

Needs-Based Planning for Substance Use Treatment Systems: Progress, Prospects, and the Search for a New Perspective

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ABSTRACT. The articles presented in this issue of the *Journal of Studies on Alcohol and Drugs* (Supplement No. 18) describe the rapid improvements over the past decade in methods, theories, and data systems used for needs-based planning of addiction treatment services. In this concluding essay, the editors describe the progress, prospects, and implications of this new wave of research. It is concluded that these developments can be used to maximize the impact of treatment services at the population level. (*J. Stud. Alcohol Drugs, Supplement 18*, 154–160, 2019)

RÉSUMÉ. Les articles dans ce Supplément, décrivent les améliorations rapides ayant eu lieu au cours de la dernière décennie quant aux méthodes, théories et systèmes de données qui sont utilisés pour la planification des services de traitement de la dépendance en s'appuyant sur les besoins populationnels. Dans cet essai de conclusion, les éditeurs décrivent les progrès, les perspectives et les implications de cette nouvelle vague de travaux de recherche. Il est conclu que ces développements peuvent être utilisés afin de maximiser l'impact des services au plan populationnel.

RESUMEN. Los documentos presentados en este Suplemento describen las rápidas mejoras en la última década en métodos, teorías y sistemas de datos utilizados para la planificación basada en las necesidades de servicios de tratamiento de adicciones. En este ensayo final, los editores describen los avances, perspectivas e implicaciones de esta nueva ola de investigación. Se concluye que estos desarrollos se pueden utilizar para maximizar el impacto de los servicios de tratamiento a nivel de la población.

AT A TIME WHEN ACADEMIC EXPERTISE, scientific research, and science-based health planning are being ignored in some countries in favor of market-based solutions to the provision of health care services, the collection of articles in this needs-based planning supplement issue of the *Journal of Studies on Alcohol and Drugs* provides an important opportunity to introduce a new approach to the perennial question: how to plan a more effective and economical service system for the management of persons with substance use disorders, as well as those engaged in hazardous use.

The answers provided in these articles are creative, practical, and paradigm-changing in their implications. It has been about 150 years since the first appearance of specialized services for persons with substance use disorders (White, 1998). The history of addiction treatment shows wide fluctuations in its characteristics, financing, and utilization as a policy lever to deal with alcohol-related problems, but there have also been commonalities among countries in the services adopted and the transfer of technology from one country to another. Initially, services were sparse, and their availability expanded or contracted in response to the preva-

lence of alcohol and drug problems in a particular country. Most of the models used for the first 100 years were based on the assumption that the “alcoholic” and the “drug addict” needed to be removed from the addictive environment and placed in a restrictive setting where physical, psychological, and social rehabilitation could be initiated under the care of a trained professional (White, 1998). Beginning in the 1970s, a variety of alternatives to the “asylum model” were developed, not only to provide more differentiated services to the heterogeneous population of potential clients, but also to reduce the costs and increase the availability of treatment. With that transition to a more differentiated model of services came the first attempts to develop needs-based planning methods that could be used by both health officials and policymakers to address endemic as well as epidemic substance-related problems.

As indicated by the articles presented in this Supplement, there has been a rapid improvement over the past decade in methods, theories, and data systems, and it is likely that these developments can be used to maximize the impact of treatment services at the population level. Although most research on addiction treatment is focused on the rather narrow interface between a caregiver and a patient, a small but growing number of academic researchers have invested their careers in the study of the more esoteric interface between treatment service systems and population health. Ironically, it is the assumed population-wide impact of treatment that is often the driving force behind the funding of addiction treat-

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ment services, but most research remains focused on rather narrowly defined clinical issues.

In the introductory article to this Supplement (Rush et al., 2019), the editors described the three topics that are covered by the articles commissioned for this special issue: (1) general system planning, (2) needs-based planning, and (3) measuring treatment system performance. In this concluding essay, we will use another tripartite division to describe the progress, prospects, and implications of this new wave of research.

Progress in needs-based planning

If nothing else, the articles in this Supplement show that progress has been made in a variety of areas. This includes defining core concepts and principles (Ritter et al., 2019b; Rush & Urbanoski, 2019); developing models and measures that capture the complexity of treatment need (Hirschovits-Gerz et al., 2019; Mota et al., 2019; Rush et al., 2019; Tremblay et al., 2019); and applying those innovations within more dynamic system modeling that incorporates incidence, natural recovery, and outcomes, for example (Brennan et al., 2019).

