

# Diagnosis and treatment of schizophrenia in a general hospital based acute psychiatric ward

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## Abstract

**Objectives:** To review and describe the clinical profile and acute in-patient treatment of patients diagnosed with schizophrenia over a four-year period; to review and describe the documented evidence for the diagnosis of schizophrenia; and to identify possible associated or predictive factors in the acute in-patient treatment outcome of patients at an acute (designated for 72-hour assessments) ward – within a general hospital, Helen Joseph Hospital (HJH). **Method:** Routine discharge summaries were used in a retrospective clinical review of patients with schizophrenia. The demographic, clinical and treatment profile of these patients were described and the documented evidence for the diagnosis of schizophrenia was reviewed using descriptive and comparative statistics. Factors were evaluated to assess their association with the length of stay (LOS) as outcome variable, using “Generalized Linear Latent and Mixed Models” (GLLAMM). **Results:** A total of 436 patients were diagnosed with schizophrenia, constituting on average about 20% of the total numbers of admissions. The overall mean LOS was 19.5 days. Considering DSM IV-TR criteria for schizophrenia, behavior problems were confirmed in 71.8% (n=313), perceptual disturbances in 29% (n=126) and thought disorders in 83.5% (n=364). The duration of symptoms were specified in 68% (n=298) patients. Age ( $p<0.001$ ), gender ( $p<0.019$ ), substance abuse ( $p<0.019$ ) and follow-up referral ( $p<0.000$ ) were significantly associated with LOS. **Conclusion:** The study contributed by identifying these predictive indicators for the acute in-patient treatment outcome of patients with schizophrenia. Future standard operational procedures for diagnostic and treatment processes in acute wards may have to include structured interviews in order to enhance the quality of the routine process of diagnosis and treatment of patients with schizophrenia.

**Key words:** Acute management; Schizophrenia; Diagnosis; Treatment; Length of stay; Predictive factors

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## Introduction

In an earlier review, schizophrenia was diagnosed in almost a quarter (23.9%, n=105) of 438 patients admitted to the Helen Joseph Hospital (HJH) psychiatric ward over a one-year period (2003/04).<sup>1</sup> In a subsequent review of the mental health activities at HJH for the financial year 2007/08, 28.6% (n=138) of 520 patients were diagnosed with schizophrenia.<sup>2</sup> The psychiatric ward, representing a typical

acute unit (designated for 72-hour assessments of “involuntary” patients) in a regional referral hospital, may experience considerable pressure due to high turnover of patients. Where diagnoses are routinely based on clinical assessment and examination only, the previous findings<sup>1,2</sup> raised questions about whether the quantity and quality of the diagnoses of schizophrenia made in the unit are appropriate and comparable with other acute referral units under similar conditions and also, whether any conclusions can be drawn from the routine treatment patterns of schizophrenia in this unit in relation to relevant standard treatment guidelines (STG).

To fulfil the diagnostic criteria for schizophrenia - according to the Diagnostic and Statistical Manual IV Text-

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Revision edition (DSM IV-RT) - requires two or more of delusions, hallucinations, disorganized speech, disorganized/catatonic behaviour or negative symptoms, plus social/occupational dysfunction and a minimum duration of 6 months to be confirmed.<sup>3</sup> Other conditions such as schizo-affective and mood disorders, general medical conditions and substance abuse should have been ruled out. South African national standard treatment guidelines (STGs) for the treatment of schizophrenia and an essential drug list (EDL) for the public sector exist in the form of a publication that was updated in 2006.<sup>4</sup> The Gauteng Provincial Health Department (under whose authority HJH exists) also established regional guidelines and aligned its available drug list with the national list.<sup>5</sup> According to these lists, antipsychotic medication for the treatment of schizophrenia is differentiated according to levels of service delivery or of the prescribing clinician. On primary (general practitioner) level, only first generation anti-psychotics (FGA) - e.g. chlorpromazine, haloperidol, fluphenazine deconate and zuclopenthixol-deconate, are available. On secondary (specialist) level, FGA and some secondary generation antipsychotics (SGA) - including trifluoperazine, flupenthixol-deconate, sulpiride, risperidone and clozapine, are available. The Gauteng STG for schizophrenia in the acute phase includes a choice between three typical antipsychotics: haloperidol (2.5-5 mg/d), trifluoperazine (2-20 mg/d) and chlorpromazine (75-500 mg/d). If not effective to maintain the stabilization of a user on re-assessment (6-8 weeks later), a change to another class of antipsychotic (preferably atypical) is recommended in compliant users and a change to depot antipsychotic in poorly compliant users.<sup>6</sup> Clozapine is recommended for the treatment of treatment-resistant schizophrenia.

