of Investigations to Final Assessment

Pathological Laboratory investigations	Confirmed psychiatric diagnosis		Confirmed medical illness		Lack of fitness to stand trial	
	χ^2	P value	χ^2	P value	χ^2	P value
Routine investigations	1.157	0.208	32.62	0.0000000027	4.573	0.039
FBC	0.095	0.620	4.094	0.076	0.767	0.511
TSH	1.483	0.334	2.695	0.183	0.505	0.641
RPR	0.111	0.485	20.352	0.0000039	1.186	0.231
HIV	4.742	0.040	8.775	0.0044	9.776	0.010
Clinician initiated investigations	4.942	0.029	16.729	0.000034	15.464	0.000069

Contribution of medical illness to final assessment

The diagnosis of medical illness as a whole was not significantly associated with confirmed psychiatric disorder ($\chi^2 = 0.353$, $p=0.356$), the degree of violence of the crime ($p=0.469$) or with the recommendation made to the court ($\chi^2 = 1.38$, $p=0.186$).

Discussion**Demographics**

The sample was predominantly made up of men, and showed low levels of education and employment. This reflects the generally low socioeconomic status of this population. Individuals in lower social status groups have the highest rates of morbidity and mortality within most human populations.⁴ This may be a factor contributing towards the high rates of illness found in the study.

Substance use

It is interesting to note that the majority of substance users were below the age of 40 (80.3%), with alcohol, cannabis and cigarette use accounting for the majority of use above this age. While negative responses were recorded for all illicit substances, this was not consistently done for the recording of cigarette and alcohol use. It should thus be noted that the reported rates, which were lower than anticipated, might rather be indicative of poor recording and not a true reflection of their use in this population. It is also important to note that no standardised questionnaires were used to determine the extent of the usage and whether substance misuse or dependence was present.

Prevalence of physical illness in the remand population

Physical illness in both the prison population as well as in the mentally ill is well documented.^{1,5} In the remand population referred for psychiatric assessment, where it is expected that these populations will coincide, a higher rate of physical illness is to be anticipated. To our knowledge there has not yet been a study documenting overall rates of illness in this population. Our study's finding of almost half (43.2%) of those referred having a medical diagnosis confirmed at discharge is in keeping with the expectations of an elevated proportion of physical illness.

This highlights the importance of a thorough medical history and examination. Although the presence of a medical disorder was not significantly associated with a psychiatric disorder, nor was it associated with the final recommendations to the court, the identification and management of a number of these conditions may substantially improve quality of life. A physical examination and routine screening investigations should therefore be done on all defendants referred for observation.

The high rates of medical illness have further implications within the forensic service in terms of future management. As the assessment is done at the behest of the court and a fiduciary relationship is not entered into, a protocol for the forensic team in terms of handing over care to the prison medical team should be drawn up.

Contribution of special investigations to diagnosis

FBC and TSH. Few of the FBC and TSH results (3.8% and 2.6% respectively) were abnormal. Of the three abnormal FBC results, two showed a microcytic anaemia and the third showed a raised white cell count, which was further investigated and attributed to a urinary tract infection. Both of the abnormal TSH results showed a normal free T4 on further investigation and no further management was needed. Neither of the patients displayed any stigmata of thyroid illness on examination. FBC and TSH therefore do not seem to be useful as routine tests.