As noted by Rush and Urbanoski (2019) in their article on core principles for treatment system planning, substance use services and supports have typically been funded without the benefit of a comprehensive, quantitative planning model aimed at achieving a population-wide health impact. On the contrary, much of the growth in substance use services seems to reflect a combination of crisis planning by policy makers in response to a particular epidemic of alcohol- or drug-related problems, combined with key informant opinion. Such stakeholder opinion is typically provided by clinical professionals who have a rather limited knowledge of public health and service planning or by those applying political pressure for a certain treatment approach, sometimes profit-oriented.

The “Rush Model,” initially developed in the early 1990s (Rush, 1990), has been followed by similar approaches, most of which are reported in the present issue (Canada: the updated Canadian model by Rush et al., 2019; Australia: Ritter et al., 2019a; the United Kingdom: Brennan et al., 2019; Brazil: Mota et al., 2019; and Quebec, Canada: Tremblay et al., 2019). These initiatives have built upon, or have been foundational to, conceptual analysis and synthesis (e.g., Drummond et al., 2011), as well as more descriptive approaches to system mapping, such as that developed by the World Health Organization (Babor & Poznyak, 2010). The collective works also vary in key features such as the substances of concern, populations of interest, criteria to define need for treatment, as well as methodological details. Nevertheless, the initiatives share several common features such as the broad strategy of using epidemiological measures of need and help-seeking to estimate the likely demand for treatment and postulating an “ideal” system design composed of

evidence-based interventions. Another commonality is the assumption that “treatment need” and the “treatment gap” should be estimated at the level of different services and client characteristics, and not reported only as an undifferentiated measure of overall treatment coverage (e.g., Degenhardt et al., 2017). Since these broad measures of treatment coverage provide limited guidance to decision-makers on precisely how to fill the gap, this represents a significant advance in an area of health and social services that has not received the priority it deserves in most countries, much to the detriment of public health.

Another area of particular progress has been in the definition of need for services. A typical approach is to use diagnostic criteria derived from health statistics or epidemiological surveys as an indicator of treatment need. In the past, these methods superficially estimated the “treatment gap,” using structured interviews and diagnostic algorithms so crudely constructed that they likely grossly overestimated total need without, as noted above, specifying how those estimates mapped on to specific service components and population groups. An example is the use of the Composite International Diagnostic Interview (CIDI; World Health Organization, 1997) and other highly structured psychiatric interviews to obtain estimates of substance abuse according to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV; American Psychiatric Association, 1994), without recognizing that many individuals are counted as in “need” of services when they only report one or two symptoms, and the level of consumption and frequency of alcohol and other drug use is not even measured. Similarly, the Alcohol Use Disorders Identification Test (AUDIT) and AUDIT-C are sometimes used to estimate the need for early intervention services despite the number of false positives that can be included in such estimates (Higgins-Biddle & Babor, 2018). In short, treatment services, service needs, and service users must be disaggregated to appropriate levels of severity and complexity, and matched to appropriate levels of intervention.

The Canadian needs-based planning model (Rush et al., 2019) is based on five levels of problem severity derived from national survey data and estimated levels of help-seeking. This model has been adapted to specific contexts. For instance, the Need for Addiction Services Estimation Model for Youth (NASEM-Y; Tremblay et al., 2019) generated treatment need estimates for youth displaying substance misuse in Quebec, Canada. Ritter et al. (2019a) developed another model for estimating the treatment gap that comprises attention to problem severity, treatment types, and differentiating need and demand. Brennan and colleagues (2019) take this work to another level of even more complex, dynamic modeling.

Progress in measurement has not been limited to high-income countries. Despite the lack of systems research in low- and middle-income countries (LMICs), some progress

has been reported in emerging economies where treatment services are expanding. For example, Myers et al. (2019) studied factors that affect implementation of performance measurement systems in South Africa. Their study found that (1) implementation was feasible; (2) some patient- and organizational-level factors hindered system implementation; and (3) system attributes (such as simplicity, congruence with existing practices, and usefulness of findings for improving practice) facilitated implementation. Mota et al. (2019) report an adaptation of the work of Rush and colleagues in Brazil, highlighting the significant need for substance use services in the Sao Paulo region; an approach that can be adapted for other regions of Latin America with available epidemiological data.

All of these developments suggest a paradigm-shift in the ability of governments and public health authorities to estimate need and plan services in countries where the epidemiological tools and the necessary service elements already exist. For countries where estimation tools and service elements do not exist, it will take time to assemble the resources to build an effective treatment system.

