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## Consultation-Liaison psychiatric service delivery

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## Consultation-Liaison psychiatric service delivery: results from a European study

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### Abstract

The reported findings of the European Consultation-Liaison Workgroup (ECLW) Collaborative Study describe consultation-liaison service delivery by 56 services from 11 European countries aggregated on a C-L service level. During the period of 1 year (1991), the participants applied a standardized, reliability tested method of patient data collection, and data were collected describing pertinent characteristics of the hospital, the C-L service, and the participating consultants. The consultation rate of 1% (median; 1.4% mean) underscores the discrepancy between epidemiology and the services delivered. The core function of C-L services in general hospitals is a quick, comprehensive emergency psychiatric function. Reasons to see patients were the following: deliberate self-harm (17%), substance abuse (7.2%), current psychiatric symptoms (38.6%), and unexplained physical complaints (18.6%) (all means). A significant number of patients are old and seriously ill. Mood disorders and organic mental disorders are most predominant (17.7%). Somatoform and dissociative disorders together constitute 7.5%. C-L services in European countries are mainly emergency psychiatric services and perform an important bridge function between primary, general health, and mental health care. © 2001 Elsevier Science Inc. All rights reserved.

### 1. Introduction

Despite the world-wide use of consultation-liaison (C-L) services in the general hospital, no study has been published

addressing important issues such as consultation rates across services, manpower, type of patients seen, communication patterns with primary care providers, types of assessment, and interventions [1–3]. To further develop C-L services in a systematic way, such basic information may pave the way for collaborative studies and networks across countries, facilitating evidence-based C-L psychiatry in the future.

This article presents the results of the European Consul-

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tation-Liaison Workgroup Collaborative Study (ECLWCS), a method described elsewhere [4–6]. The primary objective of this article is to document the status of C-L service delivery in the participating European countries. Available literature is biased towards single-site studies and studies from the United States (US). In a US study assessing the volume and clinical characteristics of patients referred to C-L psychiatric services in short-term general hospitals, Wallen and Pincus report a consultation rate of around 1% being lower than the single-site reports from C-L services located in university hospitals (around 3%) [7]. Such a rate (1%) is 10 or more times lower than the prevalence of psychiatric morbidity. This study also reported a longer length of hospital stay for referred patients (7.3 days vs. 16.3 days) and a higher proportion of elderly and female patients. Hengeveld et al. contrasted data from 1814 patients seen in consultation in a Dutch university hospital (Leiden) with findings from 42 mostly US publications [8]. Although they emphasize the striking lack of uniformity in classifications used, their findings seem to be quite comparable with the earlier reported findings. These findings are the following. 1) a greater proportion of female patients seen than male patients and 2) about 15% of the patients over 65 years of age. Between 75 and 80% of the patients are referred from general medicine; referrals from obstetrics/gynecology are most restricted. Main reasons for referral are deliberate self-harm and unexplained physical symptoms (1/3 vs. 1/5 of referrals). In the Leiden sample about 10% are referred for substance abuse, a figure not mentioned in the other literature. Due to the use of different psychiatric diagnostic systems, an appropriate comparison of diagnostic groups was not possible. Affective, organic-psychiatric and substance-use disorders seem to form the main groups, although with extreme variation in the 42 studies used for comparison (for example, 4–62% for affective disorders). Due to the diversity of diagnostic systems, the proportion of somatizers is not clear; however, as reason for referral it consists of a 1/5 to a 1/6 of the referrals [8]. Therefore, the distribution of psychiatric diagnoses in the referred population differs from patients seen in general psychiatric services—to be more specific, there is an emphasis on deliria, substance abuse, and somatoform disorders. About 12.5% of the patients seen are transferred to psychiatry and about 30% are referred to mental health after discharge [8].

European data-based reviews are not available. Reviews based on the opinions of leaders in the field in the different European countries report a wide variation in service delivery, suggesting a haphazard development of the field [2]. C-L patients belong to the group of patients with longer lengths of hospital stay, indicating that they belong to a hospital population of greater complexity [9]. Although liaison constitutes half the name of C-L, the proportion of consults generated by liaison activities—the more preventive and integrated form of service delivery—has never been well established [10].

The focus of this study is to provide the missing Euro-

pean data on the extent and content of C-L services required for health care planning and future research. This study reports univariate analyses.