RPR. 13 (16.1%) Of the patients tested had a reactive RPR. Although a non-treponemal serological test such as the RPR is the standard initial test recommended, this is usually followed by a specific treponemal test such as the *T. pallidum* haemagglutination test (TPHA) for confirmation.⁶ Confirmatory TPHA was only done in 4 of those patients and of which half were positive. After excluding syphilis in the two patients with negative TPHA, 11 (13.6%) were diagnosed with syphilis. It is important to note that had the remainder of the group had confirmatory testing this number may have differed. Although the two false positive RPR's found may indicate that the rates reported in our study may be inflated, the literature indicates several cases where the opposite has been found. Reeves *et al.* found a 25% prevalence of syphilis among 200 patients with chronic mental illness, with a 21% non-detection by the RPR test.⁷ Similarly, a recent South African study documented that the RPR test performed poorly, identifying only 2/23 patients who had a sero-positive TPHA test.⁸ It may thus be important to use specific treponemal tests to screen for and diagnose syphilis in mentally ill patients, instead of sole reliance on non-specific treponemal tests. Ideally, the specific treponemal test should be used in conjunction with the non-treponemal test, since both are needed to assess the patient's current status of infection (active or latent) and to monitor treatment success in active syphilis. Nontreponemal test antibody titers usually correlate with disease activity, and results should be reported quantitatively. These results were not documented for this study and also limit the inferences that can be drawn from this data.

Nonetheless, routine syphilis testing in this study revealed a surprisingly high rate of syphilis. In none of these cases was a clinical suspicion documented prior to the

serological screening. This is in keeping with a South African study that attempted to investigate referral patterns, initial diagnoses and clinical features of patients with neurosyphilis who presented with psychiatric manifestations.⁹ They showed that only in the minority of the cases was the diagnosis considered on admission before serological tests were known. This is noteworthy as neurosyphilis has been shown to present with a variety of psychiatric manifestations and further screening tests were only initiated in a minority of those with a positive RPR. Only 4 lumbar punctures were done to exclude neurosyphilis. 2 Of those were found to be negative and 2 found to be positive. It was further documented that one patient had refused a lumbar puncture and another had had 4 failed attempts. Although a positive RPR was not significantly associated with a psychiatric diagnosis or with the final recommendation to the court, it is nevertheless recommended that screening continue due to the ease of treatment of this condition.

HIV. 6 Patients (7.8%) tested positive for HIV. Of those that tested positive, half were previously aware of their status. It was not clearly documented whether the previously undiagnosed received post-test counseling regarding their status.

International literature documents that HIV rates are higher in both the prison and awaiting trial population.^{10, 11} It initially appears that the rates of HIV found in the study are relatively low when compared to the National average prevalence of 10.9% as reported in the 2008 South African National HIV Prevalence, Incidence, Behaviour and Communication Survey.¹² However, when it is considered that all defendants in our study originated from the Western Cape, the province in which the lowest HIV rate is found (3.8%), it is apparent that the prevalence was almost double in our sample.

There was a statistically significant association between a positive HIV result and a diagnosis of mental illness. This is in keeping with previously reported evidence of higher prevalence of severe mental illness in people infected with HIV.¹³ Mental illness in these patients may manifest across the full spectrum of disease. HIV may also manifest with inappropriate (including criminal) behaviour.

The difference in HIV status between those found fit to stand trial and those who were not, was also statistically significant. Two thirds of those with a reactive HIV were found not fit to stand trial. The numbers of HIV positive subjects in the study was too low to make a valid statistical test that could be generalisable, but this result nonetheless emphasises the importance of screening tests in this population.

In recent years, the stigma of HIV has led to much debate regarding ethical testing and screening policies for HIV. The nature of mental illness is such that patients often cannot give informed consent for testing. The clinician needs to consider the potential harms and benefits of any interventions. Joska et al concluded that the high prevalence of HIV infection in South Africa, together with the availability of effective treatment, should require debate and the implementation of a clear policy regarding testing.¹⁴ Although client-initiated HIV testing remains the mainstay, the WHO has long recognised this dilemma. They have put forward guidelines on provider-initiated testing and counselling (PITC).¹⁵ However its prerequisites cannot be met in a large proportion of those who are severely mentally ill.

