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Research report

Tiered frameworks for planning substance use service delivery systems: Origins and key principles

ABSTRACT

B. Rush: Tiered frameworks for planning substance use service delivery systems: Origins and key principles

It is well known that only a relatively small proportion of people in the community who experience substance use problems seek assistance from the specialized sector of services that have been commissioned to provide treatment and support for these problems. Going back to seminal reports from the early 1990s there has been a call for a systems approach to "broaden the base of treatment" in order to achieve wider coverage and yield positive outcomes at a population level. In some jurisdictions conceptual models referred to as "tiered models" have been advanced to support planning, system design and performance monitoring. This paper traces the evolution of such tiered models for substance use services and describes a recent model advanced in Ontario Canada for design of an integrated system of mental health, substance use and problem gambling services and supports. The paper concludes by highlighting key features and principles of the tiered approach that are critical for its actual operationalization. Some challenges operationalizing such a comprehensive system design framework are also noted.

■ KEY WORDS

treatment systems, addiction, planning models

Introduction

It is now well established that a relatively small proportion of people in the community who experience substance use problems seek treatment for these problems. The supporting data are drawn from general population surveys that variously define need for treatment and also inquire about formal and informal help seeking within a defined timeframe (e.g., Urbanoski et al. 2007; Cunningham & Breslin 2004). Results of these studies confirm that many more people with substance use prob-

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lems are engaged with non-specialist services such as primary care physicians, emergency departments and hospital inpatient services than specialized detoxification, residential or non-residential treatment programs. Such data have supported the call for a more comprehensive view of the substance use treatment "system", arguing that a discernable impact of the treatment system at a population level is unlikely to be achieved only through provision of specialized services to people with the most severe and complex needs (e.g., Babor et al. 2008). Systems design must also recognize that many people resolve their substance use problems without the aid of formal helping services (Sobell et al. 1996), although "natural recovery" does not necessarily exclude support from informal sources of support that can also be conceptualized as part of treatment into system design (Edwards 2000). A broader population health approach is needed, one that engages multiple sectors such as health, social welfare, criminal justice and education in a comprehensive system of services and supports. This means building substance use treatment capacity in the settings where people with substance use problems are most likely to be engaged. It also means inclusion of health promotion and prevention policies and services in the same systems framework.

Babor and colleagues (2008) have offered a schematic view of the wide range of service delivery settings and contexts to be considered in broadening the base of treatment and integrating substance use services and supports into a coherent, comprehensive treatment system.

Paralleling this more comprehensive perspective of what comprises the treatment system, is a broader understanding of the nature of substance use problems. It is now commonly recognized that the construct of "substance use problems" is multi-dimensional comprised of substance use (frequency, quantity and variability), substance abuse (essentially negative consequences of use), and substance dependence (Hasin et al. 2006; Rehm 2008). However, evidence from studies involving people from the general population and treatment/health care settings also shows that heavy substance use, abuse and/or dependence frequently co-occur with mental health problems, physical illness and a range of social needs. Thus, the overall problem profile is complex and exists in varying degrees of severity. This heterogeneity is not well-captured in current nosological systems. One innovative approach to the conceptualization of problem severity suggests that it consists of three interrelated dimensions: acuity, chronicity and complexity (Reist & Brown 2008). *Acuity* refers to short duration and/or urgent risks or adverse consequences (e.g., accidents or criminal charges) that are associated with the index problem (e.g., heavy substance use or dependence). *Chronicity* refers to the development or worsening of long duration or enduring conditions (e.g., major depression, chronic pain, Hepatitis C). *Complexity* refers to the degree of co-occurrence of the acute or chronic index problems and/or the existence of health and social factors such as homelessness, unemployment, family dysfunction that complicate the process of addressing the index problem(s). Complexity is a concept that is being applied more frequently to individual assessment and treatment planning in the field of psychosomatic medi-

Figure 1. Service delivery contexts for a comprehensive substance use treatment system adapted from Babor et al. (2008)

cine[1] (Huyse et al. 2006); the planning and implementation of various strategies for integrating mental health and substance use services with broader health care services and systems (e.g., Kathol et al. 2009); and risk-adjustment for outcome monitoring and costing purposes (Hermann et al. 2007). Substance use problem severity represents the cumulative gestalt of acuity, chronicity, and complexity, akin to the concept of "level of burden" (Aldworth et al. 2010) or "multi-morbidity" (Angst et al. 2002).

Figure 2 illustrates the distribution of substance use problem severity within the general population, a distribution sometimes referred to as the "population health pyramid". The highest levels of severity are associated with the fewest number of people whose need is for the most specialized and/or intensive care. Those with lower levels of problem severity are more numerous and their needs can be met by less intensive or less specialized care more widely available in a variety of health and social service contexts, as well as more informal community and/or family networks. This conceptual framework is similar in many respects to that used in the past for planning alcohol use interventions and service delivery systems but is now expanded to consider other licit and illicit drug use as well as a wide array of co-occurring conditions. Simply put, the

broad "treatment system" must be planned in such a way as to respond effectively and efficiently to this *full spectrum* of acute, chronic and often complex needs.

The continuum-of-care model

Conceptual frameworks vary considerably in form and purpose, ranging from the theoretical to the operational, but generally attempting to connect various aspects of a field of inquiry and offer a preferred approach to an idea or goal(s). For substance use treatment systems, there is no generally accepted conceptual framework. Indeed the precise form such a framework might take depends on the prevailing views of substance use problems and their treatment; extant knowledge of culture-bound, evidence-based practice; the purpose to which the model will be put; and, perhaps most importantly, the social, political and cultural context for model development, implementation and evaluation.