#### **The service context**

Helen Joseph Hospital (HJH) - in Johannesburg - is a 480-bed facility and one of three general hospitals with an acute psychiatric ward on the local specialist service and teaching circuit, affiliated to the University of the Witwatersrand. Since 2005, the ward at HJH is a designated 30-bed, acute, 72-hour psychiatric and mental health assessment facility for adults - according to the Mental Health Care Act, No. 17 of 2002 (MHCA). There are many such units throughout South Africa, and several within the broader urban region of Johannesburg. In terms of the MHCA, the 72 hour designation refers to the time period for assessment of patients classified as "involuntary" i.e. refusing treatment and potentially requiring ongoing such care, which if required will need to take place at a facility designated for "involuntary" care e.g. a psychiatric hospital; the ward also admits both "assisted" (not refusing care) and "voluntary" (requesting care) patients.

The main objective of the ward is to provide efficient and cost effective acute care, treatment and rehabilitation in a "lesser restrictive environment" compared to a psychiatric hospital. This is generally translated to mean the completion of patient's assessment as soon as possible and an attempt to optimize their initial stabilization in the short term, often under the pressure of a high turnover of patients in need of routine acute admission and treatment. There is

currently no delineation of the catchment area or clarity on the size and morbidity profile of the population that HJH as a regional hospital is supposed to serve. Patients are admitted from all over the city of Johannesburg, referred from local psychiatric clinics, from private practitioners when medical aid benefits have been exhausted and also by direct and self referral, often brought to the hospital's casualty department as emergency cases by the South African Police Services. At completion of the assessment and initial stabilization of these acute patients, the unit is then responsible for arranging further management and transfer to other psychiatric hospitals such as Tara, the H. Moross Centre (TARA) and Sterkfontein psychiatric hospital (SFH), or for the placement for those in need of longer-term care and accommodation (e.g. non governmental organizations, contracted care facilities and old age homes). As an acute ward, a major challenge is the continuous readmission of the same patients, commonly known as the "revolving door phenomenon" resulting from the fragmentation of regional community psychiatry services and the consequent discontinuity of care and treatment of patients after discharge from acute units,

The routine standard operational procedures in the unit to assess, diagnose and treat patients with acute psychiatric conditions consist of history-taking, clinical and mental state assessment, physical examination, laboratory and radiological investigations, as well as collateral information and interviews with associates (family members, partners, friends and employers). No structured interviews such as the BPRS (Brief Psychiatric Rating Scale) or PANNS (Positive and Negative Syndrome Scale for Schizophrenia) are routinely performed to confirm diagnoses and treatment is routinely selected from the available hospital essential drug list (EDL). Evidence that patients may fit the criteria of different disorders is captured in routine clinical records and summarized in a discharge summary.

Within this service context and with reference to the findings of the two previous reviews<sup>1,2</sup>, the objectives for this study were therefore to: (1) review and describe the clinical profile and acute in-patient treatment of patients diagnosed with schizophrenia over a longer, continuous period of time; (2) review and describe the documented evidence for the diagnosis of schizophrenia following routine clinical assessment and treatment; and (3) identify possible associated or predictive factors in the acute in-patient treatment outcome of patients diagnosed with schizophrenia in an acute unit such as HJH.