Prospects

Despite the lessons learned from years of pilot testing and conceptual refinement, the Canadian model and others like it are rarely used in treatment planning outside their respective countries. Treatment services continue to be planned using either the free market as a guide for private treatment programs or ad hoc planning in the public sector. To the extent that the needs assessment models that have been developed can be shared more broadly, along with the implementation experience as well, both the service users and health authorities would benefit. This is particularly true of developing countries. In their article on needs assessment, Mota et al. (2019) attempt to adapt these technologies to the Brazilian context, which is marked by enormous social inequality. The authors suggest that the reasoning underpinning the evaluation of severity in the tiered framework, based on a continuum of risks and damage associated with substance abuse, requires fine-tuning and testing to be representative of the country's social complexity. In the Brazilian context, even among the general population, and not just among the homeless, the social needs of problem drinkers and drug users may be as urgent as the needs arising from their substance abuse, and services should be able to provide wide, multi-dimensional treatment and support.

In their scoping review article on "performance measurement," Urbanoski and Inglis (2019) note that population health, individual health outcomes, quality and appropriateness of care, responsiveness of the system, and equity are common areas of health system performance that apply well to substance use services. The challenge will be to take this growing international consensus on system functions

and objectives and use existing tools to make performance measurement a routine part of planning for substance use services.

In an important extension of this approach, Rush and Urbanoski (2019) note that harm reduction services such as needle exchange and safe injection sites as well as HIV prevention services could fall within the scope of a full service system. Perhaps their most important message is this: "A broad systems approach is needed to address the full spectrum of issues related to substance use, problems, and disorders in the community in order to achieve a population-level impact" (p. 10). In this population-wide health approach, secondary prevention, primary prevention, and health promotion play a fundamental role in treatment system planning. These observations also suggest the possibility of integrating population-level policy measures, such as minimum pricing and alcohol taxes, into the planning of treatment services. To the extent that alcohol taxes could help to finance services and at the same time reduce alcohol-related harm, these measures could be factored into the planning and budgeting for treatment services.

A related issue is the potential for developing a new set of methods and theories to study the impact of treatment systems at the population level. Ultimately, policymakers and the general public want to know two things: (1) does treatment work well enough to alter the course of an individual substance user's self-destructive behavior, and (2) can the totality of treatment services reduce the human and financial costs of substance use and substance use disorders to society in general, especially in terms of crime, infection, traffic fatalities, and other problems? What are the prospects that needs-based planning, if properly implemented, will achieve these goals?

One critically important component of a broad population health approach is Screening, Brief Intervention and Referral to Treatment (SBIRT), given its demonstrated effectiveness with moderate- to high-risk substance users as well as those who are severely dependent but not yet in treatment. Health care policies (e.g., strategic plans, regulations, laws, and financing mechanisms) directly affect the type, amount, and organization of SBIRT services. These policies are typically implemented by a government unit responsible for alcohol and drug treatment services, but they can also come from the broader health care system. The resources affected by the policies include facilities (e.g., hospitals, clinics), the programs delivered in those facilities (e.g., screening, brief intervention, brief treatment, referral to more intensive care), and the personnel delivering SBIRT in those programs (e.g., medical educators, nurses, doctors). In contrast to the structural resources, system qualities are less tangible parts of the system that are nevertheless very important to the overall functioning of SBIRT services. The key qualities of such a system are equity, integration, and economy. *Equity* refers to how easy or difficult it is to obtain a particular

service. *Integration* refers to whether services are provided in a concerted fashion and whether the different parts of the system work synergistically. The term *economy* refers to whether the services make efficient use of resources and are cost-effective.

A decade ago, Babor et al. (2008) proposed a conceptual model showing how treatment service policies, structural resources, and system qualities, along with the demographic and substance use characteristics of the patient population, could have an impact on population health, including alcohol-related mortality and morbidity, such as traffic accidents, liver cirrhosis, and domestic violence, and reduced health care costs. This model was based in part on research suggesting that the volume of treatment services and Alcoholics Anonymous groups are associated with reduced alcohol-related morbidity and mortality.

Heather (2012) reviewed different studies of screening and brief intervention for at-risk substance users to estimate the potential of this procedure to have beneficial effects on mortality statistics and alcohol-impaired-driving injuries. According to Heather, the public health potential of screening and brief intervention is unlikely to be realized without universal screening and widespread implementation of brief interventions. In a subsequent analysis, Babor et al. (2017) agreed with Heather's conclusion but suggested that if screening and brief intervention were combined with population-wide measures to increase referral to treatment of more serious cases, this Referral to Treatment component could enhance the population-level impact, especially if sufficient resources were devoted to linking SBIRT with current or expanded alcohol treatment services as well as self-help groups.

To the extent that needs-based planning can increase not only the availability of SBIRT and related treatment services, but also the integration and coordination of those services, perhaps it could achieve the kinds of public health benefits that would reduce the burden of disease and disability attributable to alcohol.