The concept of the "continuum-of-care" underlies one such conceptual framework that has been brought to bear for several years in the substance use field, and which continues to hold currency in many parts of the world. Briefly, one can view the continuum-of-care as being organized along categories of specialized service delivery that correspond to an ideal service

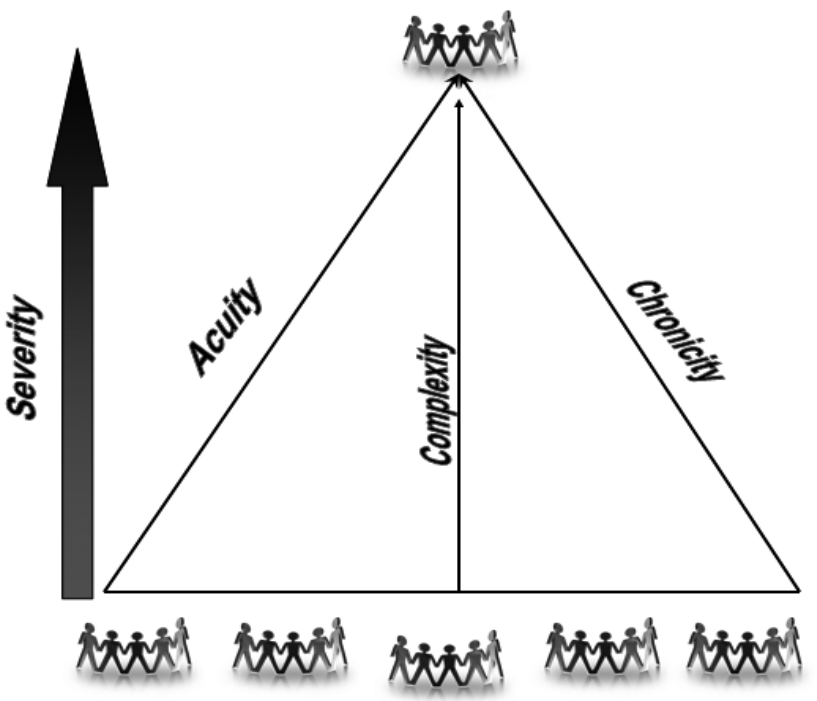


Figure 2. Distribution of substance use problem severity in the general population

mix and an ideal flow of clients into and through various treatment settings and functions, for example, intake, screening, withdrawal management/detoxification, stabilization, assessment and treatment planning, treatment intervention of varying intensity, continuing care. Recently the concept of continuing care has been expanded to include "Recovery Monitoring Check-ups" (Dennis et al. 2003; Rush et al. 2008). The systems framework based on a continuum-of-care approach also rests upon a model of problem severity equally based on a continuum. The range of treatment settings must offer interventions of varying intensity and structure (e.g., social versus medical withdrawal management, community outpatient treatment, day/evening treatment, short/long term residential) and treatment that is accessed by clients on the basis of problem severity and other matching criteria such as severity of dependence, stability of the person's life situation and safety of his/her environment.

Past system design efforts that hinge on the continuum-of-care model include the "Core-Shell Model", whereby centralized functions of intake, assessment and case management (the core) match and link clients to the array of treatment services required for the overall client population – the shell (Glaser 1974; Marshman 1978). This model underpins recent efforts in the Netherlands to recruit, assess, match, treat and assess outcomes for a large municipal treatment system (Merkx et al. 2007). Another more recent system design framework that is also based on continuum-of-care principles is the "stepped care" approach such that clients are assigned, on the basis of assessment, to the least intensive and intrusive level of care and then "step-up" if outcomes are not positive and, when appropriate, "step-down" for the maintenance of gains and ongoing support (Breslin et al. 1998; Sobell & Sobell 2000).

From a historical perspective the continuum-of-care model was a significant advance over a "one-size-fits-all-approach" to delivery of substance abuse treatment services. The approach influenced, for example, the structure of needs assessment and needs based planning models (e.g., Rush 1990) and treatment services policy concerning funding and access to treatment (e.g., through managed care in the US). As useful as it has been, however, the continuum-of-care approach appears to have now been subsumed under the broader systems approach described earlier since it covers only the specialized sector of substance use services and offers little guidance on linkage of these services and supports to health, social, justice, or education services, for example.

■ Beyond the continuum-of-care to tiered frameworks

As noted earlier, one of the first conceptual frameworks for substance use systems that moved well beyond the continuum-of-care approach was advanced in 1990 in a seminal report from the Institute of Medicine (IOM) (1990) in the U.S., and which drew heavily on Canadian research and expertise. Figure 3 from the IOM report illustrates many elements of this broader systems perspective. A more recent approach is referred to as the "tiered framework" or "tiered model"; a systems modeling approach that has found its way recently into planning documents for both mental health and substance use services

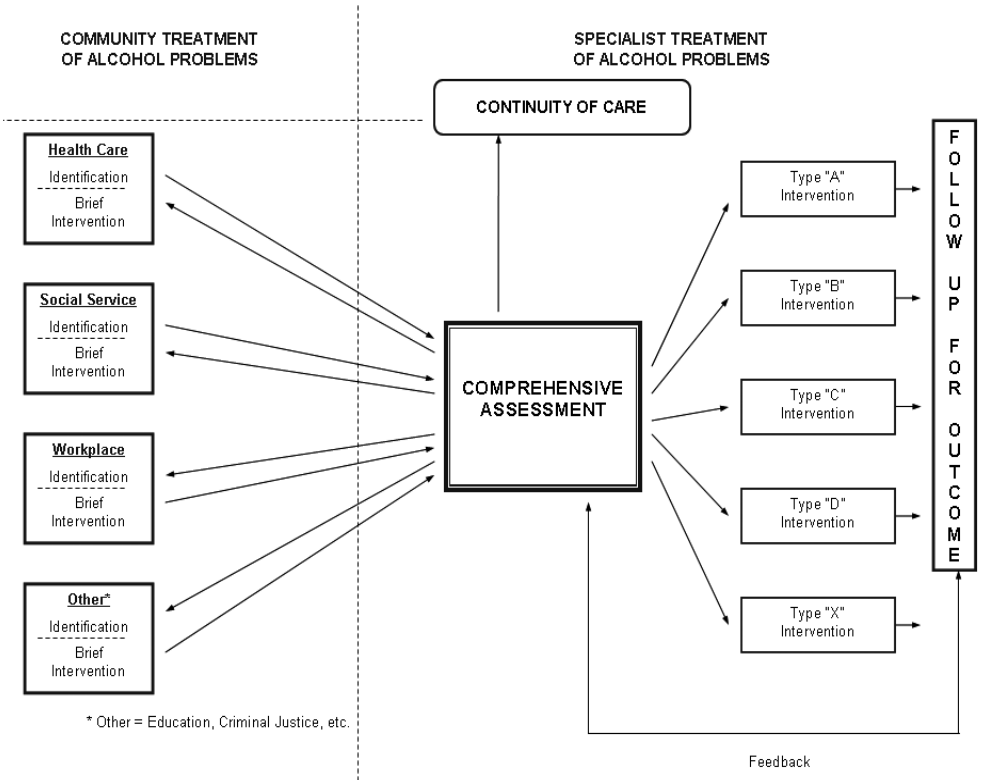
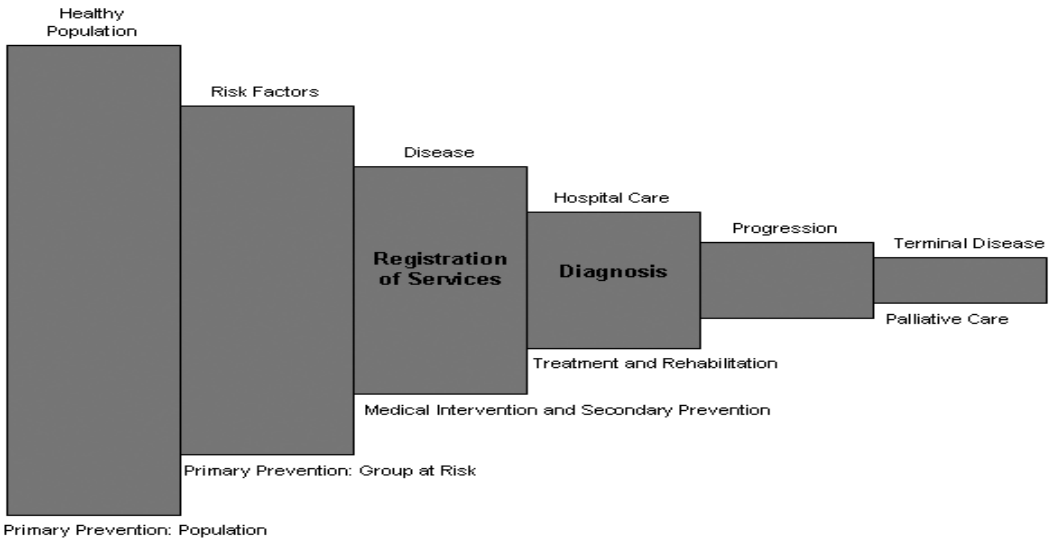


