

## Models of Integrated Care

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The first formal efforts at the integration of psychiatric and medical care in Europe and North America began in the mid-twentieth century with the psychosomatics movement. An offshoot of psychoanalysis, the psychosomatics movement articulated theoretical bridges between psychiatric and medical illnesses and established some professional societies (American Psychosomatic Society, Academy of Psychosomatic Medicine, German College of Psychosomatic Medicine), but the early integration of psychiatry and medicine was a scholarly endeavor without substantial clinical integration. The integration of psychiatry into medicine on the clinical level began with the emergence in general hospitals of psychiatric consultation and liaison (C-L) services in the 1950s and 1960s in the United States, in the 1970s in Europe, Australia and New Zealand, and in the 1980s in Japan and some Latin American countries such as Brazil and Mexico [1,2]. Although these services first emerged in academic hospital settings, their clinical and economic value soon led to their spread to community and private hospitals. Since the 1970s it has been common in the United States and Europe for large general medical hospitals to provide some form of psychiatric C-L services. In these services consultation services reflect the classic medical consultation model, whereas liaison services aim at a systematic collaboration with a department or ward focused on a specific patient population, including staff education. (In the United Kingdom C-L psychiatric services are

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called liaison [psychiatric] services.) In most settings these psychiatric consultation services have represented the predominant mental health services available in the medical centers, with other mental health services being sequestered geographically and administratively at other sites. With the rise of cognitive-behavioral therapy and the development of disease management, psychologists have established a clear role in this field, but they suffer the same problems with reimbursement as other mental health clinicians. With the emergence of the clinical practice of C-L psychiatry in the general hospitals came societies, journals, research, and the roots of the subspecialty of psychiatry, now called "psychosomatic medicine" in the United States, aimed at the integration of psychiatry into medicine [1].

A special development took place in Germany where an integrative approach to mental health care emerged inside internal medicine influenced by psychodynamic theoretical backgrounds. In Germany, this approach led to the development of a third medical specialization in mental health care besides general psychiatry and child psychiatry, called "psychosomatic medicine." In contrast to the United States, in Germany psychosomatic medicine is not a subspecialty of psychiatry but a separate medical specialty. In nearly all university hospitals and in an increasing number of general hospitals integrated psychosomatic wards and day-hospitals with multiprofessional medical teams were established in addition to C-L services [3].

No complementary movement has aimed to run the river the other way and integrate the practice of medicine into psychiatry. That is, there is not yet a formal branch of medicine devoted to the medical problems of people who have mental illness. The provision of medical care in psychiatric hospitals over the past century has fallen to a random group of general practitioners, internists, family doctors, and, in the absence of these, to the psychiatrists employed by the hospitals. No catalyst has brought them together as a group in any formal way, although recent research on the medical aspects of chronic mental illness and its treatments, such as the metabolic syndrome, may finally justify such an organization (see the article in this issue by Gans).

In the past 20 years, however, marked changes in the understanding of the biology of mental illness, the economics of the practice of medicine and psychiatry, and options for training physicians have given birth to new models of integrated care. All these models are young and struggling, but in addition to the C-L model, there now are inpatient medical psychiatry units (MPU), the private practice of combined medicine and psychiatry, outpatient psychiatry practiced in primary care settings, outpatient psychiatry practiced in specialty medical clinics, and outpatient medicine practiced in specialty psychiatry hospitals and clinics. This article describes each of these models, their distinguishing clinical and financial features, and their relative advantages and disadvantages over traditional practice models. Vignettes about individual practitioners illustrate the current practice of each model, parenthetically suggesting that most people who are qualified to work in one model also choose to work in several other models of integrated care. Although the

boundaries between models are not always cleanly drawn, in this article the presentation of these models of integrated care is organized into two broad categories, hospital-based models and outpatient models. In each category, the authors describe the qualifications for practicing in each model, the settings, the patient populations, the relevant financial issues, and the distinguishing advantages and disadvantages of practicing in the model.

The slow march of innovation in the integration of psychiatry and medicine reflects the tension between the demand for and the barriers to integration (see also the article in this issue by Kathol and colleagues). The demand comes from patients and their intuitive desire that their minds, brains, and bodies be treated in concert. They want “one-stop shopping” at the primary care level. On the other hand, the barriers to integration come from the tradition, spawned by stigma, of sequestering mental health services away from medical services, including financially separating mental illness and its treatment. As a result, most physicians and organizations that have attempted to integrate the practice of medicine and psychiatry have run into, and often aground on, substantial economic disincentives. Integration may be frustrated or blocked by employers who purchase health plans, the health plans or insurance companies, disease-management programs, credentialing agencies, billing code practices, hospital administrators, and departmental squabbles over who runs and profits from the combined clinical turf. In the following sections, first the models developed in general hospitals are described; the later sections describe models developed in the primary care arena. The latter are accompanied by conceptual issues that must be taken into account when organizing integrated care.

### **Hospital-based models**

Integration of medicine and mental health treatment programs in the general hospital is increasing worldwide but is not standard care. In hospitals where such integrated treatment programs exist, the extent, quality, and method of integration of care vary from site to site. Generally, the following forms of integration of medicine and mental health emerged. Related to the extent of integration and the medical acuity of the patients treated, Kathol developed a classification starting with “type I” integrated care programs (psychiatric units with basic medical services) with low integration and acuity and reaching to type IV programs with high integration and acuity [4].

#### *Integrated programs, type I*

##### *Psychiatric units with medical consultation*

Although important for delivering integrated services in psychiatric inpatient units, these models are not discussed in this article. The quality of medical care on psychiatric units remains a matter of concern [5].

## *Integrated programs, type II*

### *Consultation*

The majority of C-L services provide consultation for medical/surgical departments functioning as a “fire brigade” for emergency psychiatric care (Table 1, example 1) [6]. A collaborative study conducted in 11 European countries and including more than 200 consultants and 14,000 referrals showed that more than three quarters of the 56 services investigated had a low consultation rate, between 1% and 2%, and provided psychiatric care mainly for medically ill patients who had urgent psychiatric problems (eg, risk of deliberate self-harm, substance abuse, delirium) [7]. Some services (eg, in the United Kingdom, the Netherlands, Portugal, and Australia) have specially trained nurses included in the C-L team. Participation of psychologists in a multidisciplinary C-L team is rare except in Australia and in psychosomatic services in Germany [8].

### *Liaison*

Liaison, as a more integrated form of cooperation with a named consultant assigned to a specific medical/surgical unit who regularly takes part in case conferences, ward rounds, and further education of medical teams, is rather rare in the delivery of mental health service for medical/surgical units (see Table 1; example 2) [6–8]. In the previously mentioned European study, only a few services (mainly psychosomatic services in Germany and Norway) used a more integrated approach and had a specific focus on somatization and adjustment disorder in the chronically ill. Because of the increased presence in the medical unit, liaison services have higher consultation rates (between 2% and 4%), provide more follow-up visits, and communicate with the outpatient medical care providers [9–11]. This service leads to a more effective long-term treatment of patients who have psychiatric comorbidity and patients who have somatoform disorders [12,13]. One of the aims of liaison services is to support medical teams working in distressing surroundings and caring for a high number of severely ill or dying patients (eg, in ICUs, palliative care wards, burn units, or transplantation units) [14,15]. Although surveys of team members of such units show high satisfaction with this kind of support, controlled trials to show its effectiveness are lacking [16].