Implications

With the possible legalization of cannabis use in Canada and other countries, the implications for increased demand for treatment of cannabis dependence provides an excellent rationale for the use of this kind of needs-based planning to justify the need for taxation revenue to enhance treatment services.

Another issue implicit in many of these articles, but only mentioned in passing in some, is the dynamic nature of both treatment services and the need for them. New services are constantly being developed, including behavior therapies, pharmacotherapies, and e-health applications. At the same time, new epidemics appear in conjunction with new psychoactive substances and emerging trends, for example the growing problem of prescription opioid dependence in

some countries. Demographic changes such as global migration and changes in the age structure of the population (an increasing proportion of older adults in many countries but an increase in children and youth in others) are also highly relevant. These trends result in some services becoming obsolete or falling into disuse, which speaks to the need for regular, repeated needs assessment exercises to adjust the system to current needs.

Current needs-based models can be criticized for being relevant mainly to high-income countries, but that is hardly the fault of their creators. What is needed are models that fit the needs of middle- and low-income countries, whose substance use treatment needs are likely to vary according to tradition, resources, use patterns, and the stigma that often accompanies the use of treatment services. As stated by Rush et al. (2019): "There is no one simple formula to assist with treatment system planning but rather a collection of tools that can be used together to inform treatment gaps and resource allocation" (p. 61).

Implications for research

The Tiered Model for substance use service planning (Rush, 2010) reflects a broader vision for treatment systems, one that is consistent with the different types of substance misuse, problem severity, and complexity that have now been documented in epidemiological studies in the populations of many countries. The articles in this Supplement provide the basis for a research agenda and a set of hypotheses that could be tested if appropriate research designs, measures, and data sets could be assembled. The following bullets provide some examples of research questions and hypotheses derived from the recent advances in needs-based planning:

- To the extent that treatment systems can be improved through needs-based planning in terms of integration, equity, efficiency, and access, we should expect to find improved client outcomes, particularly for those with more complex conditions. A related research question is whether SBIRT can improve system integration to the point that it has a beneficial effect on population rates of alcohol and drug problems?
- The continuum of care within the specialized substance use treatment sector includes hospital, community, and home-based withdrawal management services, community or outpatient services that range in intensity, and residential treatment and recovery supports (Rush et al., 2019). These are complemented by web-based/mobile health and peer supports. What is the optimal continuum of services that maximizes population impact? Comparative systems research within and across countries could provide answers to this question.
- Rush and Urbanoski (2019) point out that Indigenous or First Nations people of Canada have unique needs

with respect to mental health and substance use and benefit from services that blend principles of their culture with practices of non-Indigenous people and that provide choice for those needing services. This raises an additional question: To what extent are the service components and therapeutic modalities culture specific? In Asian countries such as Korea, for example, there are strong elements of folk medicine incorporated into the services people access for substance use disorders, including nutritional counseling, yoga, massage, spirituality, etc. (Muto et al., 2011). Could a focused, culturally sensitive, geographically based systems approach have a greater impact on population rates than an integrated standardized national approach?

- Another area where research is needed is the investigation of marketization of substance use treatment systems. As noted by Storbjörk and Stenius (2019), the market logic (i.e., managerialism, tangible privatization of treatment provision, use of for-profit enterprises) that has permeated many Western treatment systems is neglected in research on system-level planning, service provision, and the outcomes of service users. Several propositions that call for further research attention are proposed: public procurement of private addiction treatment, as regulated in the European Union, may not be suitable for addiction treatment; marketization challenges democracy, equity, needs assessment, and treatment planning; it causes new accountability problems and idle monitoring; it causes unification of services and favors big, bureaucratically sophisticated providers; and, last, it marginalizes treatment professionals and service users by imposing a mistrust-based contract logic. This is a long overdue critique of the intrusion of market forces into the evolving service systems in many countries, and it constitutes a critically important agenda for future research in this area.
- An important issue not taken into account in either the youth or adult needs estimation models is the impact of acute crisis situations on both the demand for services and the substance user's response to them. In the case of youth, treatment seeking is often precipitated by concerned parents who must deal with a crisis situation, such as their child's arrest for a substance-related infraction, or a substance-related injury related to an episode of acute intoxication. Once the parents and/or the school become involved, treatment is often considered the most appropriate option to manage the crisis, along with greater supervision by parents and educators. There is some evidence (Babor et al., 1991) that a significant proportion of cases of youths will experience remission without any professional help. In that the assessment process itself, along with the receipt of even minimal treatment, is sufficient to produce a sharp reduction in substance use suggests that the particular form of treatment is less important than its

availability. Although these considerations may apply less to youth who are chronic substance users and who have serious psychiatric problems, they do suggest that youth are indeed a special case where greater research attention should be devoted to the conditions under which youth and their families decide to access treatment, rather than focusing just on the clinical needs of youth themselves. To their credit, Tremblay et al. (2019) incorporate this kind of complexity in their model, but they do not specifically address the issue of treatment as a form of crisis management.