Figure 3. Schematic diagram of "expanded" alcohol treatment system from the Institute of Medicine (1990)

from several countries, including the *UK* (National Treatment Agency for Substance Misuse 2006) and several other *European countries* (Baldacchino & Corkery 2006), *Australia* (National Mental Health Strategy 2004); *Canada* (National Treatment Strategy Working Group, 2008). The next section traces the evolution of such tiered models for substance use services and describes a recent model advanced in Ontario Canada for design of an integrated system of mental health, substance use and problem gambling services and supports. Key features and principles of the tiered approach that are critical for its operationalization are also noted as well as challenges in implementation.

Origins: The essential idea of aligning tiers of health service delivery with the level of severity of the health problem was first articulated in the mental health domain in the now familiar, tri-level framework proposed for mental health over 45 years ago based on primary, secondary and tertiary prevention (Caplan & Caplan 2000). Further, it is clear that early roots can also be traced to the Chronic Care Model (CCM) for the treatment and management of chronic illnesses such as diabetes, or long-term conditions generally (Wagner 1998; Bod-



Sunol, R., Carbonell, J.M., Nualart, L. et al. (1999). Towards health care integration: The proposal of an evidence- and management-based model. *Med Clin, 112 suppl* (1), 97-105.

Figure 4. Continuity-of-Care Model for prevention and treatment of chronic conditions

enheimer et al. 2002), as well as integrated service delivery models that sought to operationalize the CCM. In particular, the Continuity-of-Care Model (McGonigle et al. 1992) and so-called Kaiser Triangle (Wallace 2005) defined "levels of chronic care" that were based on level of risk and problem severity, a fundamental aspect of tiered approaches for substance use treatment, and mental health services generally. Figures 4 and 5 show schematic diagrams of the Continuity-of-Care Model and the Kaiser Triangle respectively, both sharing the idea of tiers matched to the distribution of severity. The inverted triangle in the adapted Kaiser model also draws attention to the inverse distribution of health care costs as well as the role of self-management and self-management supports throughout the various tiers.

Tiered models from the UK

The National Treatment Agency for Substance Misuse in the UK has led the way internationally in the development and application of tiered frameworks in the substance use field. The essential idea was to define a set of tiers aligned with problem severity (as in the Kaiser or Continuity-of-Care Models); locate various elements of

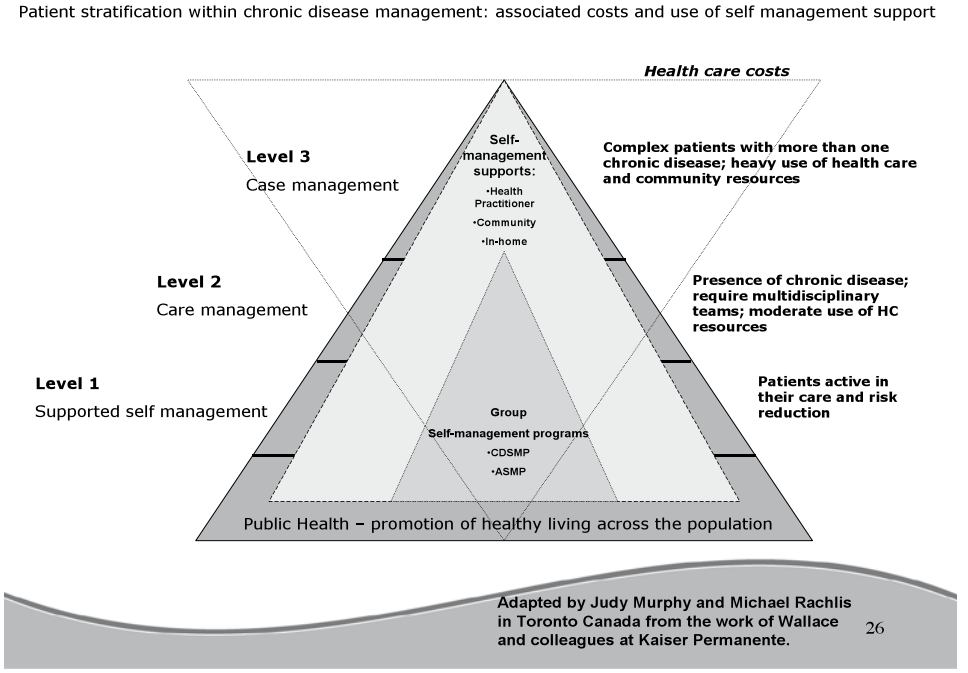


Figure 5. Adapted version of the "Kaiser Triangle"