## 2. Method

The general methodology and validation of the patient registration form and psychiatric diagnoses are reported in previous papers [4–6]. The patient registration form (or PRF) consisted of 68 items. It was developed by the program management group (PMG) and the national co-ordinators after a series of preparatory studies to insure face- and content-validity and pilot testing. Two hundred and twenty consultants, who required 40 h of training and came from 14 different European countries and 90 C-L services, participated in the final reliability study. The reliability of the patient registration form was tested with 13 written case histories. A “golden standard” for the correct answers in each item was decided by “consensus rating” of the PMG and a subsequent 80% agreement by the national co-ordinators. A high standard (average kappa  $>0.70$  and at least 2/3 of the PRF items a kappa  $>0.70$ ) was required for a rater to be considered reliable. Of the consultants, 93% fulfilled these criteria. Four items were identified with low agreement (employment status, educational level, physical care before admission, and influence on discharge date) [5]. No cross-national biases were found for these items. For the ICD10 diagnoses, 167 of the 220 consultants (76%) had a kappa of at least 0.70. Only 13 (6%) had a kappa of 0.40. There were no national biases on this general level [6]. To be included in the final study, the C-L services had to fulfil the following inclusion criteria: period of study (1 year), minimum caseload (26 cases), reliability criteria, and the provision of institutional and provider data. The final sample of C-L services consisted of 56 services, including 226 consultants seeing 14,717 patients during a period of 1 year in consultation. The data are described in section 3, covering the following data-sources: hospital, C-L service, patient, and C-L service-delivery characteristics (Tables 1–4). Only those patient characteristics are reported that proved to be reliably scored during testing [5] or that have face-validity, such as date of admission, date of referral, referral to a C-L nurse, or number of follow-ups.

### 2.1. Sample

In this specific study, data from all participating C-L services from 11 countries and 56 C-L services are reported: Belgium (4), Finland (6), France (1), Germany (11), Greece (4), Italy (5), The Netherlands (7), Norway (3), Portugal (5), Spain (3), and the United Kingdom (7). The data reported do not always concern the total group of patients seen by the C-L services (Fig. 1. Selection process for aggregated variables). The deliberate self-harm population is kept separate in most analyses. The main reason is the fact that the

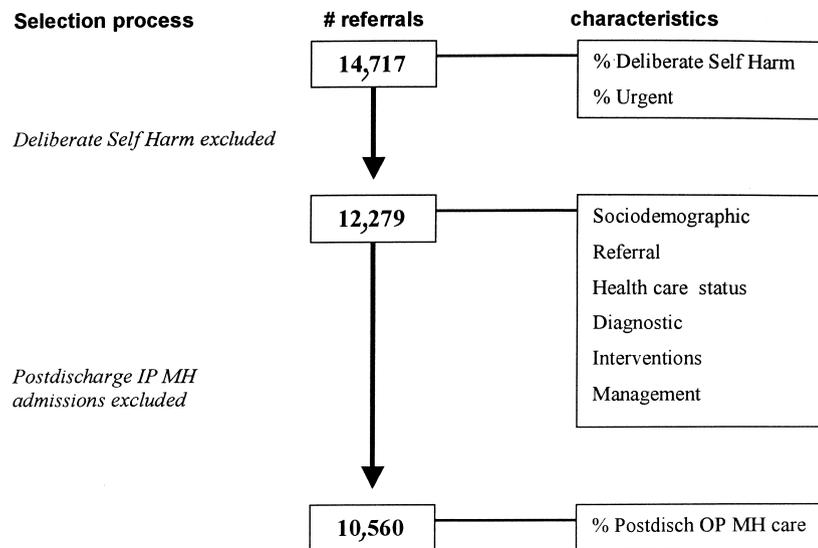


Fig. 1. Selection process for aggregated variables

deliberate self-harm population is a clearly defined population with its own referral procedures and service delivery characteristics; the other reason is to gain a more differentiated view of the services delivered in the nondeliberate self-harm patients.

## 2.2. Statistics

Data were collected at patient level and on C-L service/hospital level. As the goal of the study was to provide an overview of the diversity of C-L service delivery in Europe, patient level data were aggregated on the C-L service/hospital level. Depending on the level of measurement, this was based on averages and proportions. This procedure resulted in a data set consisting of 56 subjects (C-L services/hospitals). Binary (yes/no) variables are presented in number and percentages. Proportions are reported in means and medians. In accordance with the goal of the study, the means and medians are not weighted for the number of patients per service since the larger C-L services would have been over-represented. Both means and medians are reported in order to detect variables with skewed distributions [11].

## 3. Results

### 3.1. Hospital characteristics

Of the participating C-L services 59% were located in university hospitals (Table 1). Considerable variation existed among the hospitals' participating services with regard to their supraregional responsibilities. Hospitals, as can be expected, varied substantially in capacity (mean number of beds, 801; range, 145–1634), the related number of admis-

sions (mean number of admissions, 27.503; range, 7.5–85.0), and the length of stay (LOS) (mean LOS, 9.7; range, 3.2–22.4). Remarkable was the large variation in the availability of other psychosocial services—social work, medical psychology, or pastoral work—services. Just 68% of the hospitals have social work services. Sixty-one percent of the hospitals have psychiatric beds with a large variation in numbers of psychiatric admissions.