HIV testing within the forensic observation setting is even more contentious. Although PITC can be argued for in those whose ability to consent is compromised, only a proportion of those presenting for observation are found to be mentally ill. At Valkenberg, although all defendants are counselled, they are not given the choice to opt out of testing, but only to decide whether they would like the results disclosed to them. The position adopted by the unit is that in the South African context, where the prevalence of HIV positive cases is so high, and therefore the confluence of HIV, psychiatric disorder and criminal behaviour may occur frequently, the importance of diagnosing an offender's HIV status may be crucial. The results of this study support this position.

Clinician initiated special investigations. Despite only 43.1% of the additional tests done yielding a positive result, having a positive clinician-initiated test was significantly associated with a confirmed medical and psychiatric diagnosis as well as with the recommendations made to the court. This underscores the utility of special investigations in confirming a clinical suspicion. Clinicians should continue to be encouraged to do selective tests to verify their clinical judgment. However, it appeared that renal and liver function tests had limited utility and clinicians should consider indications for performing these more circumspectly.

Limitations

This study had several limitations. This was a retrospective study and the quality of data was dependent on the quality of medical record keeping and patient self-reports. The sample size was small, which does mean that generalising from these data should be done cautiously. As this was a cross-sectional study, causality between the variables cannot be concluded.

Conclusion

From the results reported here it is clear that there is a high prevalence of physical illness in the population of defendants referred for forensic psychiatric assessment. Although the presence of such illness does not significantly contribute to the psycho-legal assessment it may inform further management of such defendants, in that they may require further medical interventions.

This review examines the utility of routine laboratory tests and underscores the importance of HIV testing in this population, despite the controversies that surround enforced testing. It also reveals the limited value of routine FBC, TSH, electrolyte and liver function testing. This study highlights the need to review existing policies regarding testing protocols.

References

- 1) Iacovides A, Siamouli M. Comorbid mental and somatic disorders: an epidemiological perspective. *Curr Opin Psychiatry* 2008;21(4):417-421.
- 2) Kampmeier RH. Diagnosis and treatment of physical disease in the mentally ill. *Ann Intern Med* 1977;86(5):637-645.
- 3) White AJ, Barraclough B. Benefits and problems of routine laboratory investigations in adult psychiatry admissions. *Br J Psychiatry* 1989;155:65-72.
- 4) Adler NE, Boyce T, Chesny MA, Cohen S, Folkman S, Kahn RL, Syme SL. Socioeconomic status and health: The challenge of the gradient. *Am Psychol* 1994;49(1):15-24.
- 5) Freudenberg N. Jails, Prisons, and the Health of Urban Populations: a Review of the Impact of the Correctional System in Community Health. *J Urban Health*. 2001 Jun;78(2):214-35.
- 6) Workowski KA, Berman SM. Sexually Transmitted Diseases Treatment Guidelines, 2006. *Recomm Rep* 2006;55:1-94.
- 7) Reeves RR, Pinkofsky HB, Kennedy KK. Unreliability of current screening tests for syphilis in chronic psychiatric patients. *Am J Psychiatry* 1996;153:1487-1488.
- 8) Henning MP, Kruger C, Fletcher L. Syphilis sero-positivity in recently admitted and long-term psychiatric inpatients: Screening, prevalence and diagnostic profile. *S Afr J Psych* 2012;18(4):171-175.
- 9) Roberts MC, Emsley RA. Psychiatric manifestations of neurosyphilis. *S Afr Med J* 1992;82(5):335-337.
- 10) ACTAfrica World Bank, UNAIDS, UNODC assisted by WHO/AFRO. HIV and prisons in Sub-Saharan Africa: Opportunities for action. 2007.
- 11) Schwartz-Watts D, Montgomery LD, Morgan DW. Seroprevalence of Human Immunodeficiency Virus among inpatient pre-trial detainees. *Bull Am Acad Psychiatry Law* 1995;23(2):285-288.
- 12) South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2008.
<http://www.mrc.ac.za/pressreleases/2009/sanat.pdf> (accessed 04/01/2013)

- 13) Cournos F, McKinnon K. HIV seroprevalence among people with severe mental illness in the United States: a critical review. *Clin Psychol Rev* 1997;17:259-269.
- 14) Joska JA, Kaliski SZ, Benatar SR. Patients with severe mental illness: A new approach to testing for HIV. *S Afr Med J* 2008;98:213-217.
- 15) World Health Organisation. *Guidance on Provider-initiated HIV Testing and Counselling in Health Facilities*. 2007.