a comprehensive treatment system in the various tiers; and then work with local jurisdictions to, over time, address system gaps through funding and/or more integrated policies and care planning. The first attempt in 2002 defined four tiers on the basis of a combination of *setting*, *interventions* and the *agency responsible* for providing the interventions (National Treatment Agency 2002) (see Figure 6). This "mixed bag" of criteria for allocating elements of the treatment system to a particular tier subsequently resulted in considerable confusion and variability in application as well as an overly rigid interpretation of the tiers. Of particular concern was the perspective that emerged that certain types of service providers were "slotted into" one particular tier even though they provided services that may span more than one tier. A revised model was released in 2006 which defined the four tiers on the basis of "interventions" to be offered within them, and provided greater clarity around what these interventions were; the settings in which they may be located; and the competencies required for them to be successfully offered to clients and their families (see the brief definitions of the tiers in figure 7). In both the original and revised UK model the definitions of tiers 1 through 4 embed the notion of the population distribution of severity, as in the Kaiser Triangle.

Tier 1: Non-substance misuse specific services requiring interface with drugand alcohol treatment

Tier 1 services work with a wide range of clients including drug and alcohol misusers, but their sole purpose is not drug or alcohol treatment.

The role of tier 1 services includes the provision of their own services plus, as a minimum, screening and referral to local drug and alcohol treatment services in tiers 2 and 3. Services may also include assessment, other services to reduce drug-related harm, and liaison or joint working with tiers 2 and 3 specialist drug and alcohol treatment services.

Tier 2: Open access drug and alcohol treatment services

Tier 2 services provide accessible drug and alcohol specialist services and are defined by having a low threshold to access services, and limited requirements for participation. Tier 2 services include needle exchange, drug (and alcohol) advice and information services, and ad hoc support not delivered in the context of a care plan. Tier 2 can also include low-threshold prescribing programmes aimed at engaging opioid misusers with limited motivation, while offering an opportunity to undertake motivational work and reduce drug-related harm.

Tier 3: Structured community-based drug treatment services

Tier 3 services are provided solely in structured programmes of care that include psychotherapeutic interventions such as structured counselling, community detoxification, or day care. Community-based aftercare programmes for drug and alcohol misusers leaving residential rehabilitation or prison are also included in tier 3 services.The drug and alcohol misuser attending tier 3 services will normally have agreed to a structured programme of care which places certain requirements on attendance and behaviour.

Tier 4 services: Residential services for drug and alcohol misusers

Tier 4a: Residential drug and alcohol misuse specific services

Tier 4 services are aimed at individuals with a high level of presenting need and include: inpatient drug and alcohol detoxification or stabilisation services; drug and alcohol residential rehabilitation units; and residential drug crisis intervention centres.

Tier 4b: Highly specialist non-substance misuse specific services

Tier 4b services are highly specialised and will have close links with services in other tiers, but they are, like tier 1, non-substance misuse specific. Examples include specialist liver units that treat the complications of alcohol-related and infectious liver diseases and forensic services for mentally ill offenders. Some highly specialist tier 4b services also provide specialist liaison services to tiers 1–4a services. (e.g. HIV liaison clinics)

Figure 6. Abridged definitions of the four tiers in the National Treatment Agency for Substance Misuse 2002 models of care for treatment of adult drug misusers

Tier 1 interventions include provision of drug-related information and advice, screening and referral to specialised drug treatment.

Tier 2 interventions include provision of drug-related information and advice, triage assessment, referral to structured drug treatment, brief psychosocial interventions, harm reduction interventions (including needle exchange) and aftercare.

Tier 3 interventions include provision of community-based specialised drug assessment and co-ordinated care-planned treatment and drug specialist liaison.

Tier 4 interventions include provision of residential specialized drug treatment, which is planned and care coordinated to ensure continuity of care and aftercare.

Figure 7. Abridged definitions of the four tiers in the National Treatment Agency for Substance Misuse 2006 update of models of care for treatment of adult drug misusers

In addition to these tiers and their various elements, the UK framework articulated several critical features in support of the client's "treatment journey" recognizing that treatment is more of a process or trajectory than an event. These critical features included *treatment engagement*, *treatment delivery* (including maintenance), *community integration* (which underpins both service delivery and treatment maintenance or completion), and *treatment completion*. Several concrete options were recommended to operationalize these features, such as "keyworkers" who are dedicated practitioners responsible for ensuring the client's care plan is delivered and reviewed; and customized "integrated care pathways" that are dynamic and flexible to changing client needs. Such examples are reminiscent of the details embedded in the Chronic Care Model and the Kaiser Triangle, and reinforce the critical importance of *linkage* across the tiers, as well as the *system-level supports* that are needed to sustain these linkage mechanisms (e.g., funding, policy, e-health capability).

Tiered models from Canada

In 2008, a report on a *national treatment* strategy for substance use services and supports was released in Canada (National Treatment Strategy Working Group 2008). A key element was a five-tiered framework in support of a broader systems strategy, drawing substantively upon the UK approach. Figure 8 shows the dimensions used to distinguish the tiers from each other and Figure 9 provides abridged definitions of the five tiers. More details are available in the report on the national treatment strategy (National Treatment Strategy Working Group 2008).

Major similarities between the Canadian and UK frameworks were the strong focus on linkage within and across the tiers, and

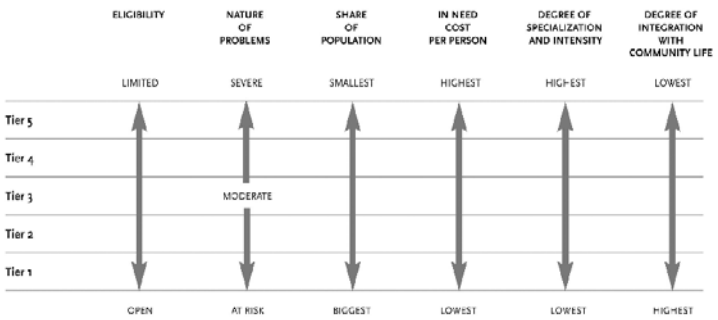


Figure 8. Range of criteria for defining the tiers in the Canadian report on the National Treatment Strategy

the "any door-is-the-right-door" perspective such that the client is, in principle, the client of the overall system and not of any one particular service provider. That said, significant challenges arose with definitional issues (i.e., what elements of the treatment system fit into what tiers? How much flexibility in interpretation of the tiers was tolerable for regional implementation?). These challenges were reminiscent of the UK "tier trap" whereby different types of service models were seen as belonging to a tier even though it could also provide functions across other tiers. Challenges also arose in specifying, in operational terms, various linkages across tiers and especially when they involved the client having to cross major sectors such as mental health, substance use and primary care/emergency services, and between adult and children's services.

