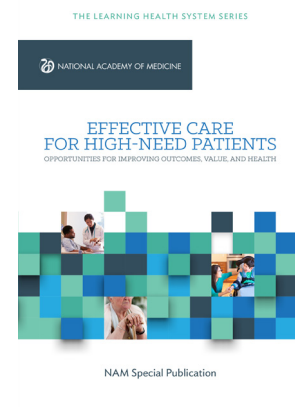# NATIONAL ACADEMY OF MEDICINE

Effective Care for High-Need Patients:
Opportunities for Improving Outcomes, Value, and Health

Executive Summary

Introduction

Today, 1% of patients account for more than 20% of health care expenditures, and 5% account for nearly half of the nation's spending on health care (Figure 1; Cohen, 2014). Improving care management for this population while balancing quality and associated costs is at the forefront of national health care goals, and reaching this particular goal will require active involvement of a broad range of stakeholders at multiple levels. To advance insights and perspectives on how to better manage the care of this population and to stimulate actions on opportunities for improving outcomes and reducing the costs of health care, the National Academy of Medicine (NAM), through its Leadership Consortium for a Value & Science-Driven Health System (the Leadership Consortium), in partnership with the Harvard T.H. Chan School of Public Health (HSPH), the Bipartisan Policy Center (BPC), The Commonwealth Fund, and the Peterson Center on Healthcare—which funded this initiative—has undertaken a collaborative assessment on strategies for better serving high-need patients.

The NAM was tasked with bringing together experts and stakeholders over the course of three workshops held between July 2015 and October 2016 to consider and reflect upon the key issues for improving care for high-need patients and summarizing the presentations, discussions, and literature for publication. This publication reports and reflects on the following issues: (1) key characteristics of high-need patients; (2) the use of a patient categorization scheme—or a taxonomy—

as a tool to inform and target care; (3) promising care models and attributes to better serve this patient population, as well as insights on "matching" these models to specific patient groups; and (4) areas of opportunity for policy-level action to support the spread and scale of evidence-based programs. The publication concludes by exploring common themes and opportunities for action in the field.

Key Characteristics of High Need Patients

To date, little has been written about the characteristics of high-need individuals using empirical data, and, as a result, there is not yet a consistent definition of need. Since understanding the characteristics of high-need patients is the first step in determining how to improve care, chapter 2 explores candidate criteria used to identify high-need patients along with key demographic and experiential characteristics.

While the high-need patient population is diverse, a synthesis of analyses reported in the literature identified three criteria that could form a basis for defining and identifying this population: total accrued health care costs, intensity of care utilized for a given period of time, and functional limitations. Functional limitations include limitations in activities of daily living such as dressing, bathing or showering, ambulating, self-feeding, grooming, and toileting, or limitations in instrumental activities of daily living that support an independent lifestyle such as housework, shopping, managing money, taking medications, using a telephone, or being able to use

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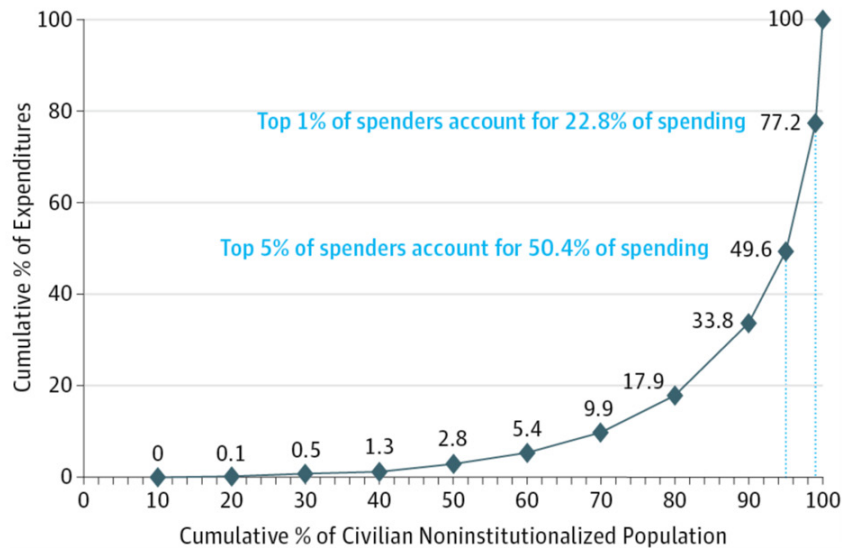
Figure 1 | Concentration of total US health care spending among the civilian non-institutionalized population, 2014. Source: Dzau et al., 2017.