### 3.2. C-L service characteristics

#### 3.2.1. Organizational characteristics

A third (33%) of the C-L services has a manpower availability of three full-time equivalents or more (Table 2). Half (48%) of the C-L services are multidisciplinary. Other disciplines working in C-L services are social workers, psychologists, C-L nurses, and general practitioners on rotation. A third of the staff members have more than 3 years of experience in C-L service delivery. Less than half (43%) of the participating services have their own secretarial support. Almost two-thirds of the C-L services (63%) have at least one consultant with a beeper and about half of the C-L services (54%) provide 24-h services.

Table 1  
Hospital characteristics

	n	%
University hospitals	33	59
Hospitals with supraregional responsibility	35	63
Hospitals with admissions on psychiatric ward	34	61
Hospitals with medical psychology services	25	45
Hospitals with social work services	38	68
Hospitals with pastoral work services	34	61

Table 2  
C-L service characteristics

	n	%
Multi-disciplinary teams	27	48
24-h service	30	54
Secretarial support	24	43
Service available by beeper	33	63
Mean referral delay <2 days	47	84
Manpower 3 fte or more	19	33
	Mean	Median
Percent of patients referred to C-L service	1.4	1.0
Percent of liaison consults <sup>a</sup>	8.4	0.8
Percent of consults requested within 24 h <sup>a</sup>	33.3	33.8
Percent of contract consults <sup>a</sup>	3.4	0.6
Percent of staff with at least 3 years experience	36.6	33.3
Percent of cases already seen by psychosocial services <sup>a</sup>	19.5	13.1

<sup>a</sup> Deliberate self harm patients excluded.

### 3.2.2. The provided services

The average consult ratio is 1.4% (median 1.0; hospital admissions on pediatric and psychiatric beds excluded) ranging up to one C-L service with a referral rate of 6.1%. The average time between hospital admission and referral to the psychiatric service (lag time) is about the average length of stay of the nonreferred population (8.7 days). Yet there are services with average lag times of 3 days to 15 days. The average time between referral and seeing the patient is much shorter, one day. However, also here large variation is encountered between C-L services; in some services it takes about a week before a patient is seen!

About one in three consults request urgent treatment, e.g., “I would like you to come today.” According to the definition of this variable, this implies that both the consultant and the consultee consider it necessary to see the patient the same day. In some C-L services the proportion of urgent consults is over 70%. The proportion of liaison consults is 5% and 8.4% when the deliberate self-harm population is excluded; nonetheless, there is high variation (max. almost 100%). In addition to the deliberate self-harm population there is still another group of contract consults of diverse nature (3.4%). Finally, about 20% of the patients referred to C-L services already have been seen by other consultation services of the hospital, such as social work, medical psychology or pastoral care. In some services this proportion can range up to more than 70% (Table 2).

## 3.3. Population characteristics

### 3.3.1. Sociodemographics

The patients referred for reasons of deliberate self-harm have a mean age of 38 years and consist of 56% females (Table 3). Of the patients referred for reasons other than deliberate self-harm, approximately 30% of the patients seen were 65 years of age or over, whereas 12.8% were over

75, with large variation. For instance, there were some C-L services in which the proportion of patients over 65 was 70%, and 45% over 75, whereas there are other services where this was 4 vs. 0%! The proportion of female patients in the nondeliberate self-harm group is comparable (55%). In some services, the proportion of female patients ranges as high as 70%.

### 3.3.2. Referral characteristics

On average, deliberate self-harm accounts for 17% of all referrals to C-L services; this varied substantially across C-L services, ranging from 0% up to 60%. An average of 7.2% were referred for substance abuse and 19% for unexplained physical complaints (up to 65%). The differences between the means and medians in these three variables refer to skewed distributions. Patients referred for current psychiatric symptomatology consisted of about 40% of the referred population of C-L services.

### 3.3.3. Departments

The majority of patients referred for deliberate self-harm hailed from the Department of Medicine (70%). Of other referrals, more than half came from the Department of Internal Medicine (55%); however, at least one service saw less than a quarter of their patients from Internal Medicine, whereas another C-L service saw patients almost exclusively from Internal Medicine. The second largest referring group of hospital departments is formed by the surgical departments, including Neurosurgery, Otolaryngology, and Ophthalmology (19%). The Department of Neurology is another important provider of consults, or about 10%. The Departments of Obstetrics and Gynecology have a more modest referral rate (4.5%). Taking the median referral rates to the Departments of Neurology and Obstetrics and Gynecology into account, it becomes clear that the variation was skewed by a series of C-L services seeing a significantly larger proportion of patients referred from these departments. The same is true for patients seen on Intensive Care Units (ICU); approximately 3% of the patients stemmed from ICUs, ranging up to 17%, meaning that there was at least one C-L service seeing every sixth patient on an ICU, in addition to those already seen there for deliberate self-harm! Other C-L services did not see any patients referred from ICUs.