#### **Method**

This study was a retrospective, descriptive clinical review of the diagnosis, management and treatment of schizophrenia in the psychiatry ward at HJH, over a 4-year period (January 2004 - December 2007). The data source for the study was the routine discharge summaries from the clinical records of patients with a diagnosis of schizophrenia. The demographic, clinical and treatment profile was described using descriptive and comparative statistics; the documented evidence for the diagnoses for schizophrenia as described in the summarized history and mental state assessment by the attending clinician was reviewed and compared with the DSM IV-RT diagnostic criteria for

schizophrenia; Generalized Linear Latent and Mixed Models (GLLAMM) were used to evaluate the effect of all the different demographic, clinical and treatment factors on the length of stay (LOS) of users with schizophrenia. LOS in this analysis was used as a proxy for the efficiency of service delivery and the cost effectiveness aspects of treatment outcome. The statistical analysis was done using STATA 10.

## Results

An increase in the numbers of service users admitted to the acute in-patient mental health care unit at HJH was observed, especially from 2004 to 2006 (Table I). A total of 2143 admissions were recorded over the four-year period, of which a total number of 436 patients were diagnosed with schizophrenia. Most (n=348, 80%) were admitted once over this 4-year period, while twenty percent (n=88) had multiple re-admissions: twice (n= 66), three times (n=18), four times (n=3). One patient was admitted 5 times in four years.

**Table I: Users with schizophrenia diagnosed annually at HJH, 2004 – 2007**

Year	Total Admissions	Diagnosis with schizophrenia (%)
2004	n = 447	n = 119 (26.6%)
2005	n = 549	n = 99 (18.0%)
2006	n = 602	n = 92 (15.3%)
2007	n = 545	n = 127 (23.3%)
<b>Total</b>	<b>n = 2143</b>	<b>n = 436 (20.3%)</b>
<i>Average/year</i>	<i>n = 535.8</i>	<i>n = 109</i>

### Demographic, clinical and treatment profile

Of the 436 patients with schizophrenia, 90%(n=389) were referred for assessment and treatment by Emergency Services, while 8%(n=34) were referred by the Department of Medicine. The remaining 2% were referred by the HJH psychiatric out-patients clinic.

**Age** - This ranged from 16 to 80 years, with a mean of 38 years. Gender differentiation of age showed a difference in the mean age of females (43.5 years) and males (34 years).

**Gender** - More were male (n=248;56.9%) than female (n=188;43.1%), with a ratio of 1 female to 1.3 males.

**Ethnicity** - A total of 161 patients were identified as "Black"(37%); 146 as "White"(33.5%); 97 as "Colored"(22.3%); and 29 as "Indian"(6.7%).

**Substance abuse** - In 33.5% (n=146) at least one substance was abused at the time of admission, while in 12.4%(n=54) the abuse of two substances was documented. The most common substances involved were cannabis, 53.4% (n=78) and alcohol, 29.5% (n=43).

**Compliance** - In 45.9% (n=200) of patients non-compliance on medication was documented, but for 30% (n=131) compliance was not specified.

**Table II: Length of stay of users with schizophrenia at HJH, 2004 - 2007**

Year	n =	Length of stay (days)		Confidence	Interval
		Mean	SE		
2004	119 (27.3)	19.10	1.173	16.78	21.42
2005	99 (22.7)	22.71	1.311	20.11	25.31
2006	92 (21.1)	18.82	1.264	16.31	21.33
2007	126 (28.9)	17.98	0.999	16.00	19.95
<b>Total</b>	<b>436</b>	<b>19.53</b>	<b>0.60</b>	<b>18.37</b>	<b>20.70</b>

**Length of stay (LOS)** - The mean total LOS was 19.53 days and ranged from 1 to 70 days (Table II, Figure 1).

**Physical examination** - An abnormality was documented in 26.4% (n=115) with regard to their physical health. Of these, 7.6% (n=33) had co-morbid central nervous conditions (e.g. epilepsy n=7; extra pyramidal side-effects n=11 and previous head injury n=8); 16 with respiratory conditions (e.g. asthma n=8); 32 cardiovascular (hypertension n=25); 11 with gastro-intestinal conditions; 21 with endocrine or metabolic conditions (hypo- and hyperthyroidism n=13, diabetes mellitus n=5); 7 with compromised immune status (retroviral disease); 8 with obstetric/gynecological or urological conditions and 18 with musculo-skeletal problems (local inflammation and superficial bruises).