### *Liaison coupled with active case finding and case management*

Models of liaison coupled with active case finding and case management have been developed in the United States and in Europe (see Table 1; example 3) [1,17,18]. Recently, a new model to assess the biopsychosocial problems and care needs of each newly admitted patient using the INTERMED method to provide active case management to patients who have high care needs was implemented on some hospital wards in the

Netherlands and Switzerland (see the article in this issue by Stiefel and colleagues) [19,20]. The INTERMED is an empiric, action-oriented decision-support method of detecting complex patients in need of multimodal and coordinated care. The INTERMED consists of a semistructured interview and a rating process performed by trained nurses. Patients who have elevated care needs are routinely discussed during daily case conferences using the results of the INTERMED. Care needs are met by designing an individual treatment plan organized by a multidisciplinary team of internists, nurses, and a C-L psychiatrist and nurse. The results of the INTERMED assessment are electronically documented in the clinical chart and used as part of the letter to the referring general practitioner. In a controlled study involving 644 medical inpatients of the Free University Hospital of Amsterdam, The Netherlands, and using a historic control group of the same wards, patients age 65 years or older provided with this type of integrated care showed better quality of life and a reduced length of hospital stay (16 days versus 11 days) compared with care as usual [21,22]. Other studies are discussed in the article by Stiefel and colleagues in this issue. Although liaison services may constitute an advantage over consultation services in terms of better horizontal integration across disciplines in the hospital and vertical integration across settings in outpatient care, implementation is limited in most countries because of insufficient funding.

*Specialist-integrated intervention in specific clinical fields*

*In-patient.* More integrated and multidisciplinary mental health services (including psychologists, nurses, or social workers) have been established in special fields of medicine treating patients who have a high prevalence of psychiatric disorder or psychosocial problems (eg, in psycho-oncology, dialysis, HIV/AIDS units, burn units, and transplantation units) [2,15,23]. Some of these services employ active case finding using standardized instruments for the detection of psychiatric comorbidity coupled with psychiatric/psychosomatic treatment [24–26]. Because of the more systematic service delivery to specific patient populations, consultation rates are much higher than in regular C-L services (10% and higher). An example of such an integrated program is delivered in Europe near Paris, at Ville Evrard, a large public psychiatric hospital. Over the past 15 years the department of internal medicine has provided assessments, consultations, and collaborative management of medical problems. All admissions are seen by the internal medicine service, and management includes primary and secondary prevention regimens as well as acute care. The internists participate with the mental health team in comprehensive treatment planning. It is reported that this approach has “improved the physical health and ... mortality of the patients” [27]. Although such services may provide adequate care for medical inpatients who have psychiatric comorbidity or illness-related distress, most of these services are limited to the general hospital admission and, because of the lack of reimbursement, do not offer follow-up visits or coordination

Table 1  
 Consultation-liaison services

Location Physician, Job Titles	Setting	Staff	Patient Populations	Interventions	Funding	Innovations, Advantages, and Disadvantages
Example 1: Montevideo, Uruguay R. Cesarco internist, faculty, consultant	Psychosocial Medicine Unit, C-L service, inclusive out- patient clinic, 320-bed hospital	3 MDs. (1 internist, 1 psychiatrist, 1 family medicine practitioner, 20 hrs/wk 2 psychologists, 8 hrs/wk	Medical/surgical patients, liaison with nephrology/ dialysis, hemato- oncology, oncology	Consultation rate 2.7%, diagnosis and treatment (pharmacology, counseling), support and education of the medical team, participation in the ethical and cancer committee	Hospital salary (around \$US 136) Psychologists are volunteers	Advantage: good acceptance of this biopsychosocial approach, each consult is a opportunity to educate staff. Rotation on unit is required for residents in family medicine Disadvantage: insufficient funding; part-time staffing (full-time staffing nonexistent in the country)
Example 2: Nürnberg General Hospital, Germany W. Söllner general medicine, psychosomaticist and psychiatrist, faculty, consultant	Psychosomatic C-L service in 2200 bed hospital, coordination with psychosomatic ward and day hospital	4 FTE psychosomatic consultants; 3.5 FTE psychologists; social worker	Medical/surgical patients, liaison with oncology, cardiology, dialysis, transplantation, pulmonology, HIV/AIDS, burn unit, dermatology, gynecology, palliative care, geriatrics	2400 cases/yr (consultation rate = 3%); consultations; liaison; counseling of medical teams; communication skills training for medical/surgical physicians; participation in ethical counseling	Consultations are reimbursed by the general budget of the general health; in future, they will be reimbursed by the medical/ surgical departments' DRG budgets	Advantage: good integration by liaison, including communication skills training for medical/surgical. physicians Disadvantage: separate budgets for mental health and general health; insufficient reimbursement

Example 3: University Medical Center Groningen The Netherlands Department of General Internal Medicine J.P.J. Slaets geriatrician, faculty chair F.J. Huyse, psychiatrist, faculty, consultant integrated care	Admission ward of internal medicine and subsequent wards; outpatient clinic for unexplained physical complaints	0.7 FTE psychiatrist for the development of integrated care; 0.8 FTE nurse practitioner psychiatry; 0.5 FTE rotating resident psychiatry	Patients referred for admission to General Internal Medicine	Admission screening with the INTERMED and subsequent care planning; psychiatric cotreatment when indicated	Primarily as an innovation project but mainly from resources from the Department of General Internal Medicine	Advantage: preventive integrated thinking from the beginning of an admission leading to a remarkable change in attitude of staff towards patients, their clinical problems, and management; maintenance through additional mental health input will remain necessary Disadvantage: appropriate funding is the main problem
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*Abbreviations:* C-L, consultation-liaison; FTE, full-time equivalent; DRG, Diagnosis Related Group.

of care after discharge. This absence of follow-up constitutes a major limitation to treatment continuity and vertical integration.

*Outpatient.* Outpatient psychiatric treatment programs located at the general hospital were established for specific groups of patients who have chronic disease and who are extensive users of the health care system (eg, patients who have somatization disorder, eating disorders, chronic pain, diabetes associated with eating disorders, or personality disorders causing compliance problems, puerperal psychiatric disorders, and others). Models of integrated care for somatizing patients are described in the article by Kroenke and colleagues in this issue. Some other examples are mentioned here.