### 3.3.4. Physical history and status (deliberate self-harm excluded)

On average, 58% of the patients referred to C-L psychiatric services had been admitted to a general hospital in the period 5 years prior to the current admission. Eight of these patients (8%) were seen for injuries and another 10 (10.4%) for cancer. Of these patients, about 4.4% died in hospital. In some services, this was true for every sixth referral.

Table 3  
Population characteristics

	% (Mean)	% (Median)
Sociodemographics <sup>a</sup>		
Patients above 65 years	28.0	26.2
Patients above 75 years	12.8	10.2
Proportion female	55.0	56.5
Reason of referral		
Deliberate self-harm	17.0	15.7
Unexplained physical symptoms	18.6	13.3
Substance abuse	7.2	5.2
Current psychiatric symptoms	38.6	38.0
Coping problems	4.1	4.1
Physical status		
General hospital admission(s) in the last 5 years	57.9	59.9
Cancer patients	10.4	8.2
Injury patients	8.0	8.1
Death during hospitalization	4.4	3.0
Psychiatric diagnosis <sup>a,b</sup>		
Psychiatric admission(s) in the last 5 years	14.8	12.8
Organic mental disorder	17.7	16.5
Substance abuse disorders	13.3	11.3
Psychotic disorders	4.4	3.6
Mood disorders	18.7	17.8
Phobic, panic, general anxiety, and obsessive compulsive disorder	5.3	4.7
Adjustment disorder and post-traumatic stress disorder	12.4	10.8
Dissociative, somatoform disorders, and neurasthenia	7.5	5.1
Eating disorders	3.8	2.0
Personality disorders	3.8	3.0
Other diagnoses	.6	.4
Deferred diagnoses	3.2	1.4
No diagnoses	9.1	8.8

<sup>a</sup> Deliberate selfharm patients excluded.

<sup>b</sup> ICD10 diagnosis [6].

### 3.3.5. Psychiatric history (deliberate self-harm excluded)

Fifteen percent of the patients seen by C-L services for other reasons appeared to have a psychiatric history of at least one admission in the previous 5 years (41% for the deliberate self-harm population). The quality of the psychiatric morbidity is reflected in the following psychiatric diagnostic groups. almost a fifth (17.7%) of the patients had an organic mental (cognitive) disorder and another fifth (18.7%) had mood disorder. This is followed by substance use and adjustment disorders, including post-traumatic stress disorder, each around 13%. Less prevalent are dissociative, somatoform disorders, and neurasthenia (together 7.5%). However, in some C-L services, they accounted for a substantially larger proportion (up to 30%). Anxiety disorders as a group (phobic, panic, generalized, and obsessive-compulsive disorder) accounted for about 5%, almost comparable to the group having psychotic disorders (4.4%) and eating disorders (3.8%). About 9% of the patients received no psychiatric diagnosis whatsoever (Table 3).

Table 4  
Interventions by consultants

	% (Mean)	% (Median)
Diagnostics		
Information from external source	51.7	51.2
Consults by other specialists recommended	21.3	16.0
Laboratory tests or X-rays recommended	12.6	8.3
Ward treatment		
Medication prescribed	49.1	50.7
Other mental health consultants recommended	6.8	3.2
Liaison nurse recommended	3.4	0.0
Family was (also) focus of intervention	16.3	10.5
Ward staff was (also) focus of intervention	44.6	44.1
Post-discharge management		
Written discharge note	82.6	92.7
Discharged to non-mental health inpatient facilities	15.3	14.3
Discharged to mental health inpatient facilities	7.5	6.4
Telephone consults with postdischarge facilities	53.1	53.0
Specific postdischarge treatment plan	55.0	58.1
Referred to non-mental health outpatient facilities <sup>a</sup>	25.1	22.5
Referred to outpatient mental health facilities <sup>a</sup>	39.9	41.2

<sup>a</sup> Only for those patients who have been discharged to their home.

## 3.4. Interventions by consultants<sup>1</sup>

### 3.4.1. Diagnostics

In half the cases seen (51.7%) by C-L services, the consultant communicated with either the general practitioner, outpatient medical specialists, mental health care providers, social workers, or the patient's family to obtain the information required in the diagnostic process (Table 4). In one C-L service, this is done in only one-sixth of the population, whereas in another, this was the case in almost all consults. In 21.3% of the patients seen by C-L services, the consultants recommend consults from other medical specialists if additional physical diagnostics were considered necessary. Additional lab tests, electroencephalogram, or X-rays were requested in 12.6% of cases.

### 3.4.2. Ward treatment

Medication was prescribed for half of all patients (49.1%). Some services prescribed almost no medication (min. 4.4%) whereas others prescribed for almost all patients (max. 87.4%). In 6.8% of the population seen, consultants involved other mental health specialists in the treatment or care of patients, among them C-L nurses who

<sup>1</sup> This concerns the attempted suicide population only where indicated.

provided case management (mean 3.4%; median 0%). Availability of C-L nurses varied considerably between C-L services. The consultant involves the patient's family in about 16.3% of the cases and the ward-staff in about 44.6%.