University of Cape Town

Part D: Appendices

1. Data collection instrument
2. Ethics approval letter
3. Author guidelines: South African Medical Journal

University of Cape Town

Appendix 1

Data capturing sheet: The Prevalence of Physical Illness in Defendants referred for Psychiatric Observation

Hospital number	
Date of admission	

Demographic data

Age							
Gender	Male			Female			
Employment	Employed		Unemployed		DG		DNA
HLOE	Primary		Secondary		Tertiary		DNA
Home	Own		Family		No fixed		DNA

Psychiatric history

No. of previous admissions		DNA	
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Previous diagnosis: Axis I: Anxiety and Other to be specified

Schizophrenia		Schizoaffective		BMD		Anxiety	
Subst mood		Subst psychotic		Dementia		Other	

Previous diagnosis: Axis II

Paranoid		Schizoid		Schizotypal		Borderline		Antisocial	
Histrionic		Narcissistic		Dependent		Avoidant		OCPD	

Substance use: Other to be specified

Alcohol		Cigarettes		Cannabis		Tik		Heroin	
Cocaine		Inhalants		Other					

Discharge diagnosis

Schizophrenia		Schizoaffective		BMD		Anxiety	
Subst mood		Subst psychotic		Dementia		Other	

Medical illness

Medical history	
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Results of special investigations

Test	Normal/Non-reactive	Abnormal/Reactive	DNA
FBC			
U&E			
TSH			
RPR			
HIV			
CT brain			
EEG			
Other			

Axis III diagnosis on discharge		None		DNA	
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Forensic history

Number previous offences		DNA	
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Nature of charge

Violent		Non-violent	
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Specify**Violent crimes** (other to be specified)

Murder		Att. Murder		Culpable homicide	
Rape		Att. Rape		Indecent assault	

Assault - GBH			Assault - common		
Robbery - aggravated			Robbery - common		
Kidnapping		Domestic violence		Other	
Arson		Malicious damage to property			

Non-violent

Burglary		Theft		Shoplifting	
Fraud		Firearms/ammun		DUI	
Drugs - possession		Drugs - distrib		Other	

Recommendation to the court

State pt.		Involuntary		Continue trial	
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University of Cape Town

Appendix 2



UNIVERSITY OF CAPE TOWN

Health Sciences Faculty
Faculty of Health Sciences Research Ethics Committee
Room E52-24 Groote Schuur Hospital Old Main Building
Observatory 7925
Telephone [021] 406 6338 • Facsimile [021] 406 6411
e-mail: sumayah.ariefdien@uct.ac.za

23 December 2010

HREC REF: 602/2010

Dr M Young
c/o Prof S Kaliski
Department of Psychiatry

Dear Dr Young

PROJECT TITLE: THE PREVALENCE OF PHYSICAL ILLNESS IN DEFENDANTS REFERRED FOR PSYCHIATRIC OBSERVATION

Thank you for submitting your study to the Faculty of Health Science Human Research Ethics Committee for review.

It is a pleasure to inform you that the Ethics Committee has **formally approved** the above-mentioned study.

Approval is granted for one year till the 15 January 2012.

Please submit a progress form, using the standardised Annual Report Form (FHS016), if the study continues beyond the approval period. Please submit a Standard Closure form (FHS010) if the study is completed within the approval period.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please quote the REC. REF in all your correspondence.

Yours sincerely

PROFESSOR M BLOCKMAN
CHAIRPERSON, HSF HUMAN ETHICS

Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938
sAriefdien

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