**Special investigations** - Mostly abnormal special investigations were documented in the discharge summaries. Results on 41 CT brain scans and 30 EEG's were documented, mainly amongst those with first onset psychosis. In view of issues around capacity to give consent, HIV testing did not form part of the routine special investigation "work-up" for schizophrenia. However during the study period, the HIV status of 53 of these patients was known: 7 tested positive, 44 negative and 2 were tested but no results were documented.

**Mental state examination** - 71.8% (n=313) presented with behaviour problems, 3.4% (n=15) with cognitive symptoms, 40.4% (n=176) with mood and/or affective symptoms; 29% (n=126) with a perceptual disturbance; and 83.5% (n=364) with thought disorder.

**Axis I diagnosis** - A possible differential diagnosis was documented in 98 cases (22.5%), e.g. substance induced psychosis (n=43), schizo-affective disorder (n=22); psychosis due to general medical condition (n=13); and bipolar mood or major depressive disorder with psychotic symptoms (n=13). A co-morbid Axis I diagnosis was set in 102 cases (23.4%) of substance abuse (n=70) and dementia (n=23).

**Axis II diagnosis** - These were largely deferred in view of the active psychotic features, but included personality traits and/or disorder in 21 users and intellectual impairment in 18 users.

**Medication** - Treatment was not specified in 13 cases. Sedation used during acute in-patient care was specified in 209 cases (48%) of which the most commonly used agents included clonazepam (n=159), clopenthixol-acetate (n=28), clothiapine (n=38), lorazepam (n=23). The most frequently used antipsychotics included haloperidol (n=189), risperidone (122), fluopenthixol-deconate (n=128), sulphiride (n=23), trifluoperazine (n=16), clozapine (n=26) and clopenthixol-deconate (n=15). Treatment with other medication in addition to antipsychotics included mood stabilizers (n=68), antidepressants (n=17) and anti-cholinergics (n=127).

**Treating doctor** - The four-year period of study covered eight different rotations as medical staff rotated through the unit on a 6-monthly basis. Doctors in rotation 1 attended to 51 users with schizophrenia, rotation 2 to 58; rotation 3 to 34; rotation 4 to 34; rotation 5 to 55; rotation 6 to 46; rotation 7 to 71; rotation 8 to 58; in 28 cases the doctor was not specified.

**Follow-up referral** - After discharge patients were referred to community psychiatric clinics (n=131), TARA (n=106), HJH outpatients (n=68), SFH (n=60) and Life Health Esidimeni (LHE) (n=31). The referral of 17 was not specified, 11 refused hospital treatment and 5 were referred for private follow-up.

#### **Documented evidence for diagnosis**

Comparing the diagnostic criteria for schizophrenia according to DSM IV-RT with the history and abnormal mental state of users as summarized by the attending clinicians on discharge, it was found that:

**Behavior problems (n=313;71.8%)** - 151 patients were documented to be disorganized on or during admission, 97 were aggressive, 51 were inappropriate, 17 were withdrawn, 13 displayed negative symptoms and 11 users were talking to themselves;

**Cognitive symptoms (n=15;3.4%)** - patients were mainly disorientated to time and/or place;

**Mood and affective symptoms (n=176;40.4%)** - 47 presented with a restrictive affect, 36 with a blunted affect, while 34 were irritable and 19 dysphoric on or during admission, 19 had an elevated mood and 10 were depressed;