### 3.4.3. *Post-discharge management*

Of the deliberate self-harm population, 24% were transferred to psychiatric wards, and 62% were referred to outpatient mental health facilities. Of the nonself-harm population, an average of 7.5% of patients were discharged to psychiatric wards of the same or other hospitals; one C-L service transferred 30% of consulted patients! More than half (55%) of the patients discharged to their homes were referred to outpatient mental health facilities, of which 39.9% were referred to specific mental health facilities and another 25.1% to nonmental health facilities, such as primary care physicians. An average of 53.1% of the referrals receive telephone contact from post-discharge health care providers; in some C-L services, this applies to almost all and, in others, almost none of the patients. In 55% of the cases, patients were discharged with specific plans for post-discharge mental health services.

## 4. Discussion

The objective of the present study is to describe the status of C-L service delivery in Europe based on empirically collected data.

### 4.1. *Availability of psychosocial services and organization of C-L psychiatric services*

The variation in the extent of psychosocial services alongside C-L psychiatric services in European hospitals, where social work may not even exist as a basic facility, is probably the best indicator for the unsystematic development of these services. Similarly, there was wide variation in staffing of C-L psychiatric services across European hospitals. This is reflected in variation in manpower, level of maturity, and number of disciplines in C-L teams. In designing the study, a rigorous effort was made to assess the costs of consults and the number of consults that were performed by consultants. However, available data did not facilitate for such conclusions, especially in those hospitals in which C-L services were part of the general psychiatry department, a differentiation of typical C-L work was difficult. This, in combination with the fact that reimbursement differs by country and by location, did not foster elaboration on the effect of reimbursement systems on the extent of service delivery<sup>2</sup>. In the experience of the program management group and the national co-ordinators, reimbursement

largely depended on the creativity of the directors of services.

An interesting finding is the fact that, on average, only a third of C-L staff had more than 3 years of experience in C-L work, reflecting the possibility of a high turnover and thus limited stability of staffs. For the development of a C-L service, stability and long-term strategy are pivotal; therefore, it would be necessary to obtain insight in this phenomenon. The fact that only 43% of C-L services have their own secretarial support reflects a lack of organizational infrastructure, perhaps suggesting that these services are not recognized as professional organizational units with important input for the general hospital; this may be indicative of the immaturity of the field. A tendency to multidisciplinary teams may be reflected in the reported average of two disciplines per team. As the presence of multiple disciplines is required for the provision of differentiated services, apparently many C-L services are sufficiently equipped to provide such a differentiated range of services. The interaction between these factors is further elaborated in a separate article [12].

### 4.2. *Extent of service delivery*

The consultation rate is low, especially considering that almost one-fifth of these consults are requested for the deliberate self-harm population. When these findings are contrasted with the North American [7] and Dutch-North American comparison [8] data, the consultation rate reported in this study was somewhere in the middle, probably reflecting a larger proportion of non-university hospitals in our sample. The implication of these reported rates is that C-L psychiatric service delivery in its current form does not approximate the epidemiology of mental disorders in the medically ill. Even if the majority of patients with psychiatric disorders did not need specific treatment during a general hospital admission (e.g., if they were already being treated for these disorders or their disorders did not interfere with the hospital procedures), the current services could only be provided for a fraction of those patients with psychiatric morbidity.

Another consistent finding is the average length of stay for C-L patients, which was about 2.5 times the length of stay of the general hospital population. This in combination with low referral rates and a high percentage of urgent consultations underscores the emergency psychiatric function of C-L psychiatric services for patients who developed a manifest psychiatric problem during their hospitalization. This is confirmed by the fact that half the referrals requested were for current psychiatric symptoms. Another finding elucidating the mechanism of C-L service delivery is the way substance abuse is handled. On average 7.2% of the referred population was seen for substance abuse. With an overall consultation rate of 1.4%, this implies that about 0.1% of all hospitalized patients were seen by C-L services for substance abuse. It is evident that substance-abuse pa-

<sup>2</sup> Further information on national reimbursement systems can be found elsewhere [3].

tients are most probably only seen for acute problems interfering with the medical admission and not for the problem of substance use in itself [13]. The restricted consultation rate and the high lag time for referral, in combination with the fact that the majority of the C-L services are delivered through ad hoc consults of which about a third are urgent, confirms Thomas Hackett's statement. "A consultation service is like a volunteer fire brigade" [14]. Generally speaking, with patients usually seen within a day of the request, C-L psychiatric service delivery is an important and unique mental health function, an emergency mental health service in a general hospital.