The Canadian framework went beyond the previous work in the UK in two significant ways. Firstly, it included an additional tier that encompasses prevention and health promotion. Secondly, a clearer role was specified for natural, informal systems of support such as family and friends, other supports for "natural recovery" such as available through the Internet, and community structures such as neighborhood associations. Research has shown such informal sources of help to be an important part of the help-seeking and care experience of people with substance use problems (Room et al. 1996).

In 2008 a process at the *provincial level* began in Ontario, Canada to develop a 10-year strategy for mental health, substance use and problem gambling services (Ministry of Health and Long-Term Care). The requirement was for one integrated system design and a series of core documents were prepared in support of the planning process, including commissioned best practice reviews for substance use and gambling services (Rush & Martin 2009), and mental health services (McFarlane et al. 2009), and one synthesis paper on integrated system design (Health System Research and Consulting Unit 2009). In the system design paper, the tiered model from the national treatment strategy for substance use services was adapted to incorporate both mental health and problem gambling. This built upon work underway at the same time in Alberta, Canada that also aimed at one integrated, tiered model for mental

Tier 1:
Services and supports in Tier 1 are broad efforts that draw on natural systems and networks of support for individuals, families and communities. This may include prevention and health promotion initiatives targeted to the general population and/or at-risk populations; resources and supports to help people manage and recover from less severe substance use problems on their own; aftercare or continuing care for people who have previously accessed services and supports in higher tiers; and other supports that are open to all in which people with problems of varying severity may choose to participate (e.g., Alcoholics Anonymous [AA])

Tier 2
Services and supports in Tier 2 provide the important functions of early identification and intervention for people with substance use problems that have not previously been detected or treated. These may include screening, brief intervention and referral.

Tier 3
Services and supports in Tier 3 are intended to engage people experiencing substance use problems who are at risk of secondary harms (e.g., HIV victimization). They include active outreach, risk management, and basic assessment and referral services. Tier 3 services may include general outpatient counselling, home-based withdrawal management, supervised injection sites and methadone and buprenorphine maintenance treatment.

Tier 4
Tier 4 comprises services and supports that are more intensive than those in Tier 3 and in many cases offer specialized services for people with substance use problems. This may include comprehensive assessment to build a solid foundation for structured treatment planning; case management; outpatient counselling; intensive day programming for early recovery (e.g., "day-tox"); structured residential services; services that link people with concurrent mental health and substance use problems to the full range of needed assessment, treatment and support services and active outreach services such as Assertive Community Treatment (ACT) teams, as well as other intensive outreach services in hospitals (including emergency services), shelters and correctional facilities.

Tier 5
Services and supports in Tier 5 are intended to address only the needs of people with highly acute, highly chronic and highly complex substance use and other problems, for whom lower-tier services and supports are inadequate. This may include services that link people with highly complex concurrent substance use and mental health problems to the full range of needed assessment treatment and support services; intensive treatment services in correctional facilities; and residential or hospital-based services (e.g., residential programs for the treatment of concurrent disorders, hospital-based medical withdrawal management services).

Figure 9. Abridged definitions of the five tiers in the tiered model in the Canadian National Treatment Strategy.

health and substance use services (Fraser 2009). The integrated tiered framework from Ontario is shown in Figure 10. People with other addiction-related problems, such as video gaming or Internet usage, can currently receive treatment in some of the provincial substance use services. However, services are not formally mandated and thus are not included in the new systems design framework. There is, however, no reason why the framework could not incorporate these and other process-type addictions in the future.

In the Ontario framework the five tiers are called 'functions'. A *function* refers to a higher-order grouping of like services or interventions aimed at achieving similar outcomes. A 'function' may be a component along the continuum of care (e.g., outpatient or residential treatment); a multidisciplinary team providing specialized care (e.g., Assertive Community Treatment); a class of interventions (e.g., screening, self-management, pharmacotherapy); a type of risk management/reduction (e.g., emergency medical care, psychosocial crisis intervention, needle exchange); a population-based initiative (e.g., health promotion); or any of a variety of types of general counseling and support (e.g., continuing care, case management, support groups). A function is distinct from a program or service (e.g., primary care) within which a range of functions

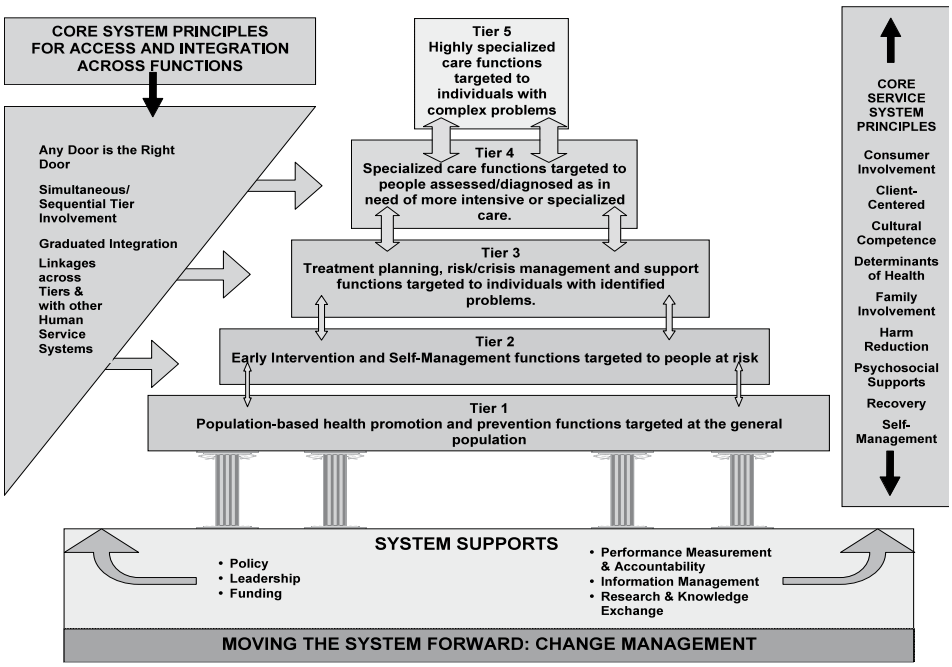


Figure 10. Ontario integrated tiered framework for mental health, substance use and problem gambling services and system supports.

from more than one tier may be provided.