**Perceptual disturbances (n=126;29%)** - auditory hallucinations were documented for 60 patients, while 66 were described to be objectively hallucinating (11 of these were documented to have had command hallucinations);

**Thought disorder (n=364;83.5%)** - (i) thought flow deficits (n=45;10.3%) included pressured speech (n=32) and slow speed (n=13); (ii) thought form deficits (n=222;50.9%) included incoherent thoughts (n=99), loose associations (n=20), derailment (n=20), circumstantial (n=19) and tangential thinking (n=19); (iii) thought content

(n=305,70%) included delusions of a bizarre nature (n=38), grandiose (n=21), paranoid/persecutory (n=165) or religious (n=13) content; the delusions of 25 patients was not specified. Poor thought content was documented for 33 patients.

As far as combinations of mental state symptom variables for schizophrenia are concerned, 37 presented with single category symptoms (e.g. behavioral n=9; perceptual n=2; thought n=26), while 40 presented with a combination of four categories of symptoms. As could be expected, most presented with a combination of 2 (n=192) or 3 (n=159) categories of symptoms.

The duration of symptoms was only specified in 298 patients (68%): 250(57.3%) had symptoms for years and were usually readmitted following a relapse; 26 had symptoms for more than 6 months but probably presented with a first episode; while 22 had symptoms for less than 6 months. No results were reviewed for the required diagnostic criteria that social or occupational dysfunctionality needs to be established, due to the inconsistent manner in which it was documented in the discharge summaries.

While schizophrenia was regarded as the most likely Axis I diagnosis in all of these cases, sub-typing was documented only in some: paranoid schizophrenia (n=75), disorganized (n=36), chronic (n=25), catatonic (n=6); as well as specifying schizophreniform disorder or "prodromal" in 19 patients who had symptoms for less than 6 months.

#### **Length of stay- influencing factors**

It was observed that the mean LOS differed for different years over the 4 year period, with the shortest for 2007 (18 days) and longest for 2005 (22.7 days) – Table II. LOS also differed from month to month with the longest mean LOS for December [n=31; 7.1%; mean LOS 20.03, SE 1.870; 95% confidence interval (16.21- 23.85)], January [n=39; 8.9%; mean LOS 23.13, SE 2.363; 95% confidence interval (18.34- 27.91)] and July [n=39; 8.9%; mean LOS 21.03, SE 2.051; 95% confidence interval (16.87- 25.18)] and the shortest for February [n=36; 17.6%; mean LOS 17.58, SE 2.268; 95% confidence interval (12.98- 22.19)] and August [n=36; 8.3%; mean LOS 15.81, SE 1.610; 95% confidence interval (12.54- 19.07)]. Table III provides a summary of all the factors that were assessed for their association with LOS.

The analysis showed that over this four year period, four factors had a statistically significant association with the length of stay in the short-term outcome in this acute setting. These factors included age, gender, substance abuse and follow-up referral:

**Age** - The mean LOS for those older than 55 years of 22.8 days was significantly longer ( $p<0.001$ ) compared to 20.9 days for those who were 41-55 years old, 18.3 days for those 26-40 years and 17.7 days for those 25 years of age and younger.

**Gender** - Females stayed significantly longer than males over this period, namely 21.2 versus 18.3 days ( $p<0.019$ ).

**Table III: Summary statistics of LOS for demographic, clinical and treatment factors of users with schizophrenia at HJH, 2004 – 2007**