#### 4.3. Departmental distribution of services

The distribution of the referrals over the different referring departments has been described earlier; primarily internal medicine, followed by surgery and neurology, with obstetrics and gynecology referrals only a small fraction [7,8]. Yet here again there are large individual variations probably related to personal relations, specific expertise and interests of consultants and consultees. The variation in the proportion of referrals from different departments, different reasons for referral, and distribution of psychiatric diagnoses emphasizes the need for further explorations of the data. The size of populations from which psychiatric referrals originate also must be taken into account. Because this may vary across hospitals, referral rates would require stratification by referring department. In this article, these analyses have not been performed, as such data were available for only a limited number of hospitals.

#### 4.4. Complexity of the population

The complexity of a considerable number of nonself-harm patients referred to C-L services is reflected in the following: first, and in contrast to the figures reported in earlier studies, an important segment of this population is older (28% are over 65 and 12.8% over 75 years of age); also, hospital stay is 2 to 3 times that of the average population; 10% of the patients seen have either injuries or cancer; some of the patients are very ill as reflected by their ICU stay (3%), their organic psychiatric disorders (20%), and the fact that about 5% of the referred population dies during hospitalization. This complexity of the population confirms the need for C-L psychiatrists to further qualify themselves for the assessment and treatment of such populations. At least part of C-L work is aimed at the severely medically ill and the elderly. The main characteristics of the referred population have been further addressed in a multivariate analysis, which has been published elsewhere [15].

Because the costs of modern hospitalization require optimal and efficient use of such facilities, C-L services should be applied preventively to avoid unnecessary destabilization that results in excess length of hospital stay. As liaison psychiatry is only a very restricted part of the work of C-L

services, C-L psychiatrists should consider developing efficient, pro-active, and empirically based methods required to detect vulnerable patients at admission. To this end, a new study has been undertaken to develop a case-finder (COMPRI) combined with an efficient assessment tool (INTERMED) to be used at hospital admissions [16,17,19–24].

The severely ill population with mental and behavioral disturbances, and the considerable proportion of dispositions to psychiatric beds also underscores the need for specialized beds for co-morbid patients (psych-med-function) where expertise can be applied for more-efficient treatment [25].

#### 4.5. Interventions

Medical expertise is an important part of the work of mental health consultants, which is reflected in the recommendations for the diagnostic process regarding referrals to other specialists (21.3%) and for laboratory tests (12.6%). These medical diagnostic and treatment interventions should therefore be emphasized in the training curriculum of C-L psychiatrists [26]. Where consultants intervene, a large variation is encountered in the focus of the intervention selected. The extent to which family or staff is involved in the intervention may be due to differences in styles of C-L services and consultants, to the amount of time available, or to differences in the referred populations. However, explorations of these findings, combined with consultant characteristics, has failed to deliver clear answers [27]. Although consultants can provide psychotherapy, this will not be the case in the majority of referrals as the mean number of visits is between 2 and 3, including the first visit. Consultants might refer patients to other hospital services, such as social work and medical psychology, for psychotherapy or other reasons. In multidisciplinary teams, C-L nurses can be involved in the ward- and postdischarge management. This functioning on ward-staff management of more complex patients by the nurses is currently available in Finland, the Netherlands, Portugal, Spain, and the UK.

#### 4.6. The bridge-function with primary and mental health care

The bridge function served by C-L services integrating mental health services on general hospital wards has always been evident. Hengeveld et al. report disposition of patients to psychiatric wards in 12.5% of all cases, both in their data-base and the median in the assessed 42 publications [8]. This approximates 30% for outpatient referrals. Our study shows that for the nonself-harm population, 7.5% of transfers were to psychiatric wards and 39.9% to outpatient mental health facilities. Yet, this bridge-function is broader,

<sup>3</sup> [www.vumc.nl/intermed](http://www.vumc.nl/intermed).

as reflected in the verbal communication with outpatient facilities, both for the collection of information at referral, as well as for those patients referred during the admission who were in need of referral to mental health services in the period after discharge. In addition there are referrals to general practitioners with structured treatment plans. This bridge function is important for a substantial proportion of patients seen in C-L services with chronic psychiatric disturbances (somatoform, mood, and substance-use disorders) and high medical utilization. Discharge management and especially the transfer to other (mental) health outpatient facilities could be a specific focus for C-L nurses.