transportation (Hayes et al., 2016b). In terms of demographics, a consensus of the available literature demonstrates that high-need individuals are disproportionately older, female, white, and less educated (Cohen et al., 2015; Hayes et al., 2016b; Joynt et al., 2016). They are also more likely to be publicly insured, have fair to poor self-reported health (Hayes et al., 2016b), and be susceptible to lack of coordination within the healthcare system (Osborn et al., 2014). Their needs extend beyond care for their physical ailments to social and behavioral services, which are often of central importance to their overall well-being. As a result, addressing clinical needs alone will not improve outcomes or reduce costs for this population. Rather, it will also be necessary to address an individual's functional, social, and behavioral needs, largely through the provision of social and community services that today are not typically the province of health care delivery systems (Blumenthal et al., 2016).

The Patient Taxonomy and Implications for Care Delivery

Understanding how to effectively care for high-need patients requires knowing which factors drive health care need. Because this patient population is heterogeneous, those factors will differ for different segments of the population. Therefore, a taxonomy that segments individuals in a health system's population based on the care they need as well as how often they might need it can help determine how to serve that population more effectively. Drawing on recent taxonomies developed by two organizations, the

Harvard T.H. Chan School of Public Health and The Commonwealth Fund, as well as the workshop series, the assessment of an expert taxonomy working group, and the published literature, chapter 3 provides guidance on the adoption and application of key elements of a patient taxonomy in practice.

Both the taxonomy developed by the Harvard T.H. Chan School of Public Health and the one developed by The Commonwealth Fund segment high-need individuals based on medical characteristics because this is a feasible starting point for most health care systems. Recognizing that a taxonomy focused on medical characteristics may neglect other factors that are key drivers of need, the taxonomy working group built on these efforts to offer a conceptual starter taxonomy that incorporates functional, social, and behavioral factors into a medically oriented taxonomy, not as independent segments but as factors that influence the care model or care team composition most likely to benefit particular patient segments (Figure 2 and Table 1). This starter taxonomy can provide guidance for health system leaders and payers on how to embed social risk factors, behavioral health factors, and functional limitations in a taxonomy for high-need patients. Patients would first be assigned to a clinical segment, with follow-on assessment of behavioral health issues and social services needs to determine the specific type of services are required. Key behavioral health factors most likely to affect care delivery decisions include substance abuse, serious mental illness, cognitive decline, and chronic toxic stress and

key social risk factors include low socioeconomic status, social isolation, community deprivation, and house insecurity.

While this starter taxonomy is useful, additional work is needed to develop an ideal taxonomy that presents holistic guidance on how care and finite resources should be targeted and delivered to improve the health of high-need individuals, and ideally reduce the cost of care. One challenge to achieving this is that most health information technology systems do not support integrated and streamlined data collection of patient's physical and behavioral conditions, their care utilization, and their social challenges. Additionally, multiple payers and varied benefits packages pose administrative and operational hurdles for the implementation of a taxonomy.

Care Models That Deliver

The purpose of taxonomies is to align high-need patients with the care models that target their specific needs. For taxonomies to be actionable, successful care models for different segments of high-need patients must exist. Chapter 4 draws on the workshop series and a review of evidence syntheses and other literature to produce a list of attributes of successful care models and to map successful models to different high-need patient segments.

