

Needs-Based Planning for Substance Use Treatment Systems: The New Generation of Principles, Methods, and Models

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PLANNING, COMMISSIONING, and then financing health services are fundamental aspects of health care administration. This includes using the best possible information on the needs of the population and the anticipated use of services to make reasonable capacity and cost projections, a process often referred to as “needs-based planning.” The principles, assumptions, and methodologies involved in needs-based planning apply to the substance use field, as much as any other part of the health care system. This work has been a core element of epidemiological and services research in the field for several years.

The purpose of the collection of articles in this special supplement is to provide decision makers and researchers with an update on current work in this area, specific to substance use services. Collectively, this work provides a crucial counterpoint to other factors that often impinge on the decision-making process, factors such as institutional path dependence (Marquis & Tilcsik, 2013), which maintains the status quo despite constantly evolving community needs, or community/political pressure for certain types of programs despite lack of evidence as to anticipated coverage or cost effectiveness among alternatives.

E.M. Jellinek was the first to propose a statistical methodology for estimating the prevalence of alcoholism—the famous Jellinek Estimation Formula—and did so with the goal of showing the need for treatment services (see Page, 1997, for a review of Jellinek’s efforts). A variety of indirect approaches to estimation of population needs followed (e.g., capture–recapture studies; projections from alcohol sales data; other mortality-based studies; Kaelber & Nobel, 1982; Dewit & Rush, 1996). The goal of estimating treatment coverage has been a fundamental aspect of population survey work in the United States since the seminal Epidemiological Catchment Area study of the 1980s (Regier et al., 1984),

followed by the National Comorbidity Surveys (Wang et al., 2005) as well as special surveys focused on alcohol and other drug use (Edlund et al., 2009). Internationally, the assessment of treatment coverage has been a major focus of the World Mental Health Surveys (e.g., Degenhardt et al., 2017). These surveys have in common the use of diagnostic algorithms to estimate need for services as well as survey questions that inquire about people’s access to service, which in turn yields estimates of the treatment gap, or the converse, treatment coverage. Syntheses of this research have focused on mental health broadly, with substance use disorders embedded in the work (e.g., De Silva et al., 2014; Kohn et al., 2004) or special reviews specific to substance use (Drummond et al., 2011). De Silva and colleagues (2014) summarize estimates of treatment coverage for mental disorders, including substance use disorders based on a variety of approaches, such as population surveys. It should also be noted that, on a global scale, this body of work is situated in seminal and ongoing efforts to estimate overall health care coverage (Boerma et al., 2014; Tanahashi, 1978) and conceptual work on the definition and measurement of “need” (e.g., Asadi-Lari et al., 2003).

Although an estimate of treatment coverage certainly tells decision makers that more services are needed, they do not elucidate exactly what specific services are needed, for example, by level of care. Rush (1990), building on the work of Ford (1985), developed such a needs-based planning model, now adapted in several jurisdictions, including recent applications in this current collection of articles. Mental health researchers have worked in parallel on similar methodologies (Andrews & Tolkien II Team, 2006), more recently relying on data from the Global Burden of Disease Study 2010 to estimate prevalence as well as severity distributions (Burstein et al., 2015; Whiteford et al., 2015).

As the methodologies in this area of research have grown, so too has the treatment system. Major changes include the integration of alcohol and other drug treatment services with each other, with mental health services, and with collaborative care models in primary care. Services are also more

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likely to address a wider range of problem severity and complexity—for example, supporting new care pathways that include a role for Screening, Brief Intervention, and Referral to Treatment (SBIRT) or web-based self-management tools. All these changes increase the difficulty of using epidemiological data to build models of treatment needs and capacity estimation. Further, there remains an ongoing concern about the appropriateness of methodology established for high-income countries to other mid- to low-income countries, which differ markedly in terms of available data (Jordans et al., 2016; Ndeti & Jenkins, 2009). Many of these challenges are faced in the efforts of the World Health Organization to map substance use treatment systems on a global scale (Babor & Poznyak, 2010).

The collection of articles that have been commissioned for this special supplement represent the path-breaking work and current thinking of international experts in this field. The articles are grouped into three general topic areas: (a) planning of treatment systems, (b) needs-based planning models, and (c) system performance measurement.

Planning of treatment systems

The articles in this grouping explore a common theme: philosophical, conceptual, and methodological issues underpinning the estimation of needs for substance use treatment services.

Rush and Urbanoski (2019) summarize seven core principles of substance use treatment system design that are supported by a large international evidence base. Together, the core principles provide a framework for system design (i.e., What should the system look like?) that can also be used for system analysis (How close are we to that ideal?). Lessons learned from the application of these principles in system treatment reviews are highlighted.

Ritter and colleagues (2019b) present a thematic review of the literature on approaches to estimating need and demand for services and then consider the implications for health system planners. They introduce the crucial point that the simple quantum of need or demand (i.e., treatment coverage is X%) is limited in its usefulness unless it is matched with consideration of different treatment types and their relative intensity. The review concludes with a call for the development of more complex capacity estimation models.