## 5. Conclusion

The core function of C-L service delivery is a quick and comprehensive service for patients whose doctors and nurses need diagnostic, ward-treatment and/or discharge management advice. These services are as follows: deliberate self-harm triage, assessment and treatment of evident withdrawal due to acute abstinence resulting from hospital admission or other indications of substance abuse, and the evaluation of patients with psychiatric symptoms and with unexplained physical complaints. The complexity of some patients is often reflected in the age, the illnesses (cancer and injury) and their severity (ICU, death, length of hospital stay, and proportion of patients discharged to other non-mental health facilities). C-L psychiatrists provide rather concentrated and sophisticated services, such as collection of information from external sources and assessment and treatment that often includes instructions for the staff and the family. The C-L nurse offers an emerging function that focuses on ward- and discharge-management. The bridge-function between primary, general and mental health care is provided through active communication, transfer and outpatient arrangements. The extent of services requested is in sharp contrast with the reported epidemiology of mental disorders in the medically ill. Large variation is found in all aspects of service delivery and size of staffing; this suggests that C-L psychiatry, until now, has been more of a reactive development serving doctors' needs, than a strategic development to enhance the efficiency and quality of health care provided for patients whose combined physical and psychiatric disorders are often accompanied by over-utilization of some services. An increase of manpower alone will not be the answer to the discrepancy between service delivery and prevalence of mental disorders. Most probably an emergency psychiatric consult function of 1–2% of all admissions will fulfil these needs. In addition to this emergency function, a strategic development is required that focuses on innovative empirical methods of detection and service delivery. Such efforts should focus not primarily on the detection of psychiatric disorder but on the complexities of medical management resulting from it [17,19–21]. The enormous advantage of such services is 1) the empirical

selection of patients, avoiding selection bias, thereby facilitating the development of a service delivery model whose outcomes can be the subject of research and 2) the proactive model identifying the interventions of psychiatrists and the effects of appropriate service delivery rather than only with the nature or causes problems. It is evident that C-L psychiatrists working in such a model would need the support of trained nurses and social workers involved in the implementation and execution of the process [24,28–31].

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## References

- [1] Wise TN, Freyberger H. Consultation-liaison throughout the world. *Adv Psychosomatic Med* 1983;11:1–214.
- [2] Mayou R, Huyse FJ, and the ECLW Consultation-Liaison Psychiatry in Western Europe. *General Hospital Psychiatry* 1991;13:188–208.
- [3] Huyse FJ, Herzog T, Malt UF. C-L Psychiatry in international perspective. In: Rundell JR, Wise M, editors. *Textbook Consultation-Liaison Psychiatry*, Chapter 14. Washington, DC: Am Psychiatric Press, 1996. p. 228–55.
- [4] Huyse FJ, Herzog T, Malt UF, Lobo A, and the European Consultation-Liaison Workgroup (ECLW). The European Consultation-Liaison Workgroup (ECLW) Collaborative Study. I. General Outline. *General Hospital Psychiatry* 1996;18:44–55.
- [5] Lobo A, Huyse FJ, Herzog T, Malt UF, Opmeer BC, and the European Consultation-Liaison Workgroup (ECLW). The European Consultation-Liaison Workgroup (ECLW) Collaborative Study. II. Patient Registration Form (PRF) instrument, training and reliability. *J Psychosomatic Res* 1996;40:143–56.
- [6] Malt UF, Huyse FJ, Herzog T, Lobo A, Rijssenbeek AJMM, and the European Consultation-Liaison Workgroup (ECLW). The European Consultation-Liaison Workgroup (ECLW) Collaborative Study. III. Training and Reliability of ICD-10 psychiatric diagnoses in the general hospital setting—an investigation of 220 consultants from 14 European countries. *J Psychosomatic Res* 1996;41:451–64.
- [7] Wallen J, Pincus HA, Goldman HH, Marcus SE. Psychiatric consultations in short-term general hospitals. *Arch Gen Psychiatry* 1987;44:163–8.
- [8] Hengeveld MW, Rooijmans HGM, Vecht-Van den Bergh R. Psychiatric consultations in a Dutch university hospital. A report on 1814 referrals, compared with a literature review. *General Hospital Psychiatry* 1984;6:271–9.
- [9] Saravay S, Lavin M. Psychiatric morbidity, and length of stay in the general hospital. A critical review of outcome studies. *Psychosomatics* 1994;35:233–52.
- [10] Strain JJ. Liaison psychiatry. In: Rundell JR, Wise M, editors. *Textbook of Consultation-Liaison Psychiatry*, Chapter 4. Am Psychiatric Press, Washington DC, 1996. p. 38–52.
- [11] Norusis MJ. *SPSS-X. Advanced Statistics Guide*. New York: McGraw Hill, 1985.
- [12] Huyse FJ, Herzog T, Lobo A, Malt UF, Opmeer BC, Stein B, Cardoso G, Creed F, Crespo MD, Guimaraes-Lopes R, Mayou R, van Moffaert M, Rigatelli M, Sakkas P, Tienari P. European Consultation-Liaison Psychiatric Services. the ECLW Collaborative Study. *Acta Psychiatrica Scand* 2000;101:360–6.