An early model of integration of medical and psychiatric care was developed in an general internal medicine clinic where a C-L psychiatrist and a psychologist screened all patients who had unexplained medical symptoms for psychiatric comorbidity and discussed these cases with the internist with a special focus on the communication of the different health care providers involved in the case. Together, they developed a therapeutic strategy and provided a protocol for the telephone case discussion between the internist and the family doctor who provided further treatment. In a randomized, controlled trial including a follow-up examination, this structured model of integrative care showed several advantages compared with care as usual: psychosocial issues were reported more commonly in the discharge letters, more patients received psychologic treatment, patients' depressive symptoms were reduced, and family doctors were more satisfied with the communication with the specialists [28].

Other models of specialist treatment of somatoform disorders have been developed in the United Kingdom. Creed and co-workers [29] established a structured hospital-based outpatient treatment program for patients who had severe irritable bowel syndrome including multidisciplinary assessment, education, and short-term psychodynamic psychotherapy. In a multicenter three-armed randomized trial comparing two interventions (short-term psychotherapy and treatment with paroxetine) with medical care as usual, both interventions reduced physical and psychologic symptoms more effectively and were more cost effective than the control condition. More models relevant to this population are described in later sections on primary care-based models and disease-management and chronic-care models.

### *Integrated programs, type III and IV*

#### *Medical-psychiatric units and psychosomatic units*

To meet better the needs of patients who have somatic and psychiatric comorbidity, and especially those who have high acuity of disease, units that permit simultaneous medical and psychiatric treatment have been established in the United States, Canada, and some other countries [26,30]. In the beginning, most of these units were administered through psychiatry



using the advantage of reimbursement outside the Diagnosis Related Group system (type III integrated care programs). In the last 10 years, because of the admission of more patients who have more acute illness and restrictions on psychiatric reimbursements, MPUs were established under medical administration but with integrated psychiatric care (type IV programs) (Table 2; example 1). Today, MPUs exist in most university hospitals and many large teaching hospitals in the United States. Kathol and Stoudemire [30] estimate that 2% to 5% of patients admitted to a general hospital and suffering somatic and psychiatric comorbidity would benefit from treatment in a MPU. In practice, the most prevalent psychiatric disorders treated in MPUs are organic mental disorders, depression, and attempted suicide. Length of stay decreased in the last decade from about 20 days to about 10 days. Core features of such units are (1) location in a medical general hospital, (2) provision of a safe medical and psychiatric environment, (3) professional staff trained in both medical and psychiatric illnesses and treatments, and (4) attending physicians with medical and psychiatric training or a combined training.

In suburban Washington, DC, a graduate of the internal medicine psychiatry residency at Duke University has established a group "Med/Psych Hospitalist" practice. This group works in four community hospitals providing inpatient care for patients who have primary medical and secondary psychiatric diagnoses. They cover 10 to 15 inpatients at a time and provide about five psychiatric consultations per week. Dr. Alexander reports, "A med/psych hospitalist should earn 20% more than a regular hospitalist as a starting salary within an established hospitalist practice (20% higher salary for the additional two years of training)." He has, however, encountered resistance from hospitals and hospitalist groups that are reluctant to pay more for an untested model of care. His advice: "First, show them what you can do, then make yourself invaluable, after which you can negotiate a higher salary." The group reports a reduction in adjusted length of stay of 1 day (4.9 versus 5.9) for this med/psych hospitalist model, enough to record a \$13,000 profit for the hospital, compared with a \$17,000 loss for usual care (J.A. Alexander, personal communication; 2005).

In Germany and in Switzerland the development was opposite: integrated units were founded inside internal medicine as prototypes of an integrated holistic psychosomatic approach [10,31]. These units allowed the simultaneous medical and psychologic diagnosis and treatment of patients who had chronic medical diseases and psychiatric comorbidity or problems of coping with illness. Their populations differ from med/psych units as developed in the United States. The most prevalent disorders treated in these units are affective disorders, somatoform disorders, and adjustment disorders in medical patients. Psychosomatic units embedded in departments of internal medicine constituted attractive clinical models and teaching venues for students and residents to study an integrative biopsychosocial practical approach. This approach contributed to the development of psychosomatic

Table 2  
In-patient medical psychiatry units

Center/ Head of Department	Settings Vertical Integration No. Beds	Patient Populations/ Main Physical Diagnoses	Main Psychiatric Diagnoses	No. Beds/ Patients/Yr	Staff	Funding	Innovations, Advantages and Disadvantages
Example 1: Mayo Clinic Psychiatry and Psychology Treatment Center James Rundell, MD, Medical Director of Geriatric and Medical Psychiatry Program	Located in Mayo Psychiatry and Psychology Treatment Center which is on a general hospital campus with 1000 multispecialty beds	Nursing home patients, national referral patients, from medical/ surgical services through C-L service	Dementia, depression, delirium, behavioral dyscontrol secondary to CNS disorders	14 beds, 700 patients/yr	8 physicians, 2 social workers, 1 part-time internist, 1 part- time physician's assistant,, psychiatry residents, 1 recreation therapist, clinical pharmacologist; psychology services available	Fully by insurance	Advantages: provides full medical support unless the patient is severely ill; colocated with ECT service; good training setting. Disadvantage: long length of stay, inadequate reimbursement
Example 2: Heidelberg University Hospital W. Herzog, internist and psychosomaticist	Psychosomatic department with 3 in-patient wards (2 type IV, 1 type III); psychosomatic outpatient clinic	Medical in-patients with psychiatric comorbidity, cardiovascular, gastrointestinal diseases	Severe eating disorders, affective disorders, somatoform disorders, adjustment disorders	69 beds,1600 in-patients/yr 2950 out- patients/yr	20 physicians, 10 psychologists	Fully by insurance	Advantage: combination of type III and type IV medical psychiatric units; combination with out-patient clinic Disadvantages: medical and psychotherapeutic training is very time consuming

<p>Example 3: Berlin University Hospital H.C. Deter, internist and psychosomaticist</p>	<p>Psychosomatic department with allocated beds in the framework of medical wards</p>	<p>Medical in-patients, 78% with psychiatric diagnoses comorbidity, 28% with psychiatric diagnoses only</p>	<p>F4: 44% F3: 26% F5: 27% (mainly eating disorders) F6: 3% F1: 1%</p>	<p>15 beds, 180 patients/yr</p>	<p>2.5 FTE physicians, Fully by insurance 0.5 FTE psychologist, 1.0 FTE special psychotherapists (art/body therapist)</p>	<p>Advantages: Included effective treatment of patients who have somatization disorders and psychiatric disorders with somatic comorbidity; good integration of psychosomatic diagnostic and therapeutic care in all clinical departments of the hospital Disadvantages: nurses have sometimes insufficient training in psychosomatic care</p>
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*Abbreviations:* CNS, central nervous system; ECT, Electroconvulsive Therapy; FTE, full-time equivalent.

medicine as a separate mental health specialty in 1992. Subsequently, stand-alone psychosomatic units emerged focusing on the treatment of patients who had somatization, eating disorders, and medical patients who had anxiety or affective disorders but, in most cases, with less acute illness [32]. Most of these stand-alone psychosomatic units use a “therapeutic community” approach. At present, the latter type III units are more common than the original type IV psychosomatic inpatient units.