- Montanari et al. (2019) describe the development of the Treatment Demand Indicator (TDI), which is used by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) throughout the European Union to provide a common methodology for collecting core data on drug users in contact with various treatment services. In 2015, 29 European countries collected data on almost a half million clients entering drug treatment from 6,846 drug treatment units. It is clear from this work that information on the number and characteristics of people entering treatment provides insight into general trends in problem drug use and offers a perspective on the organization and uptake of treatment. This suggests that treatment utilization data can be used as a common-sense indicator of emerging needs. For example, the number of opioid clients declined among first-time treatment entrants between 2006 and 2015, from 37% to 21%, whereas, in the same period, in most European countries the number of first-time treatment entrants for primary cannabis use has continuously increased from around 43,000 (28% of all new drug clients) in 2006 to around 75,000 (47% of all new drug clients) in 2015. These data seem to have important implications for prevention, treatment planning, and drug policy. Why is the demand for treatment of opioid and cocaine use disorders declining in Europe, and why is treatment for cannabis use increasing? Does treatment make a difference in the case of declining treatment for opioids and cocaine, and do policy liberalization and more powerful drug strains account for the increasing rates for cannabis?

Implications for practice and policy

The articles in this Supplement make it clear that new modeling approaches provide health planners with decision support tools that can be used to provide more effective allocation of treatment services and associated funding. The use of these models could substantially advance local planning, reduce costs, and improve outcomes. In addition to "big picture" national needs assessments, Hirschovits-Gerz et al. (2019) illustrate how services can be assessed locally to support the provision of appropriate, cost-effective ser-

vices at the level of municipalities and communities. The needs of the problem substance users may vary locally, and therefore, local-level needs assessment is the best way to fit services to the needs of a population. Another reason is that services are often organized at the local level, usually within municipalities, where substance use tends to be concentrated and varies from one population area to another. National estimates may not reflect these local variations or be useful in dealing with the unique characteristics of a local situation.

In another application of the Rush et al. (2019) approach, Alan Brennan and colleagues (2019) have modeled the impact of increasing access to specialist treatment pathways on future alcohol dependence, treatment outcomes, costs, and mortality. Their Specialist Treatment for Alcohol Model (STreAM) estimates the numbers of people in need of diagnostic assessment and possible specialist treatment services. It also estimates the numbers currently accessing those services and models the effects of changing specialist treatment access rates. Although one can always criticize the model's assumptions, the article provides a hypothetical example of the enormous potential of models based on available treatment-systems data. It takes into account demographic characteristics of the population, as well as mortality, aging, and natural remission. This is definitely a quantum leap in our ability to plan and evaluate treatment services, to the extent that policymakers may soon have the ability to evaluate the impact of increasing or decreasing the availability of treatment services on public health. It also raises the possibility (as the authors point out) of factoring in other variables that might affect the costs and availability of treatment, such as increases in alcohol taxes or decreases in alcohol availability through policy restrictions.

Concluding comments

Despite significant progress in the past decade, the history of treatment planning and needs assessment provides several cautionary lessons for the would-be public health advocate who attempts to bring rational, needs-based planning to the development of treatment services for at-risk substance users and those with substance use disorders. One lesson is that substance use treatment services tend to evolve haphazardly, expanding more in response to fads and problem epidemics than to rational planning. Political considerations are also often at play, and throughout the history of treatment services the profit motive has often compromised the quality and availability of treatment. Another lesson has been that services decline in times of economic downturn, in part because the stigma of addiction does not help with the recruitment of powerful allies. We have also learned that services evolve in response to changing patterns of substance abuse, teaching us that static models of treatment planning need to be replaced with more dynamic ways to meet ever-changing

demographic trends. As Rush et al. (2019) note, needs-based planning does not obviate the need for public investment in recovery-focused services and supports, which is a major ingredient of any system in most developed countries, and is often the most logical starting place for any system planning in a developing country. In fact, a major service might be provided by future needs-based planners who would be able to better define recovery support services, identify the most effective ones, determine how they evolve, and then factor them into the formal system models discussed in this Supplement.

The way forward seems clear: Advocate for needs-based planning, continue to improve our models and measures, and support the kinds of research that have both practical and theoretical implications.

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