Functions are grouped within tiers that reflect an increasing degree of specialization with respect to the nature of the function provided and the expected competency of the service provider to address mental health, substance use, and/or gambling problems. This increased degree of specialization corresponds to increased problem severity (as described in figure 2) such that the higher the tier, the higher severity but the fewer the number of people in need of the service. As in the Kaiser Model, higher unit and volume costs are incurred in the upper tiers. This also implies a lower requirement to have the functions in the top tiers located geographically in every jurisdiction. Accessibility across jurisdictions to these highly specialized functions is, however, critically important.

The functions associated with each of the tiers in the Ontario model are summarized in figure 11.

As in the UK model, and the model advanced in the Canadian national treatment strategy, the fact that people can enter this comprehensive service and support system at multiple points is of critical importance to the tiered framework (i.e., the concept of "any door is the right door"). Thus, people may access the system by way of any of the five tiers and, upon entry, should be linked to other functions within or across tiers according to their needs. The system is also to be operationalized in such a way as to facilitate *transitions* across the tiered functions as dictated by the individual's needs. Thus, no part of the system "owns" the person; they are a client of the entire system. The set of *core service system principles* described in the right hand side-bar of Figure 10 refer to these and other fundamental principles and values that are applicable to all of the functions across the five tiers.

One key principle is that various programs or settings can provide multiple functions across multiple tiers. Coordination and continuity across functions are critical to ensuring the system works for the person and his or her family. Especially important in this regard are: (a) the development of linkages to facilitate service integration (e.g., case management) and (b) the application of the concept of 'graduated integration' whereby the degree of required structural or functional integration between (say) substance use, mental health and primary care services depends on the overall client complexity.

Distinct from *service integration* issues are aspects of *system integration* that refer to the regional and/or provincial structures and processes that provide the infrastructure for the organization and delivery of integrated clinical and psychosocial services for people with mental health, substance use and/or gambling problems. These are represented by the 'System Supports' section of figure 10.

In summary, the tiered conceptual framework developed in Ontario is intended as a planning tool to guide the development and implementation of an integrated system of service functions for mental health, substance use and gambling problems. It incorporates a distinction between service integration and system integration and describes a broader vision of a comprehensive, integrated system. It is based on a population health approach that includes increased emphasis on health promotion, early intervention and self-management

Tier 1: Population-based health promotion and prevention functions targeted at the general population

- This tier is comprised of functions that are designed to enhance natural systems and networks of support for individuals, families and communities. This includes education and policy functions aimed at the general public with the objective of promoting healthy lifestyles and preventing the development of mental health, substance use or gambling problems/diagnoses.

Tier 2: Early intervention & self-management functions targeted to people at risk

- This tier is comprised of functions targeted to people with emerging or unidentified problems/diagnoses. The functions include screening/identification, information & referral, brief interventions, brief psychotherapy, psychopharmacy, self-management, motivational and peer support functions.

Tier 3: Treatment planning, risk/crisis management and support functions targeted to individuals with identified problems.

- This tier is comprised of functions targeted to people with identified problems/diagnoses who are not engaged in or have completed specialized treatment. These functions may serve as a doorway to higher tier, specialized care functions and lower tier, self-management and mutual aid functions (e.g., comprehensive assessment/diagnosis, outreach/engagement; case management).). They also include general support functions (e.g., continuing care, supportive counseling, support groups, walk-in services) as well as functions designed to reduce the risks and consequences associated with the identified problems/diagnoses (e.g., emergency/acute care medical services, psychosocial crisis intervention, and needle exchange).

Tier 4: Specialized-care functions targeted to people assessed/diagnosed as in need of more intensive or specialized care.

- This tier is comprised of, but not limited to, most of the functions generally considered to be part of the specialized mental health, substance use and problem gambling treatment systems. The functions include ambulatory and structured residential interventions, including pharmacotherapy, psychotherapy, and may involve multidisciplinary teams (e.g., ACT). These are specialized treatment functions intended to be delivered by individuals with special training to people who have been assessed/diagnosed as requiring this level of specialization. The function is unrelated to setting (e.g., a primary care physician providing pharmacotherapy is providing a Tier 4 function).

Tier 5: Highly specialized-care functions targeted to individuals with complex problems.

- These are functions designed for particularly complex or severe mental health, substance use or gambling problems/diagnoses or combinations of these problems/diagnoses (e.g., inpatient/residential concurrent disorder programs; inpatient forensic programs, inpatient medical WMS; long-term inpatient psychiatric care).

Figure 11. Abridged definitions of the five tiers in the Ontario tiered model for mental health, substance use and problem gambling services and system supports.

functions. It is also based on an evidence-informed approach to service and system integration and incorporates core principles and functions that reflect 'best practice' advice on the manner in which mental health, substance use and gambling problems are addressed from a population health perspective.

Conclusion

The evolution of tiered frameworks for substance use treatment systems reflects the convergence of several inter-related trends in the field over the past decades. Most notably, this includes the importance of a population health perspective; engaging people in need of treatment outside the traditional specialized sectors; acknowledging processes of recovery without formal treatment intervention; and increasing attention to complex, co-occurring conditions that require collaboration and linkage across multiple sectors of the health, social, criminal justice and other sectors. It is beyond the scope of this paper to delve into the specific applications of the tiered framework in various jurisdictions to assess strengths and limitations in contrast to other high-level conceptual frameworks. For evaluative purposes a case study approach is needed to assess its added value in concrete planning situations. Compared with what is traditionally expressed through the continuum-of-care model and specialized services, anecdotal feedback in Canadian applications suggests that the tiered model effectively communicates a broader vision for substance use services and supports. Inclusion of prevention and health promotion into a treatment system model has also been viewed positively and reflects trends in chronic disease prevention and population health (Barr et al. 2003). The framework has also been positively viewed as a tool that supports both the emerging paradigm shift toward a chronic care model for the treatment of severe alcohol and drug dependence (McLellan et al. 2000) and a more thoughtful, graduated approach to the integration of mental health, substance use and other services and systems based on problem severity (Rush & Nadeau, in press).