Category	Frequency		LOS (days)		95% Confidence	Interval
	n	(%)	Mean	SE		
<b>GENDER<sup>a</sup></b>						
Female	188	(43.1)	21.20	0.913	19.40	23.00
Male	248	(56.9)	18.27	0.769	16.76	19.79
<b>ETHNIC</b>						
White	146	(33.5)	18.39	0.956	16.50	20.28
Blacks	161	(36.9)	21.37	1.059	19.28	23.46
Colored	97	(22.3)	18.90	1.232	16.35	21.24
Indians	29	(6.7)	17.90	1.990	13.82	21.97
<b>AGE GROUP<sup>b</sup></b>						
< 25	68	(15.9)	17.72	1.620	14.49	20.95
26 - 40	178	(41.6)	18.31	0.870	16.60	20.03
41 - 55	142	(33.2)	20.93	0.974	19.00	22.85
Over 55	40	(9.4)	22.80	2.322	18.10	27.50
<b>SUBSTANCE ABUSE<sup>c</sup></b>						
Yes	160	(36.7)	18.14	0.932	16.30	19.80
No	229	(52.5)	21.10	0.830	19.47	22.74
<b>NON COMPLIANCE</b>						
Yes	200	(45.9)	19.44	0.901	17.66	21.22
No	105	(24.1)	20.88	1.127	18.64	23.11
Not Specified	131	(30.0)	18.60	1.083	16.46	20.75
<b>ABNORMAL EXAMINATION (AXIS III)</b>						
Yes	115	(26.4)	21.01	1.168	18.69	23.32
No	318	(72.3)	19.08	0.690	17.72	20.43
<b>MENTAL STATE EXAMINATION</b>						
Behavior	313	(71.8)	19.96	0.703	18.58	21.34
Cognitive	15	(3.4)	17.40	2.626	11.76	23.04
Affective	176	(40.4)	19.09	0.818	17.47	20.70
Perceptual	126	(28.9)	20.56	1.831	18.34	22.78
Thought	364	(83.5)	19.91	0.649	18.64	21.19
<b>AXIS I DIAGNOSIS</b>						
Schizophrenia	274 (62.8)	19.72	0.809	18.13	21.31	
S-Paranoid	75 (17.5)	18.11	1.176	15.76	20.45	
S-Chronic	25 (	5.7)	18.36	1.864	14.51	22.21
Schizophreniform	19 (	4.4)	20.84	2.280	16.05	25.63
S-Disorganized	36 (	8.3)	21.72	1.883	17.90	25.54
<b>ANTI-PSYCHOTIC TREATMENT</b>						
Risperidone	120	(27.5)	18.73	0.965	16.81	20.64
Haloperidol	182	(41.7)	18.64	0.894	16.88	20.41
Fluopenthixol Dec	49	(22.2)	24.12	2.290	19.52	28.73
Clozapine	21	( 4.8)	21.48	2.306	16.67	26.29
<b>FOLLOW-UP REFERRAL<sup>d</sup></b>						
* SFH	60	(13.8)	9.3	1.031	7.24	11.35
* TARA	106	(24.3)	21.8	1.169	19.44	24.07
* HJH OPD	68	(15.6)	22.0	1.398	19.25	24.84
* LHE	31	(7.1)	26.5	2.474	21.49	31.60
* COMM Psych	131	(30.0)	21.7	1.039	18.63	22.74

Significant difference between factors: a gender ( $pr < 0.019$ ); b Age ( $pr = 0.001$ ); c Substance abuse ( $pr = 0.019$ ); d Follow-up ( $pr = 0.000$ ).

[\*SFH - Sterkfontein Hospital; TARA - Tara the H Moross Center; HJH OPD - HJH outpatients; LHE - Life Health Esidimeni;

COMM Psych – Community Psychiatry Clinics]

**Substance abuse** - Comparing the LOS of those documented to abuse substances on admission (18.1 days) with non-abusers (21.1 days) showed that non-abusers stayed significantly longer ( $p < 0.019$ ).

**Follow-up referral** - Comparing the mean LOS of those referred on discharge to different facilities/services for follow-up, it was confirmed that those referred to SFH ( $n=60$ ; mean 9.3 days) had a significantly shorter LOS ( $p < 0.000$ ), while those who were eventually referred to a LHE facility ( $n=31$ ; mean 26.6 days), had the longest LOS. No significant difference in the LOS for referrals to TARA, HJH out-patients and the community psychiatric service was found, who all stayed on average for 22 days.