Häuser and co-workers showed clinical and economic advantages of the treatment of complex patients who had psychiatric comorbidity in psychosomatic units as compared with standard treatment in medical units [33].

The department of psychosomatic and general internal medicine at the University of Heidelberg is an integral part of both the Medical University Hospital and the Center for Psychosocial Medicine of Heidelberg University (see Table 2; example 2). With a total of 69 inpatient beds (1600 inpatients/yr), four outpatient clinics (2950 outpatients/yr) and its C-L service (750 consultations/yr), the department covers the whole spectrum of psychosomatic disorders. Patients suffering from physical and psychiatric comorbidity are treated in a setting that provides simultaneous medical and psychosocial diagnosis and treatment [34,35]. In addition, specialized settings for patients who have eating disorders, somatoform disorders, and posttraumatic stress disorders are available. Psychosocial and psychotherapeutic treatment includes psychodynamic, cognitive-behavioral, and systemic approaches in accordance with current treatment guidelines. Preliminary results suggest the effectiveness of this kind of treatment.

Because psychosomatic medicine is a required part of the medical curriculum in Germany, approximately 350 medical students per year are educated in this field using modern teaching techniques. The Berlin allocated-bed model of the psychosomatic department of the University Hospital Charité Campus Benjamin Franklin provides a C-L service for medical and surgical departments (see Table 2; example 3). Additionally, selected patients who have more severe psychiatric comorbidity undergo more intensive specialized psychosomatic diagnosis and treatment in allocated beds of the psychosomatic department in the wards of other clinical departments (internal medicine, neurology, gynecology, surgery). Psychosomatic assessments indicate a broad spectrum of psychiatric and internal diagnoses. Seventy-two percent of 766 patients treated in these allocated psychosomatic beds presented somatic and psychiatric diagnoses, underscoring the need for simultaneous diagnostic and therapeutic proceedings. Twenty-eight percent of patients showed psychiatric diagnoses only. The most frequent psychiatric diagnoses were anxiety disorders, posttraumatic stress disorder, and neurotic disorders (44%), eating disorders and psychiatric conditions contributing to the development of somatic illness (37%), and affective disorders (25.5%). Treatment includes individual psychodynamic psychotherapy, group therapy, stress management training, art therapy, and relaxation training. Mean length of stay is 21 days. An outcome

study conducted in 2004 with 139 consecutive patients showed a significant improvement of symptoms [36].

### *Specialized day hospitals*

One consequence of different efforts to improve vertical integration of mental health care was the creation of day hospitals (Table 3). With the exception of services for patients who have chronic pain, these models now are rare in the field of integrated medical and psychiatric care. The advantage of day hospitals is the possibility of providing more intensive, multidisciplinary, and specialized integrated treatment programs for specific patient groups. For example, day hospitals for patients who have chronic pain provide a 3- to 4-week multidisciplinary program specifically tailored for the treatment of small groups of these patients. Such a program includes education, relaxation, physical exercise and sports medicine, work hardening (a form of vocational rehabilitation), and cognitive-behavioral and psychodynamic therapy. A meta-analysis of outcome studies of such multidisciplinary treatment of patients who had chronic pain proved that such programs are the most effective treatment of severe benign chronic pain [37]. Table 3 shows a typical treatment program for patients who have chronic pain at the Nürnberg General Hospital. Vertical integration is promoted by intensive communication with general practitioners, including multidisciplinary case conferences. Similar programs with specific treatment modules are designed for geriatric patients (see Table 3).

### **Primary care-based models**

The historical separation between primary medical care and behavioral health persists in outpatient settings despite epidemiologic evidence regarding the prevalence of behavioral disorders in primary care and research studies showing that many such disorders are under-recognized and are not treated according to evidence-based guidelines in both primary care and behavior health specialty settings [38–40]. Moreover, the high prevalence of general health conditions among the mentally ill and the poor quality of care for general health problems treated in mental health settings have been well documented [41,42]. Clearly, better linked, coordinated, and integrated care models that redefine the interaction between primary care providers and mental health specialists are needed to improve quality of care and health outcomes for this population [43].

### *Behavioral health services in primary care settings*

The first set of models incorporates behavioral health care within primary care settings (or provides better linkages between these two components) and is most appropriate for individuals who have mild-to-moderate

Table 3  
Specialized interdisciplinary day hospital

Center Department Head	Setting	Patient Populations	Main Psychiatric Diagnoses	No. Treatment Sites Patients/Yr	Staff	Treatment Program	Innovations, Advantages, and Disadvantages
Nürnberg General Hospital, Germany W. Söllner general medicine, psychosomaticist, and psychiatrist	Interdisciplinary day hospital for (a) patients who have chronic pain and (b) geriatric patients; combined with pain clinic, C-L service, and psychosomatic ward (type III)	(a) Patients who have chronic pain (b) Geriatric patients who have medical illness (eg, stroke and cardiovascular disease)	(a) Psychiatric factors contributing to chronic pain (b) Dementia, depression, adjustment disorder	(a) 10 places, 340 patients (b) 54 places, 1500 patients	(a) Physicians: 0.75 psychosomaticist, 1 anesthesiologist, 0.3 rehabilitation medicine; 0.75 psychologist, 1 physiotherapist, 0.5 ergotherapist, 1 nurse (b) 1 internist, 0.5 psychosomaticist, 0.5 psychologist, physiotherapists, ergotherapists, nurses	(a) 4-wk daily 8-hr group therapy program: education, relaxation, cognitive behavioral therapy, psychodynamic therapy, sports therapy, work hardening (b) Daily 5-hr program (1–4 wk): training of cognitive functions, education, supportive group therapy, physiotherapy, ergotherapy	Innovation: special intensive psychosomatic treatment programs for patients who have chronic pain and geriatric patients Advantage: good vertical integration with outpatient pain clinic, regular case conference with general practitioners, coordination with psychosomatic ward Disadvantage: no outpatient clinic for geriatric patients

behavioral health disorders. In this model, primary care providers continue to have responsibility for general medical care, but they also have in place a systematic capacity to assess a patient's psychosocial problems and strengths and to conduct screenings for both lesser and more severe disorders. In addition, for all psychiatric conditions initially detected or encountered in primary care settings, the primary care provider maintains an ongoing monitoring capacity and communication linkages with any behavioral health specialist involved in the patient's care. For cases of lesser severity or uncomplicated conditions, the primary care provider also has responsibility for a more extensive assessment and initial treatment through medication and limited psychosocial interventions. For a large proportion of the patients who currently are being treated in the behavioral health specialty area, behavioral health specialists located in primary care setting serve as the mainstay of care. There are many advantages to such arrangements. The drop-off resulting from referral to a separate, more distant (and stigmatized) specialist is reduced. Communication between primary care and behavioral health is enhanced both with regard to individual patients and, more importantly, on a general level. Colocation also allows easy, informal "curbside" consultation and an ongoing educational presence that will raise primary care providers' skills in, and awareness of, these issues. Finally, the presence of behavioral health specialists establishes a more effective behavioral health quality-improvement capacity in the practice. As new behavioral technologies (ie, specific interventions to promote healthy habits and prevent physical and mental illness) are developed and made applicable to populations beyond those traditionally considered to have mental disorders, primary care settings will be an important site for their implementation, especially those targeted to populations profiled to be at high risk for specific conditions.