While the success of even the best care model will depend on the particular needs and goals of the patient group a model intends to serve, which varies for different segments of high-need patients, all successful care models should foster effectiveness across three domains: health and well-being, care utilization, and costs. Care models that have been shown to be successful share a number of common attributes, which can be organized in an analytic framework with the following four dimensions: focus on service setting, care attributes, delivery features, and organizational culture. With respect to service setting, generally, the most successful programs for managing high-need individuals focus on either a targeted age group with broad combinations of diagnoses or individuals classified as high-utilizers. Models tend to fall into several broad, non-mutually exclusive, categories related to service settings: enhanced primary care, transitional care, and integrated care. Care attributes and delivery features that are common across many successful care models are described in Box 1 (Boult et al., 2009; McCarthy et al., 2015) and Box 2, respectively. Finally, features of organizational culture identified by various authorities that can contribute to the success of care models include the engagement of leadership across levels, customization of the model to the local context, strong team relationships, including patients and care partners, the implementation of appropriate training, continuous assessment with effective metrics, and the use of multiple sources of data (Anderson et al., 2015; Hong et al., 2014b).
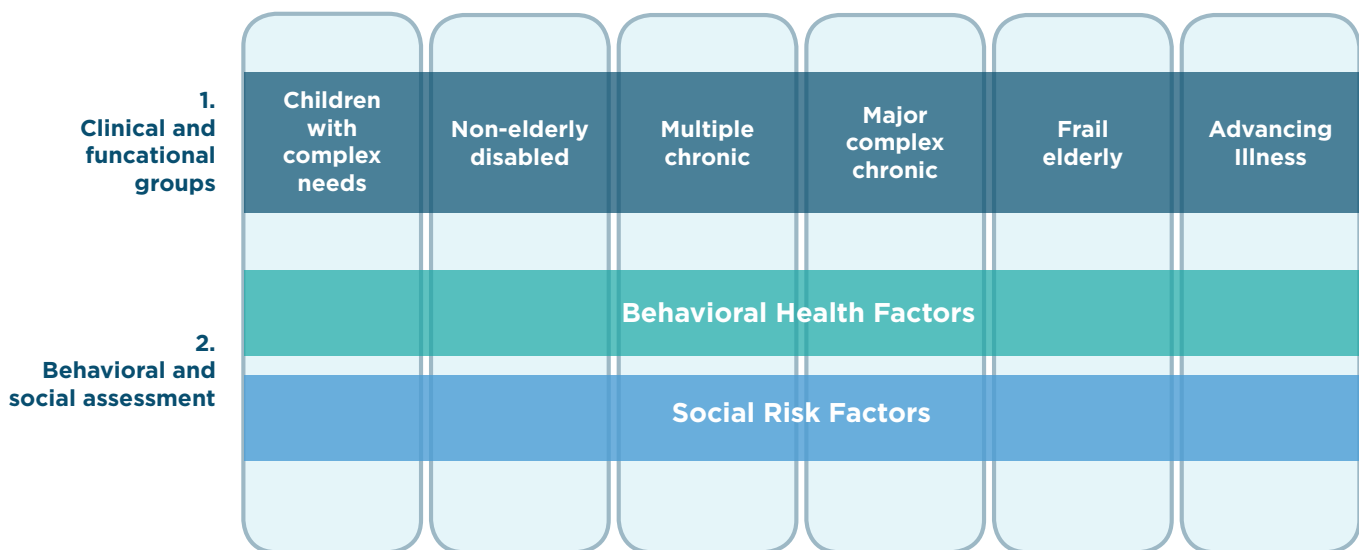
Figure 2 | A conceptual model of a starter taxonomy for high-need patients.
Note: For this taxonomy, functional impairments are intrinsically tied to the clinical segments.

Using this analytic framework, the planning committee identified fourteen successful care models for high-need patients and cross-referenced those to the segment(s) of the proposed taxonomy that could be served if health systems leaders match the needs of their patients to appropriate models within this "menu" of evidence-based approaches (Figure 3).