No other demographic, clinical or treatment factor investigated in this analysis for an influence on the LOS was identified to have a statistically significant association. For example, no significant correlation could be demonstrated in this setting between LOS and compliance on treatment prior to admission, or with an documented additional abnormal physical examination (Axis III), neither with the nature or extent of the documented presenting symptoms on mental state assessment (whether single or multiple categories of symptoms were present), or with the documented sub-type of schizophrenia. There was also no correlation found between LOS and a particular rotation of doctors or their choice of anti-psychotic treatment. The comparisons of the LOS on different antipsychotics also included a comparison of patients that were on one or more than one antipsychotic drug. Although a small number that were treated with clopenthixol-deconoate as mono-therapy during admission over this period, did show a longer mean LOS (41 days) compared to those treated with other agents or combinations, they comprised only three of the 436.

## Discussion

In contrast with a research setting, most acute service units such as HJH do not incorporate structured clinical interviews with accompanying rating scales as part of the routine day to day diagnostic process. Only routine clinical assessments and examinations as documented by the attending clinician form part of the standard operational approach and management of cases. In addition, the limitation of incomplete data from clinical records in a retrospective study of this nature should be stated upfront and in this review as well, the non-availability in every case of detailed data on the diagnosis and treatment of schizophrenia from the discharge summary was also limited the interpretation of results. Due to this, it was not possible to fully assess the management and treatment of schizophrenia according to detailed STG algorithms, or to confirm whether all diagnostic criteria for schizophrenia were present for all cases. Other important limitations of this study were that it was not able to contextualize the hospital data with general population incidence and prevalence rates, that only in-patients were reviewed and that no information on the functional level of users (e.g. Global Assessment of Functioning score on Axis V) was included in the review.

In terms of the first objective of the study i.e. to review

and describe the profile of users diagnosed with schizophrenia, it was confirmed that the diagnosis of schizophrenia was the most common diagnosis made over the 4-year period. It has been alluded to that the poor availability of regional community psychiatric services, as well as the limited options for placement of patients, has a major influence on admission patterns and on the length of stay in acute units. The profile of in-patients diagnosed with schizophrenia at HJH has now been confirmed with this longer study, to be typically in their late thirties, predominantly male, proportionally more white and colored of whom about half abuse alcohol and cannabis prior to admission and who are also known to be non-adherence or to discontinue treatment. Some remain in the unit for longer periods than the mean LOS due to the routine placement difficulties, while most are discharged back to community psychiatric services. A possible differential or co-morbid diagnosis is considered in a significant number with most routinely treated with FGA as per provincial STG. Clozapine is used in only a small proportion, mostly as mono-therapy and sometimes in combination. By deduction, such patients should be regarded as resistant to treatment according to local and international guidelines, where the treatment with clozapine would mean that they were unresponsive to two different antipsychotics, of which one was a SGA.<sup>7</sup>

In terms of the second objective to review the documented evidence for the diagnosis of schizophrenia, the retrospective nature of this study rendered conclusions on the appropriateness and quality of diagnoses provisional. The study however does provide an initial overview of the merit (or lack thereof) of current routine clinical standard operational procedures as implemented in most service units, although due to the limitations of the study, perhaps more particularly of the quality of the discharge summaries completed by clinicians. This review did show though that the symptoms presented by users during mental state assessment as documented on discharge, included the required criteria for the diagnosis of schizophrenia in the majority of cases. A large number of patients however also (still) required a differential or co-morbid Axis I diagnosis. More in depth follow-up studies should be undertaken, reviewing the entire clinical file, as well as using structured assessment tools such as the operational criteria checklist for psychotic and affective illness ("OPCRIT") developed by McGuffin et al.<sup>8</sup> Ideally would be a prospective study incorporating structured clinical interviews to obtain more conclusive results.