These models can be described along several dimensions [44]. For example as illustrated in Fig. 1, a generalized theory of linkages between the two systems is presented that is not limited to specific care levels or settings but rather reflects the degree of emphasis on three sets of elements:

1. Contractual elements consisting of formal or informal agreements between the two settings, such as patient referral, data sharing, access to patient records, and follow-up procedures, among others
2. Functional elements that include aspects of the relationship actually encountered by the patient through any possible combination of services, ranging from diagnostic evaluation through short- and long-term treatment models
3. Educational elements that serve to establish and reinforce the primary care provider's knowledge and skills in behavioral health or the behavioral health specialist's understanding of general health issues

Based on this framework, six different models can be envisioned. Model 1 is focused principally on contractual elements (ie, an agreement between individual mental health and general health providers or mental health and

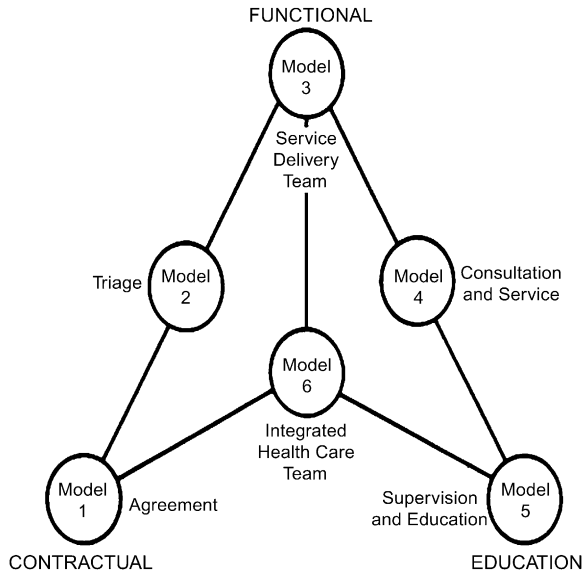


Fig. 1. Conceptual models of linkages between general health and mental health systems of care.

general health organizations regarding referral, information exchange, and other matters). Model 2 adds a person who triages patients and facilitates the contractual arrangements. Model 3 incorporates an actual behavioral health unit that treats most patients who are referred (as in most large health-maintenance organizations). Model 4 places strong emphasis on consulting with the primary care providers, enabling them to treat more of the mental health problems of their patients (as in academically affiliated clinical settings). Model 5 focuses exclusively on education, with no emphasis on service delivery. Model 6 is an integrated health care team wherein the primary care provider and the mental health specialist serve on the same team, treating the patient together. A number of factors need to be taken into account in planning the appropriate type of linkage program for a particular situation or problem. Such factors include the populations to be served, geographical issues, management, financing mechanisms, philosophy of care, and the settings and levels of care. Comparisons should be made across the various models to assess which types of programs are most useful for given situations, which are defined by the above factors.

An alternative set of models can be developed by characterizing the relationship between the primary care provider and the behavioral health specialist along four different dimensions:

1. **Who:** This dimension is a measure of the extent to which the primary care provider or the behavioral health specialist is involved in the patient's care (Fig. 2)



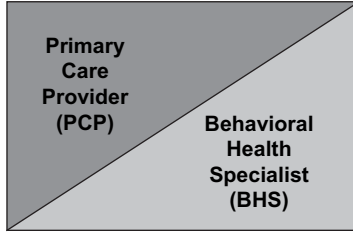


Fig. 2. Who? Responsibility for care.

2. What: This dimension describes the actual functions/roles of each of the providers. Fig. 3 is a matrix providing a sample description of potential underlying assumptions regarding the relevant roles of primary care providers and behavioral specialists (psychiatrists and nonpsychiatrists) for particular conditions. With respect to each condition, cells for specific provider roles and functions are depicted.
3. How: This dimension describes the nature of the relationship between the behavioral health specialist and the primary care provider. Seven possible types of relationships can exist. (1) Integrated team: a single interdisciplinary team provides comprehensive care; (2) collaborative care: both the mental health specialist and the primary care provider are highly involved in the care of the patient as orchestrated through an agreed-upon set of protocols; (3) consultation: the primary care provider

<b>Interventions</b>	Longitudinal f/u and monitoring												
	Extended B/P/S interventions												
	2nd level or higher meds												
	Brief B/P/S interventions												
	Initial Medications												
	Diagnosis/Comprehensive P/S assessment												
	Counseling/Psychoeducation												
	Recognition/Limited P/S assessment												
	Primary Care For GMC												
			Depressive Disorders	Substance Use Problems	Panic Disorder	Somatization	Social Specific Phobias	Other - Anxiety Disorders e.g.	Substance Abuse	Bipolar Disorder	Substance Dependence	Severe Personality Disorder	Schizophrenia

**Conditions/Populations**

Note - did not include child (e.g. ADHD) geriatric (e.g., dementia)

Fig. 3. What? Mapping training to roles. (Does not include pediatric [eg. attention-deficit hyperactivity disorder] or geriatric [eg. dementia] populations. B/P/S, biopsychosocial; f/u, follow-up; GMC, general medical clinic; P/S, psychosocial.

is the principal provider of services but maintains contact and obtains consultation through the mental health specialist; (4) referral: the mental health specialist provides the principal contact, with limited communication with the primary care provider; (5) independent: both the mental health specialist and the primary care provider provide direct patient contact, with no communication between them; (6) autonomous primary care provider: all care is provided by the primary care provider with no involvement or consultation with a mental health specialist; (7) autonomous mental health specialist: all care is provided by the mental health specialist with no involvement or consultation with a primary care provider. These relationships can be operationalized by quantifying communication between the primary care provider and mental health specialist and the extent of mental health specialist patient contact (Fig. 4).

4. When: This dimension describes the points along the patient-care continuum at which the interaction between the primary care provider and mental health specialist occurs (ie, assessment, early management, continuing care) (Fig. 5).

This framework represents a portion (or set of variables) of the full context in which primary care and behavioral health services are delivered. The full set of factors that are likely to affect the process of care and should also be considered includes setting, provider characteristics, patient characteristics, and general health problem issues.

#### *Primary care in behavioral health settings*

Most of the time primary care/behavioral health integration is considered from the perspective of integrating behavioral health care into primary care, particularly for individuals who have mild-to-moderate behavioral health

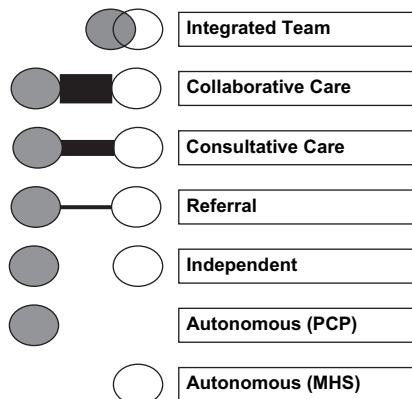


Fig. 4. How? MHC, mental health service; PCP, primary care provider.