These positive aspects, notwithstanding, these tiered frameworks are admittedly an "ideal vision" that needs to be tested against the vagarities of community implementation. Challenges in implementation are surely to be expected in linking clients across service delivery sectors. A substantive literature already exists on barriers to effective service coordination and integration (Rush & Nadeau, in press). Addressing the barriers to improved integration of services and systems will also call for development and evaluation of concrete linkage strategies, for example, system navigators that are specifically funded to provide the linkage function across services and/or sectors, or electronic health records that facilitate sharing the results of client assessment, treatment and support plans, and progress toward defined health and social outcomes. Managing the challenges of implementation will also be facilitated by applying well-defined change management models such as total quality management (Ferlie & Shortell 2000) or similar frameworks for quality improvement; implementation science (Fixsen et al. 2005) or systems theory such as embodied in the growing literature on complex adaptive systems (Foster-Fishman et al. 2007; Midgely 2007). Other literature

of high relevance includes that concerning diffusion of innovation theory (Rogers 2003); partnerships (Dowling et al. 2004) and models of collaborative care (Kates et al. 2008); vertical versus horizontal integration (Shortell et al. 1995; Hernandez 2000); continuum models of collaboration (Himmelmann 2001) and continuity-of-care (Joyce et al. 2004; Durbin et al. 2004).

Fundamentally, the Ontario framework, is a tool for Knowledge Exchange (KE) in support of policy, funding, research and performance measurement and other system-level supports for this broader vision of the substance use treatment system. In support of KE, it can assist researchers and policy makers in "locating" and further developing various bodies of research that are relevant to the design of cost-effective treatment systems (e.g., research on Internet-based services and supports and investigations of the role and effectiveness of various self-management strategies as well as informal supports such as friends, and family and co-workers). It can also assist in identifying gaps in knowledge that require investment in performance measurement, for example, e-health systems to track trajectories and assess outcomes across the specialized substance use treatment sector and primary care, including hospital emergency services.

Notwithstanding these and other potential benefits to be derived from the application of this framework in planning and system reform efforts, the framework is a static view of the treatment system and further work is needed to depict the "flow" of people through the system and assess overall capacity requirements at critical junctures. A project is now underway in Canada to expand previous work on needs-based planning models for specialized alcohol treatment systems (Rush 1990) incorporating this much expanded view of the treatment system. In such applications frameworks specific to various sub-populations such as children and adolescents and indigenous people may also be needed.

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NOTES

1) Also referred to as Consultation-Liaison Psychiatry

REFERENCES

Aldworth, J. & Colpe, L. & Gfroerer, J. & Novak, S. & Chromy, J. & Barker, P. & Barnett-Walker, K. & Karg, R. & Morton, K. & Spagnola, K. (2010): The National Survey on Drug Use and Health Mental Health Surveillance Study: Calibration analysis, 61–87. Published Online: May 31 2010

Angst, J. & Sellaro, R. & Merikangas, K. R. (2002): Multimorbidity of psychiatric disorders as an indicator of clinical severity. Europeaan Archives of Psychiatry and Clinical Neuroscience 252: 147–154

Babor, T. F. & Stenius, K. & Romelsjö, A. (2008): Alcohol and drug treatment systems

in public health perspective: Mediators and moderators of population effects. International Journal of Methods in Psychiatric Research 17 (S1): S50–S59

Baldacchino, A. & Corkery, J. (2006): Comorbidity: Perspectives across Europe. London: European Collaborating Centres in Addiction Studies

Barr, V.J. & Robinson, S. & Marin-Link, B. & Underhill, L. & Dotts, A. & Ravensdale, D. & Salivaras, S. (2003): The expanded chronic care model: An integration of concepts and strategies from population health promotion and the chronic care model. Hospital Quarterly 7 (1): 73–82

Bodenheimer, T. & Wagner, E. H. & Grumbach, K. (2002): Improving primary care for patients with chronic illness: The chronic care model, Part 2. Journal of the American Medical Association 288 (15): 1909–1914

Breslin, C. & Sobell, M. & Sobell, L. & Cunningham, J.A. & Sdao, J. K. & Borsoi, D. (1998): Problem drinkers: evaluation of a stepped care approach. Journal of Substance Abuse 10 (3): 217–232

Caplan, G. & Caplan, R. (2000): The future of primary prevention. The Journal of Primary Prevention 21 (2): 131–136

Cunningham, J. & Breslin, C. (2004): Only one in three people with alcohol abuse or dependence ever seek treatment. Addictive Behaviours 24: 221–223

Dennis, M. & Scott, C. K. & Funk, R. (2003): An experimental evaluation of Recovery Management Checkups (RMC) for people with chronic substance use disorders. Evaluation and Program Planning 26 (3): 339–352

Dowling, B. & Powell, M. & Glendinning, C. (2004): Health & Social Care in the Community 12: 309–317

Durbin, J. & Goering, P. & Streiner, D.L. & Pink, G. (2004): Continuity of care: Validation of a new self-report measure for individuals using mental health services. Journal of Behavioral Health Services & Research 31: 279–296

Edwards, G. (2000): Editorial note: natural recovery is the only recovery. Addiction 95 (5): 747

Ferlie, E.B. & Shortell, S.M. (2000): Improving the quality of health care in the United Kingdom and the United States: A framework for change. Milbank Quarterly 79: 281

Fixsen, D. L. & Naoom, S. F. & Blase, K. A. & Friedman, R. M. & Wallace, F. (2005): Implementation research: A synthesis of the literature. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network

Foster-Fishman, P. & Nowell, B. & Yang, H. (2007): Putting the system back into systems change: a framework for understanding and changing organizational and community systems. American Journal of Psychology 39: 197–215

Fraser, N. (Chair)(2009): Addiction and mental health integrated service delivery framework. Service Delivery Framework Working Group, Alberta Health Services, Addiction and Mental Health

Glaser, F.B. (1974): The treatment of drug abuse in the rural south: Application of the Core-Shell Treatment System model. Southern Medical Journal 67 (5): 580–586

Hasin, D. & Hatzenbuehler, M. L. & Keyes, K. & Ogburn, E. (2006): Substance use disorders: Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) International Classification of Diseases, Tenth edition (ICD-10). Addiction 101 (Suppl.1): 59–75

Health Systems Research and Consulting Unit (2009): The design of an evidence-informed integrated mental health, substance use and problem gambling service system for Ontario. Toronto: Centre for Addiction and Mental Health

Hermann, R. & Rollins, C. & Chan, J. (2007): Risk-adjusting outcomes of mental health and substance-related care: A review of the literature. Harvard Review of Psychiatry 15: 52–69