The third objective of the study, to identify the influence of different demographic, clinical and treatment factors on the acute in-patient treatment outcome was achieved in that age, gender, substance abuse on admission and the follow-up referral were identified to have had a statistically significant association with the length of stay during this study period. The finding that older patients, female patients and those who did not abuse substances on admission stayed significantly longer than the mean LOS, can possibly be explained by the fact that younger males with generally more severe behavioural problems and possible co-morbid substance abuse were more likely to be transferred sooner to SFH for further involuntary care and treatment. At the same time users referred to LHE's

contracted long-term care facilities stayed significantly longer due to the time that it took to arrange placement. These findings should be considered in view of the constraints that are experienced in terms of the capacity for containment in the unit, due to the non-availability of adequate staffing – especially nursing – as well as due to the limited physical capacity of the unit to safely facilitate restless, aggressive patients. The difference in LOS admissions during different months of the year may also indicate a variance in the efficiency and cost-effectiveness of the management, associated with variance in capacity such as staffing ratios, transport arrangements, referral and placement logistics, or the availability of appointments in months such as December and January.

Within the context of other studies, in a recent review of mental health care activities at HJH during 2007/08 the mean LOS for 520 in-patients – with all diagnoses – was found to be 15.4 days.<sup>1</sup> This in comparison to the current study's mean LOS of 19.5 days which may therefore represent a significantly longer stay compared with all acute in-patients. In a review of 217 out-patients with schizophrenia over a 10-year period attending community psychiatry clinics in the Johannesburg area, co-morbid mood-symptoms, poor adherence owing to a lack of insight and side-effects due to medication were associated with an increased risk of relapse and re-admission.<sup>9</sup> In a study over a 5-year period, 41.4% of admissions to a teaching hospital in Nigeria were re-admissions.<sup>10</sup> Younger age, a longer LOS, previous multiple diagnosis and the diagnosis of schizophrenia per se were predictive of re-admission to this unit. In a 2-year prospective study, consideration of the predictive value of different variables for the monitoring of the medium-term treatment outcome of schizophrenia such as demographic, baseline clinical findings, early symptom reduction and treatment response were considered.<sup>11</sup> The operational criteria defining remission of schizophrenia proposed by the "Remission in Schizophrenia Working Group"<sup>12</sup> were applied to a sample of 57 subjects with first-episode psychosis over 24 months. Four variables were identified that could correctly predict 80-82% of remitters and non-remitters: – early clinical response (6 weeks); – "neurological 'soft' signs" (NSS); – duration of untreated psychosis; and – the presence of depressive signs at baseline. Using the 3-year follow-up data from a large cohort (n=6515) of out-patients with schizophrenia taking part in the prospective, observational European Schizophrenia Outpatient Health Outcomes (SOHO) study the remission and relapse of schizophrenia and the socio-demographic and clinical factors associated with these outcomes in the usual care of schizophrenia were analyzed.<sup>13</sup> Remission and relapse as measures of treatment outcome were defined in terms of specified ratings with structured severity scales such as the PANSS, BPRS and Clinical Global Impression (CGI) ratings. Being female, having a good level of social functioning at study entry and a shorter duration of illness were factors significantly associated with achieving remission. Shorter duration of illness, having hostile behaviors and substance abuse were factors associated with a higher risk of relapse.

### Conclusion

The current study reviewed the quality of existing routine clinical diagnostic procedures, for schizophrenia, in a local

unit. Certain predictive indicators for the acute in-patient treatment outcome of such patients were identified. The study highlighted the importance of the delineation of catchment areas for regional referral specialist hospitals as well as identified the significance for community programs to address the co-morbid substance abuse of users with schizophrenia and referred to the routine challenges that are being experienced with regard to the availability of appropriate residential placement in the community. The study showed that the general quality of the routine documentation by attending clinicians of the history, examination, mental state assessment and management of users could be improved. Future standard operational procedures for diagnostic and treatment processes in acute units may have to include structured interviews and formal rating scales, in order to enhance the quality of the routine in-patient diagnosis of and treatment decisions for patients with schizophrenia.

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