<b>Risk Factor Identification/ Prevention</b>	<b>Diagnosis/ Assessment</b>	<b>Short-term Management</b>	<b>Continuing Care</b>
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Fig. 5. When?

disorders. There is, however, a compelling need to consider simultaneously alternative models that incorporate the reverse perspective (ie, integrating primary care in behavioral health care for people who have serious behavioral health disorders). Numerous studies over the last 30 years have found high rates of physical health-related problems and death among individuals who have serious mental and addictive disorders [45]. Although some of the excess mortality is a direct result of mental health outcomes (ie, suicide), a substantial proportion is caused by general medical conditions, which often are unrecognized and inadequately treated in this population. Despite their extensive physical health needs, individuals who have behavioral health problems often do not receive treatment. A review of 18 studies estimated that, on average, 35% of individuals who have serious mental disorders have at least one undiagnosed medical disorder. Preventive services, such as vaccinations and cancer screenings, are also lacking. For many of these individuals, especially those treated in the public sector, specialty clinics (eg, community health centers, addiction treatment programs) are the principal or only points of contact with the health care system [41]. For others, primary contact with the health system is through their mental health provider. To improve care for these individuals, it is necessary to go where they are (ie, the specialty mental health system) and bring primary care providers onsite. Such an approach would also allow better integration across other levels of specialty behavioral care and other systems (eg, vocational, welfare, criminal justice), because these connections are better established on the mental health side than in primary care. Numerous efforts are currently underway at state and local levels to implement integrated models of care for these so-called “safety net” populations. The National Council for Community Behavioral Health care has developed a conceptual model to assist providers in thinking about appropriate population-based responses. The Four Quadrant Clinical Integration Model lays out the major system elements that would be used to meet the needs of individuals within four specified quadrants (Fig. 6) [46]:

- Quadrant I: Patients who have low-to-moderate risk/complexity for both behavioral and physical health issues
- Quadrant II: Patients who have high behavioral health risk/complexity and low-to-moderate physical health risk/complexity.

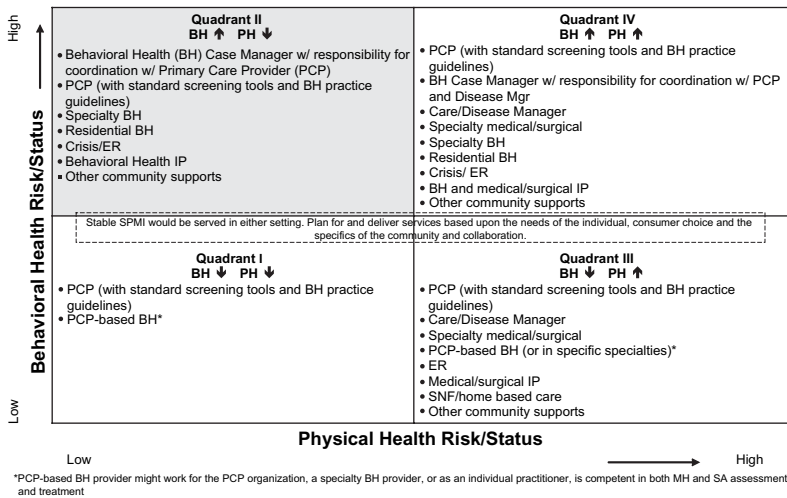


Fig. 6. The four-quadrant clinical integration model. ER, emergency room; IP, inpatient. From Mauer BJ. National Council for Community Behavioral Healthcare background paper: behavioral health/primary care integration models, competencies, and infrastructure. © 2002; used with permission. Available at <http://www.nccbh.org/SERVICE/consult-pdf/PrimaryCareDiscPaper.pdf>.

- Quadrant III: Patients who have low-to-moderate behavioral health risk/complexity and high physical health risk/complexity.
- Quadrant IV: Patients who have high risk/complexity in regard to both behavioral and physical health.

Ongoing public policy efforts will be needed to sustain, support, and mandate integration or coordination of services between behavioral and primary health care services to meet the specialized needs of these various patient populations. To date, a number of integrated and coordinated models of care have been tested and found to achieve some measure of success. In the United States the Bazelon Center for Mental Health Law has examined three basic approaches: (1) embedding of primary care providers within public mental health programs; (2) unified programs that offer mental health and physical health care through one administrative entity, thereby integrating delivery of care and also administration and financing; and (3) initiatives to improve collaboration between independent, office-based primary care and public mental health that use strategies such as special targeted programs, financial incentives, managed-care contract requirements, and provider education and training. On-site demonstrations using the first two approaches have produced excellent results in terms of access, continuity, and coordination of care and have reduced health disparities among people who have serious mental illnesses [45]. There still are policy issues to be resolved regarding service delivery, financing, monitoring, and quality assurance [46]. Possible strategies for resolving these issues might include

providing start-up funds for establishment of embedded or unified programs; stipulating the requirements that must be met by mental health agencies furnishing on-site primary care; ensuring that reimbursement rates reflect the cost of providing services and the time spent on care coordination; and placing the responsibility for providing primary care services to individuals who have serious mental illness clearly on one entity [47]. The third approach has proven to be more difficult because providers continue to practice separately and have separate administrative structures, information systems, and funding sources. As a result, numerous adjustments and special efforts to overcome barriers are required. Although efforts to improve collaboration among providers have been somewhat successful, many problems remain to be addressed through a mix of incentives and mandates for improving communication, information sharing, financing, and education.

#### *Disease-management and chronic-care models*

As the primary health care system evolves to encompass the management of chronic diseases in a rapidly aging population, certain behavioral health disorders have become increasingly recognized as chronic, recurring, and costly illnesses. The standard of care for virtually all chronic medical conditions (both physical and mental) now includes the application of disease-specific psychosocial/behavioral interventions ranging from psychoeducation to adherence enhancement to specific cognitive rehabilitation techniques that alter the course of the disease. Primary care settings have the responsibility for implementing these interventions and maintaining the necessary staff and expertise to do so, including behavioral health specialists for interventions that are more complex or technical. Comprehensive treatment models that approach chronic illness from a longitudinal perspective with systematic monitoring, application of evidence-based models, active patient engagement, and effective linkages to specialists for consultation and follow-up are also being implemented and tested. Perhaps the best recognized chronic illness care model (CCM) is the one developed and implemented by Wagner and colleagues that has been applied across a range of conditions [48,49]. As Fig. 7 illustrates, the Wagner CCM promotes clinical change through six key elements: leadership, decision support, delivery system redesign, clinical information systems, patient self-management, and linkage to community resources.