Table 1 | Clinical Group Features

Clinical Group	Features
Children with complex needs	Have sustained severe impairment in at least four categories together with enteral/parenteral feeding or sustained severe impairment in at least two categories and requiring ventilation or continuous positive airway pressurea tinuous positive airway pressure (a)
Non-elderly disabled	Under 65 years and with end-stage renal disease or disability based on receiving Supplemental Security Income(b, c)
Multiple chronic	Only one complex condition and/or between one and five noncomplex conditions (b, c)
Major complex chronic	Two or more complex conditions or at least six noncomplex conditions
Frail elderly	Over 65 years and with two or more frailty indicators (d)
Advancing illness	Other terminal illness, or end of life

a: Categories for children with complex needs are: learning and mental functions, communication, motor skills, self-care, hearing, vision
b: Complex conditions, as defined in Joynt et al., 2016, are listed in Table 2-1 of the publication.
c: Noncomplex conditions, as defined in Joynt et al., 2016, are listed in Table 2-1 of the publication.
d: Frailty indicators, as defined in Joynt et al., 2016, are gait abnormality, malnutrition, failure to thrive, cachexia, debility, difficulty walking, history of fall, muscle wasting, muscle weakness, decubitus ulcer, senility, or durable medical equipment use.

Box 1
Care Attributes of Successful Care Models

- **Assessment.** Multidimensional (medical, functional, and social) patient assessment
- **Targeting.** Targeting those most likely to benefit
- **Planning.** Evidence-based care planning
- **Alignment.** Care match with patient goals and functional needs
- **Training.** Patient and care partner engagement, education, and coaching
- **Communication.** Coordination of care and communication among and between patient and care team
- **Monitoring.** Patient monitoring
- **Linking.** Facilitation of transitions

Sources: Anderson et al., 2015; Bodenheimer and Berry-Millett, 2009; Boult and Wieland, 2010; Brown et al., 2012; McCarthy et al., 2015; Nelson, 2012.

View additional resources at nam.edu/HighNeeds

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Box 2
Delivery Features of Succesful Care Models

- **Teamwork.** Multidisciplinary care teams with a single, trained care coordinator as the communication hub and leader
- **Coordination.** Extensive outreach and interaction among patient, care coordinator, and care team, with an emphasis on face-to-face encounters among all parties and collocation of teams
- **Responsiveness.** Speedy provider responsiveness to patients and 24/7 availability
- **Feedback.** Timely clinician feedback and data for remote patient monitoring
- **Medication management.** Careful medication management and reconciliation, particularly in the home setting
- **Outreach.** The extension of care to the community and home
- **Integration.** Linkage to social services
- **Follow-up.** Prompt outpatient follow-up after hospital stays and the implementation of standard dis charge protocols

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Policy to Support the Spread and Scale of Care Models

A number of barriers currently prevent the spread or sustainability of successful care models including the misalignment between financial incentives and the services that are necessary to care for high-need patients, health system fragmentation, workforce training issues, and disparate data systems that cannot easily share data. Chapter 5 explores areas in which policy initiatives could accelerate the spread and scale of care models for high-need patients—particularly the programmatic integration of social supports and medical care—through expanding and re-aligning payment policies, improving the organization of care, developing a workforce to deliver comprehensive health care, and improving the data infrastructure.

Perhaps the most prominent barrier to the adoption of successful care models is payment policies that misalign financial incentives—particularly those that reimburse providers on a fee-for-service basis for discrete medical interventions at the expense of a broader assessment and engagement of medical and social needs. While many insurers, including states and the federal government, are starting to embrace value-based purchasing that includes paying for care delivered outside of the traditional medical silo (Bachrach et al., 2014), further progress could be made by combining Medicare and Medicaid funding streams for dual-eligible patients into an integrated benefit and care delivery structure that allows flexibility in benefit design to address the full range of patient needs (Hayes et al., 2016a). Virtually all high-need patients have challenging social support needs that determine the success of their care management. To be effective, value-based payment models for high-need patients require supporting and rewarding the seamless integration of medical, behavior and social services including, where appropriate, support for the delivery of these services in home and community settings (Barnett et al., 2015). This is the aim of shared savings approaches structured to ensure that any savings from the implementation of successful care models accrue to both payers and providers (Hong et al., 2014a).