Storbjörk and Stenius (2019) introduce critical thinking that causes us to stand back and reflect on a fundamental assumption; namely, that the needs of the population are of primary importance to planners and policy makers developing treatment systems. They argue that market logic has influenced treatment systems and is now taken into account in system planning, provision of services, and the outcomes for services users. Findings point to several cautions about the marketization process and the need to safeguard scientific

approaches to assessing needs and planning activities in the interests of both service users and the public.

Needs-based planning models

The articles in this grouping are all applications of needs-based planning methodologies, highlighting strengths, challenges, and opportunities for improvement. The international nature of the collection shows the global interest in more evidence-based approaches to planning services.

Ritter, Gomez, and Chalmers (2019a) introduce the collection with a projection model used in Australia to estimate unmet treatment demand. Innovations introduced in their work include the attempt to estimate treatment demand by drug type, level of severity, and type of services based on input from expert panels. The work illustrates that the most sensitive parameter in the modeling process is the expected proportion of people in need of treatment who will in fact present for assistance.

The next article, by Rush, Tremblay, and Brown (2019), constitutes an upgrade of the initial Canadian model by Rush (1990), which was centered on alcohol and planning for specialized alcohol treatment services for adults. Going beyond diagnostic data as a proxy for need, they present a five-tiered model of severity and complexity of alcohol and other drug use from high-risk use to severe dependence in combination with mental health problems. They then use expert panels to estimate the percentage of people from each tier in need of the updated service categories and the proportion likely to seek assistance.

Tremblay and colleagues (2019) expand further on the work of Rush et al. (2019) by adapting it to youth (12–17 years old). They, too, consulted a large panel of clinicians and planners, refining service categories and adding service types (e.g., for managing acute intoxication in emergency departments). They propose a tiered model adapted for youth, taking into account not only alcohol and other drug severity as well as mental health problems but also a refined list of co-occurring problems in domains such as school attendance; family, social and material deprivation; peer influence; and aggressive/delinquent behaviors.

Hirschovits-Gerz, Kuussaari, Stenius, and Tammi (2019) analyze the need for services from seven Finnish municipalities, using easily available databases. They point out that local needs for services vary based on deprivation status, prevalence of alcohol and other drug abuse, and rates of services use. They illustrate, via a qualitative analysis, the benefits of planning services locally to provide appropriate and cost-effective services to populations.

Mota and colleagues (2019) deploy efforts to estimate the need for alcohol and other drug services for a heavily populated metropolitan area in a middle-income country—Brazil. They follow a methodology similar to the one deployed by Rush et al. (2019), using data from the São Paulo Megacity

Study, information rarely available in middle- or low-income countries. Thus, they estimate service needs in a situation with very scarce resources and illustrate the potential to use this type of estimation process when good population survey data are available.

Brennan and colleagues (2019) in the United Kingdom, focusing specifically on the need for specialist alcohol services, built a capacity estimation model that incorporates a range of innovations. Using population survey data derived from the Alcohol Use Disorders Identification Test, they retain the focus on a range of severity levels. Going further, however, they deployed a model that allows scenario testing that incorporates trajectories to future population prevalence, service capacity, costs, treatment outcomes, and mortality rates. The dynamic nature of the model illustrates a new way forward for needs-based planning in the future.

System performance measurement

Whereas planning the service delivery system on the basis of evidence is the “front-end” of system design and financing, measuring its operational performance in an evidence-informed way, and making ongoing improvements, is equally important. This is the focus of the final three articles in the Supplement collection.

Urbanoski and Inglis (2019) undertook a systematic and very comprehensive scoping review covering the definition, conceptualization, and performance measurement strategies for mental health and addiction service systems globally. One of their important conclusions is the lack of attention in performance measurement frameworks to the causal relationships between domains and indicators. They also illustrate the global emphasis on measures of treatment process with much less attention to crucially important indicators of structure and outcomes.

To complement the preceding article by Urbanoski and Inglis (2019), Myers and colleagues (2019) discuss the many challenges in the implementation of performance measurement systems, particularly in low- to middle-income countries. Their evaluation of a national performance measurement system in South Africa revealed, for example, high rates of patient attrition, variable enthusiasm of staff regarding participation, and limited capacity for using feedback. These challenges remind us of the obstacles to implementing data-driven quality improvement initiatives, challenges faced not only by low- to mid-income countries.

Montanari and colleagues (2019) illustrate how to meet these challenges in their description of a uniform data collection used across most European countries. The system they describe, Treatment Demand Indicators, is unique in its scope, covering 29 countries, reporting data on nearly a half million people entering drug treatment. The authors reflect on the importance of the resulting database to show trends in drug use profiles over time and across jurisdictions. The

Treatment Demand Indicators project stands as a testament to the vision of a useful planning tool for decision makers working in the European drug treatment system.

Conclusion

Needs-based planning has come a long way since the days of the Jellinek Estimation Formula derived from liver cirrhosis rates and subsequent attempts to document the extent of the “treatment gap” from population surveys of substance use disorders. New concepts have been incorporated into planning models, and new epidemiological methods have been applied to the development of regional and national plans for the design, implementation, and funding of a comprehensive range of services. The articles in this supplement provide ample evidence that progress has been made toward identifying, if not filling, the treatment gap, using the new generation of concepts and tools available to health system planners, service providers, and policymakers.

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