Inherent differences between behavioral and general medical health require that the CCM be adapted to manage chronic behavioral disorders effectively. Multiple, large-scale projects testing various adaptations of the model have demonstrated significant improvement in clinical and economic outcomes for depression care in particular. Katon and colleagues [50], for example, empirically tested a CCM-based collaborative care approach designed specifically for depression treatment in primary care that was later

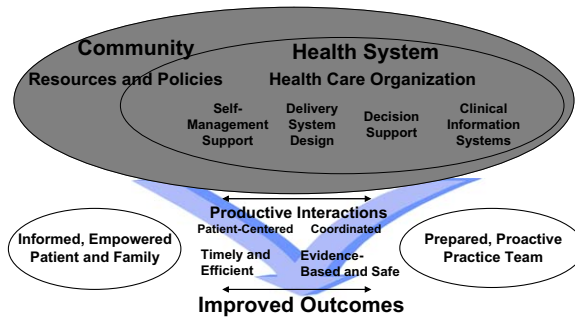


Fig. 7. Evidence-based chronic (planned) care approaches for treating depression.

adapted and proven effective for use by a telephone-based care manager [50–52]. The MacArthur Foundation’s Initiative on Depression and Primary Care has launched a variety of projects to explore and enhance current approaches to primary care depression management, including the Re-Engineering Systems for Primary Care Treatment of Depression project, which uses a clinical model for primary care management of depression and a practice change model to support its adoption [53]. As part of the RAND Partners in Care project, Wells [54] also incorporated elements of the Wagner CCM into a broader quality-improvement initiative across diverse managed-care settings. Projects focused on care-management strategies for depression in the elderly, such as the federally funded Prevention of Suicide Primary Care Elderly: Collaborative Trial (PROSPECT) study, Project IMPACT (with support from the John A. Hartford Foundation), the PRISME study (funded by the Substance Abuse and Mental Health Services Administration), and the Quality Enhancement by Strategic Teaming study by Rost and colleagues [55], further substantiate the efficacy of adaptations of the CCM model [55–58]. The Depression in Primary Care program (funded by the Robert Wood Johnson Foundation) attempts to address the barriers to chronic illness primary care for depression through a “6P” strategy that considers the multiple perspectives of the six identified key stakeholder groups (patients, providers, practices, plans/payers, purchasers, and populations) [59]. The incentives component of the program was designed to test the feasibility and effectiveness of combining a clinical CCM with an economic/systems approach to improving the treatment of depression in primary care. Partnerships of primary care practices, health plans (ie, managed-care organizations and managed behavioral health organizations), public and private purchasers, and others are implementing creative interventions for realigning clinical care, organizational structures, and payment incentives and evaluating the effects on organizational processes and outcomes. Other components of the program are designed to support (1) creative and innovative research projects that can document or enhance the value of improving the quality of depression care for the “6P”

stakeholders and (2) the efforts of early-career primary care physicians in internal medicine, family medicine, pediatrics, geriatrics, or obstetrics/gynecology in adapting the CCM for depression in their primary care settings.

**Systems issues and barriers**

Although the need for improved integration of primary medical care and behavioral health care is well documented, and models such as those described previously are being developed and tested, numerous systems issues and barriers continue to impact effective integration adversely at multiple levels, involving all six key stakeholder groups (Fig. 8) [59].

At the patient level, stigma, resistance to diagnosis, and health beliefs that tend to emphasize somatic presentations act as barriers to recognition and treatment of behavioral disorders in the primary care setting. In many cases, the illness itself causes feelings of pessimism, nihilism, and low energy that interfere with help-seeking behaviors or result in unemployment or loss of insurance coverage. For primary care providers, limited time as well as limitations in background, training, and the capacity and interest to reflect introspectively may also act as barriers to appropriate treatment for behavioral health disorders in primary care settings. There is wide variation in how primary care practices are organized to care for people who have behavioral health problems, how they allocate resources in this regard, and how they are linked to behavioral health specialty care. Often there is

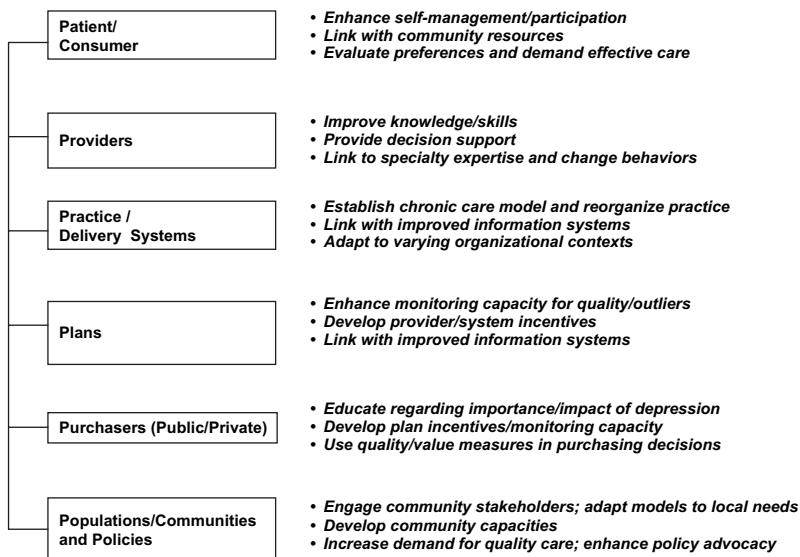


Fig. 8. The “6P” conceptual framework. (From Pincus HA, Hough L, Knox Houtsinger J, et al. Emerging models of depression care: multilevel (“6P”) strategies. *Int J Methods Psychiatric Res* 2003;12:54–63; with permission.)

ambiguity about who is responsible for care, and there is limited communication and teamwork between primary care and mental health practices. Typically, primary care practices focus on acute management and referral for what are often chronic or recurrent conditions. Moreover, existing diagnostic systems (ie, *The Diagnostic and Statistical Manual for Mental Disorders-IV*), instruments, and screening tools generally have not been geared toward primary care practice. At the plan/payer level, fragmentation of care through “carve-out” arrangements (ie, in which primary care and behavioral health networks are entirely separate) limit collaboration and communication between primary care and specialty practices and providers and even discourage it with financial and structural disincentives. Approaches for improving care for mental health disorders in both integrated and network managed-care plans have been developed and tested, but these collaborative arrangements are unlikely to remain in place after a demonstration is concluded unless they are tied to financial incentives [60–62]. Although public (eg, Medicare and Medicaid) and private purchasers (eg, business coalitions) exert significant influence over insurance benefit design and coverage decisions, they often fail to consider quality of care as the basis for purchasing decisions. Despite the growing evidence of the increasing value of behavioral health care, awareness of the substantial indirect costs that accrue through absenteeism, presenteeism, and disability remains limited [63]. Behavioral health disorders also place enormous burdens at the population or community level, especially among socially disadvantaged and vulnerable groups. There have not, however, been efforts to link public health approaches more broadly with customized community development models in the service of improving recognition, management, and outcomes [40,48].