To improve the organization of care, federal and state governments, working with their local partners, will need to engage in a strategy coordinated to incentivize provision of evidence-based social support services in conjunction with the delivery of medical services. State efforts may be informed by a policy framework developed by McGinnis and colleagues at The Commonwealth Fund to help states establish the infrastructure necessary to support ongoing integration of health and social services, particularly for Medicaid beneficiaries (McGinnis et al., 2014) . It is also necessary to prepare the workforce to deliver team-based, comprehensive health care. To accomplish this, academic health centers and professional societies should collaborate on developing new training and certification opportunities that focus on the treatment and social support needs of high-need patients, including training on team-based care and care coordination across health and social sectors(Thomas-Henkel et al., 2015). In addition, credentialing programs, particularly for nontraditional health workers such as community health workers and peer support providers, could be developed.

Program \ Segment	Children w/ complex needs	Non-elderly disabled	Multiple chronic	Major complex chronic	Frail elderly	Advancing illness
Care Management Plus				*		*
Commonwealth Care Alliance		▦				
Complex Care Program at Children's National Health System	▦					
GRACE				*		
Guided Care				▦		
Health Quality Partners			▦			
Health Services for Children with Special Needs	*					
Hospital at Home						▦
H-PACT		*				
IMPACT			*		*	
Massachusetts General Physicians Organization Care Management Program	▦			▦		
MIND at home					*	
Naylor Transitional Care Model (Penn)					▦	
PACE					▦	

Figure 3 | A sample of 14 care models which have evidence of success, matched to the six population segments identified in the taxonomy showing that each segment has been matched to at least one program. A subset of these care models also target social and/or behavioral risk factors faced by high-need patients and are marked with an (*).
Note: Many of these programs could be matched and/or adapted to other patient

Finally, reliable monitoring and continuous improvement of effective models of care for high-need patients depends on high-quality data and analytics that can be used to match high-need individuals with specific interventions (Bates et al., 2014; Bradley et al., 2016; Dale et al., 2016; Rajkumar et al., 2015). High-quality data are also required for quality measurement to determine the impact that care models are having on care coordination, utilization, and cost. Currently, there are many disparate systems that cannot easily share information, making it difficult to assess the requirements of high-need individuals and whether they are getting appropriate care. Coordinated federal, state, and local government initiatives must identify barriers that currently inhibit data flow among the clinicians and organizations treating high-need populations and work to minimize those barriers while respecting patient privacy and data security.

Common Themes and Opportunities for Action

Common to the presentations and discussions among workshop participants was the notion that improving the care management of high-need patients will require bold policy action and system and payment reform efforts by a broad range of stakeholders at multiple levels. Chapter 6 describes important lessons from this initiative and opportunities for action for each relevant stakeholder group: health systems, payers, providers, patients and family or unpaid caregivers, and the research community.

Three key care requirements stem from the fact that the population of high-need patients is diverse: segmenting patients based on factors that drive health care need is essential for targeting care; effective care models must address the social and behavioral factors in play for a given patient; and finally, policy action should focus on addressing the existing constraints and complexities preventing the integration of medical, behavioral, and social services and with the way the United States finances care models.

Based on these lessons, overarching opportunities for action include:

- Refining the starter taxonomy based on real-world use and experience to facilitate the matching of individual need and functional capacity to specific care programs;
- Integrating and coordinating the delivery of medical, social, and behavioral services in a way that reduces the burdens on patients and caregivers;
- Developing approaches for spreading and scaling successful programs and for training the workforce capable of making these models successful;
- Promoting payment reform efforts that further incentivize the adoption of successful care models and the integration of medical and social services;
- Establishing a small set of proven quality measures appropriate for assessing outcomes, including return on investment, and continuously improving programs for high-need individuals; and
- Creating road maps and tools to help organizations adopt models of care suitable for their particular patient populations.

While each stakeholder sector individually may impact a patient's life, a community, or even a regional health delivery system, one of the most expensive and challenging populations for the current health care system will remain underserved until there is a unified effort—rather than small, incremental steps—to improve care for the nation's high-need patients and to reduce the cost of delivering that care.

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