- [13] Smalls G, Mast van der RC, Speckens AE, Schudel WJ. Alcohol abuse among general hospital inpatients according to the Munich Alcoholism Test (MALT). *General Hospital Psychiatry* 1994;16:125–30.
- [14] Hackett TP, Cassem NH. *Massachusetts General Hospital Handbook of General Hospital Psychiatry*. St Louis: Mosby, 1979.
- [15] Huyse FJ, Herzog T, Lobo A, Malt UF, Opmeer BC, Stein B, Cardoso G, Crrred F, Crespo MD, Guimarães-Lopes R, Mayou R, Moffaert van M, Rigatelli M, Sakkas P, Tienari P. European Consultation-Liaison Services, and Their User Populations. The European Consultation-Liaison Workgroup Collaborative Study. *Psychosomatics* 2000;41:330–8.
- [16] Huyse FJ, Herzog T, Malt UF, Huyse FJ, Herzog T, Lobo A, Slaets JPJ, Cardoso G, Fink P, Rigatelli M, Balogh N. A screening instrument for the detection of psychosocial riskfactors in patients admitted to general hospital wards. In Baert, et al., editors. *Biomedical and Health Research*. Ohmsa: IOS Press, 1995. p. 496–7.
- [17] Huyse FJ. From consultation to complexity of care prediction, and health service needs assessment. *Ed J Psychosomatic Res* 1997;43:233–40.
- [18] Huyse FJ, Lyons JS, Stiefel FC, Slaets JPJ, Jonge de P, Fink P, Gans ROB, Guex P, Herzog T, Lobo A, Smith GC, Strack van Schijndel R. “INTERMED”. A method to assess health service needs. I. Development and reliability. *General Hospital Psychiatry* 1999;18:39–48.
- [19] de Jonge P, Huyse FJ, Lobo A, Slaets JPJ, Herzog T, Lobo A, Lyons JS, Opmeer BC, Stein B, Arolt V, Balogh N, Cardoso G, Fink P, Rigatelli M, Dyck van R, Mellenbergh GJ. Care Complexity in the general hospital. Results from a European Study. *Psychosomatics* 2001;42:204–12.
- [20] de Jonge P, Huyse FJ, Herzog T, Lobo A, Slaets JPJ, Lyons JS, Opmeer BC, Stein B, Arolt V, Balogh N, Cardoso G, Fink P, Rigatelli M. Risk factors for complex care needs in general medical inpatients. Results from a European Study. *Psychosomatics* 2001;42:213–21.
- [21] Huyse FJ, de Jonge P, Slaets JPJ, Lobo A, Herzog T, Lyons JS, Opmeer BC, Stein B, Arolt V, Balogh N, Cardoso G, Fink P, Rigatelli M. COMPRI—an instrument to detect patients with complex care needs. results from a European Study. *Psychosomatics* 2001;42:222–8.
- [22] Stiefel FC, de Jonge P, Huyse FJ, Guex P, Slaets JPJ, Lyons JS, Spagnoli J, Vannotti M. “INTERMED”. A method to assess health service needs. II. First results on its validity and clinical use. *General Hospital Psychiatry* 1999;21:49–56.
- [23] Stiefel FC, de Jonge P, Huyse FJ, Slaets JPJ, Guex P, Lyons JS, Vannotti M, Fritsch C, Moeri R, Leyvraz P, So A, Spagnoli J. “INTERMED”. An assessment and classification system for case complexity. Results in patients with low back pain. *Spine* 1999;24:378–85.
- [24] Huyse FJ, Lyons JS, Stiefel F, Slaets JPJ, de Jonge P, Latour C. Operationalizing the biopsychosocial model. *The INTERMED. Psychosomatics* 2001;42:5–13.
- [25] Kathol R, Harsh HH, Hall RCW, Shakespeare A, Cowart T. Categorization of types of medical/psychiatry units based on level of acuity. *Psychosomatics* 1992;33:376–86.
- [26] Stoudemire A. The emergence of medical psychiatry, its relevance to consultation-liaison, and general hospital psychiatry. *Psychosomatics* 1998;39:219–24.
- [27] Stein BM. *Psychiatrische und Psychosomatische Konsiliare. Untersuchungen zu ihrer beruflichen Entwicklung und Konsilpraxis*. Frankfurt am Main Deutschland: Peter Lang, 1999.
- [28] Huyse FJ. The organisation of psychiatric services for general hospital departments. In: Gelder MG, Lopez-Ibor JJ, Andreasen N, editors. *New Oxford Textbook of Psychiatry*, Vol 2. Oxford: Oxford University Press, 2000 p. 1235–42.
- [29] Huyse FJ, de Jonge P, Lyons JS, Stiefel FC, Slaets JPJ. INTERMED. A tool for controlling for confounding variables, and designing multimodel treatment. [Letter to the Editor]. *J Psychosomatic Res* 1999;4:401–2.
- [30] de Jonge P, Huyse FJ, Ruinemans GM, Stiefel FC, Lyons JS, Slaets JPJ. Timing of psychiatric consultations. The impact of social vulnerability and level of psychiatric dysfunction. *Psychosomatics* 2000;6:505–11.
- [31] de Jonge P, Huyse FJ, Stiefel FC, Slaets JPJ, Gans ROB. INTERMED—A clinical instrument for biopsychosocial assessment. *Psychosomatics* 2001;42:106–9.