#### *Training physicians and nurses in biopsychosocial medicine and communication skills*

From the very beginning, one of the aims of C-L psychiatry and psychosomatics was to enhance the biopsychosocial attitudes and communication skills of physicians and nurses to achieve a better holistic care of patients through a “snow-ball effect” created by C-L work [64,65]. The aim of this section is not to review these educational efforts systematically but to provide some examples so that the reader gains an impression of these methods, which may be considered as complementary to the previously mentioned clinical models. Different methods of transferring psychologic knowledge and skills have been developed and integrated in clinical care; among them are the traditional models, such as the so-called “Balint groups” or patient-centered team supervision. More structured approaches appeared more recently, for example the development and implementation of guidelines on specific psychiatric disorders, such as the management of delirium or depression in the medically ill [66]. Although most of these approaches were not evaluated scientifically, training courses developed over the last



2 decades to improve communication skills of physicians and nurses have become the object of scientific interest and have been found highly effective [67]. Such training has been especially developed in two clinical fields in particular, oncology and somatization. Training in communication skills is based mainly on role playing, feedback on audio- or video-taped interviews with simulated patients, and case discussion; designed for oncologists and oncology nurses, they have been successfully implemented and evaluated [68–70]. Training in communication skills is considered relevant and as enhancing patient-centered communication, and the work with videotaped interviews with simulated patients is appreciated. Such training therefore has been developed in different countries, and in one country, Switzerland, is mandatory for oncologists [71].

A comprehensive program has also been introduced at the Memorial Sloan-Kettering Cancer Center in New York City. A dedicated communication skills training and research laboratory has been established at the Memorial Sloan-Kettering Cancer Center, where surgeons, oncologists, nurses, and a range of related clinicians caring for medically ill patients who have cancer are given an applied program of experiential learning. The core program of six modules constitutes a basic oncology curriculum: breaking bad news; discussing prognosis; shared decision making about treatments and clinical trials; responding to distress and anger; transition to palliative care; and obtaining do-not-resuscitate directives and talking with the dying. The consolidation program comprises four modules on geriatric oncology: sensitivity to the elderly; third-party consultations; multidisciplinary teams; and obtaining consent from the cognitively impaired. Other elective modules cover gaining informed consent for phase one trials, genetic risk consultations, working with interpreters, and promoting adherence to treatments. Train-the-Trainer programs ensure facilitators come from the clinical discipline undergoing training. The faculty involved at Memorial Sloan-Kettering Cancer Center expect this training will become the norm for comprehensive cancer centers across the next decade ([www.mskcc.org/mskcc/html/44.cfm](http://www.mskcc.org/mskcc/html/44.cfm)).

With regard to somatization, the Research Clinic for Functional Disorders and Psychosomatics at Aarhus University Hospital, Denmark, developed a model for training general practitioners to assess and treat patients who present with functional somatic symptoms. The aim of this education model (The Extended Reattribution and Management Model) is to provide knowledge about somatoform disorders and to train general practitioners in interview techniques and communication skills specifically designed for the treatment of patients who have functional disorders [72–74]. The training consists of a 2-day course followed by five follow-up sessions. The program is fitted into a carefully designed research program to assess the effects on the outcome of patients.

In Germany, training courses in basic psychosomatic care, including 20 hours of theoretical seminars, 30 hours of communication skills training, and 30 hours of participation a Balint group, have been broadly

implemented during the last decade and now are mandatory for all residents in internal/general medicine.

In the United States Web-based training facilities have been developed ([www.impact.ucla.edu](http://www.impact.ucla.edu)) to distribute the methodology of influential studies more effectively [75].

### **The future of integrated care**

The viability of integrated care depends on cultivating a substantial body of evidence from health services research that argues persuasively for the economic and clinical superiority of integrated care over traditional care in specific populations, conditions, or settings. The recently released report of the Institute of Medicine, *Improving the Quality of Health Care for Mental and Substance-Use Conditions: Quality Chasm Series (2006)*, provides a blueprint for integrating mental health and general health in the service of improving the quality of all health care [76]. In fact, its principal theme is integration. An entire chapter is devoted to the linkage between these two worlds, and the committee specifically recommends that interventions at multiple levels be applied to move mental health substance use and general health care along a continuum of coordinated care toward horizontal and vertical integration.

The future of integrated care depends in part on resolving the economic barriers to integration. Strategies for resolving these barriers vary from country to country and, within the United States, even from state to state, because reimbursement rates and credentialing policies can vary by region. In the United States Kathol ([www.cartesiansolutions.com](http://www.cartesiansolutions.com)) and others have established the process of providing consultations to organizations and individuals aiming to overcome barriers to implementing financially successful programs for psychiatric care in medical settings [47]. For example, most employers have not compared the administrative and claims savings from integrated care with the costs of their traditional “carved out” system. Armed with such internal studies, employers and governmental purchasers of health plans will have more solid grounds for trying new systems that pay for integrated care. In many countries, the organization of health care and particularly separate funding policies for the different components of care hinder the development of successful integration of medical and behavioral care as well as of inpatient and outpatient care.

Kathol [30] defined five critical components for outcome improvement in the integrated care of patients who have medical-psychiatric comorbidity (see also the article by Kathol in this issue):

1. Readily available psychiatric assessment in the primary care setting
2. Active screening in the primary care setting to identify high-risk patients who have psychiatric illnesses/disorders
3. Ability to apply pharmacotherapeutic, psychotherapeutic, and psychosocial interventions that have proven effective through well-designed studies

4. Coordination and integration of medical and psychiatric care among clinicians
5. Case management for patients with chronic or complex illness.

Based on the experienced described previously, the authors add an additional critical component:

6. Support of medical care providers/teams (1) to identify better patients who have medical-psychiatric co-morbidity, (2) to communicate better with these patients and to provide basic psychosocial care and (3) to improve communication within the network of medical care provision.

Depending on the severity and acuity of medical-psychiatric comorbidity and on the degree of complexity of care, a stepped approach to care is necessary, ranging from simple consultation or collaboration between independent medical and psychiatric care providers to more integrated and sophisticated models of care such as MPUs or a combined medical and behavioral outpatient unit. For complex patients mere crisis-oriented consultation is insufficient. The care of such patients requires inpatient or outpatient liaison models with active case finding, assessment of care needs, and interdisciplinary management of care. Interdisciplinary treatment of these patients requires a team approach including medical and behavioral care providers (psychiatrists, psychologists, C-L nurses, nurse case managers, and social workers). Such teamwork requires the development of a common professional culture of integrated care and of interdisciplinary training facilities.

Future models should guarantee sufficient horizontal integration between these care providers in the inpatient or outpatient setting, as well as sufficient vertical integration between inpatient and outpatient care, including forms of transitional care (such as day hospitals and transfer units). Most of the existing models of care do not permit a long-term outcome orientation providing effective referral channels and follow-up strategies. The future models for integrated care will develop along the lines of the models presented in this article. (For models for unexplained physical complaints see also the article in this issue by Kroenke and colleagues; for the chronic care model see also the article in this issue by Egede.) Future models will include complexity assessment to support the decision to assign patient-oriented services and the related levels of care, as discussed elsewhere in this issue.

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