Hernandez, S.R. (2000): Horizontal and vertical integration: Lessons learned from the United States. HealthcarePapers 1: 59–65

Himmelman, A. (2001): On coalitions and the transformation of power relations. Collaborative betterment and collaborative empowerment. American Journal of Community Psychology 29: 277–284

Huyse, F. J. & Stiefel, F. C. & de Jonge, P. (2006): Identifiers, or "red flags," of

complexity and need for integrated care. Medical Clinics of North America 90 (4): 703–712

Institute of Medicine (1990): Broadening the base of treatment for alcohol problems. Washington: D.C: National Academy Press

Joyce, A.S. & Wild, T.C. & Adair, C. E. & McDougall, G.M. & Gordon, A. &Costigan, N. & Beckie, A. & Kowalsky, L. & Pasmeny, G. & Barnes, F. (2004): Continuity of care in mental health services: Toward clarifying the construct. Canadian Journal of Psychiatry 49: 539–550

Kates, N. & Gagné, M.A. & Whyte, J.M. (2008): Collaborative mental health care in Canada: Looking back and looking ahead. Canadian Journal of Community Mental Health 27: 1–4

Kathol, R. G. & Kunkel, E.J.S. & Weiner, J.S. & McCarron, R.M. & Worley, L.L.M. & Yates, W.R. & Summergrad, P. & Huyse, F.J. (2009): Psychiatrists for medically complex patients: Bringing value at the physical health and mental health/substance-use disorder interface. Psychosomatics 50 (2): 93–107

MacFarlane, D. & Butterill, D. & Goering, P. & Yip, A. (2009): A rapid literature review of best practices in mental health service system policy and program: Phase I. Toronto, ON: Health Systems Research and Consulting Unit, Centre for Addiction and Mental Health

Marshman, J. (Chairperson)(1978): The treatment of alcoholics: An Ontario perspective. The report of the Task Force of Treatment Services for Alcoholics. Toronto: Addiction Research Foundation

McGonigle, J. J. & Krouk, M. & Hindmarsh, D. & Campano-Small, C. (1992): Understanding partial hospitalization through a continuity-of-care model. International Journal of Partial Hospitalization 8 (2): 135–140

McLellan, A. T. & Lewis, D. C. & Brien, C. P. & Kleber, H. D. (2000): Drug dependence, a chronic medical illness: Implications for treatment, insurance, and outcomes evaluation. Journal of the American Medical Association 284 (13): 1689–1695

Merkx, M.J.M. & Schippers, G.M. & Koeter, M.J.W. & Vuijk, P.J. & Oudejans, S. & DeVries, C.C.Q. & Brink, W. van den (2007): Allocation of substance use disorder patients to appropriate levels of care: Feasibility of matching guidelines in routine practice in Dutch treatment centres. Addiction 102: 466–474

Midgely, G. (2007): Systems thinking in evaluation. In: Williams, B. & Iman, I. (eds.): Systems Concepts in Evaluation: An Expert Anthology. Battle Creek (MI): Kellogg Foundation

Ministry of Health and Long-Term Care: Minister's Advisory Group on Mental Health and Addictions www.health.gov.on.ca/english/public/program/mentalhealth/minister_advisgroup/minadvis_faq.html).

National Mental Health Strategy (2004): Responding to the mental health needs of young people in Australia. Australia: National Mental Health Strategy

National Treatment Agency (2002): Models of care for treatment of adult drug misusers. London: Author

National Treatment Agency for Substance Misuse (2006): Models of care for treatment of adult drug misusers: Update 2006. London: Author

National Treatment Strategy Working Group (2008): A systems approach to substance use in Canada: Recommendations for a national treatment strategy. Ottawa: National Treatment Strategy Working Group. http://www.nationalframework-cadrenational.ca/uploads/files/TWS_Treatment/nts-report-eng.pdf

Rehm, J. (2008): Key future research questions on mediators and moderators of behaviour change processes for substance abuse. International Journal of Methods in Psychiatric Research 17(S1): S83–S87

Reist, D. & Brown, D. (2008): Exploring complexity and severity within a framework for understanding risk related to substance use and harm. Paper presented at the International Symposium on Needs Assessment and Needs-based Planning for Substance Use Services and Supports. Toronto, Ontario: Centre for Addiction and Mental Health

Rogers, E. (2003): Diffusion of innovations, 5th edition. New York: The Free Press

Room, R. & Bondy, S. & Ferris, J. (1996): Determinants of suggestions for alcohol treatment. Addiction 91: 643–655

Rush, B. R. (1990): A systems approach to

estimating the required capacity of alcohol treatment services. British Journal of Addiction 85: 49–59

Rush, B.R. & Nadeau, L. (in press): On the integration of mental health and substance use services and systems. In: Cooper, D. (ed.): Responding in Mental Health-Substance Use, Book 3, Chapter 13. Mental Health and Substance Use Book Series: Radcliffe Publishing Ltd., Oxford, UK

Rush, B. R. & Dennis, M. L. & Scott, C. K. & Castel, S. & Funk, R. R. (2008): The interaction of co-occurring mental disorders and recovery management checkups on substance abuse treatment participation and recovery. Evaluation Review 32 (1):7–38

Rush, B.R. & Martin, G. (2009): Best practices in the delivery of services and supports to people with substance use/gambling-related problems: A review of the literature. Toronto: Centre for Addiction and Mental Health

Shortell, S.M. & Gillies, R. & Devers, K. (1995): Reinventing the American hospital. The Millbank Quarterly 73: 131–160

Sobell, M., B. & Sobell, L.C. (2000): Stepped care as a heuristic approach to the treatment of alcohol problems. Journal of Consulting and Clinical Psychology 68: 573–579

Sobell, L. C. & Cunningham, J. & Sobell, M. B. (1996): Recovery from alcohol problems with and without treatment: prevalence in two population surveys. American Journal of Public Health 86 (7): 966–972

Urbanoski, K. & Rush, B.R. & Wild, C. & Bassani, D. & Castel, S. (2007): Use of mental health care services by Canadians with co-occurring substance use and mental disorders. Psychiatric Services 58 (7): 962–969

Wagner, E. H. (1998): Chronic disease management: What will it take to improve care for chronic illness? Effective Clinical Practice 1 (1): 2–4

Wallace, P. J. (2005): Physician involvement in disease management as part of the CCM. Health Care Financing Review 27 (1): 19–31.