Patient-Centered
Primary Care
COLLABORATIVE

Primary Care and Behavioral Health Integration Workgroup Meeting

Thursday, April 25, 2019
3:00 PM - 4:30 PM ET

601 13th Street NW, Washington, DC 20005, Second floor (Stairs from Lobby)
Those not in DC may dial (267) 930-4000 Passcode: 740-654-563

I. Welcome *Ann Greiner, PCPCC*

II. Co-Chair Introductions and Comments *Charles Gross, Anthem*
Ronald Szabat, AACAP
Michael Thompson, National Alliance

III. eValue8 Deep Dive on Advanced Primary Care *Foong-Khwan Siew, National Alliance*
- **a.** Questions related to behavioral health integration (Page 2)
- b. National Alliance Survey (Page 5)

IV. Discussion – BH Payment in New CMMI Primary Care Models *Doug Tynan, Psychology*
- a. CMS Info (Page 8)

V. Workgroup Leadership in Designing a BH Integration Session for PCPCC Fall Conference (Nov. 4-5)

VI. Evidence Collection for BH-PC Integration
- a. Draft Case Studies Document for Discussion (Page 10)

VII. Other Member Issues and Suggestions

VIII. Resources
- a. NAM – Effective Care for High-Need Patients (Page 15)
- b. Mathematica -- Patients with High Health Care Use and Costs? (Page 19)
- c. Commonwealth -- How ACOs Use Population Segmentation to Care for High-Need, High-Cost Patients (Page 22)

IX. Next Steps and Wrap Up

Advanced Primary Care Assessment questions that provide insight into BH integration

1. Please provide the following information about your patient demographic and staffing

	Number	Number of unique patients seen in past 12 months	Details
Adult patients (18 -64)			
Adult patients 65+			
Patients under 18			
Primary Care Physicians (MD, DO)		NA	
Psychiatrists		NA	
Other BH specialists		NA	1. Psychologists 2. Licensed social worker 3. Addiction specialist 4. Other _____
NPs and PAs		NA	
Pharmacists		NA	
Nutritionist/Health coach			
Care manager/case manager/coach		NA	
Other staff that is part of care team		NA	

2. Please provide information about current access to care

Service Provided to Patients	Yes/No	If yes, of total numbers of patients seen in a week, what % is from said service, e.g, same day appt, walk-ins, phone, etc.	Details such as what are the extended hours, conditions for group visits, languages, etc)
Offer same day appointment			NA
Accommodate walk-ins			NA
Offer phone consultation			
Offer other (virtual consultation) with in-house team (not outsourced)			
Offer individual or group office visits on care management or chronic condition(s)			
Offer extended weekday hours			
Offer weekend hours			
Language Interpretation Services (list languages in last column)			

3. Of the patients seen in the past 12 months, what % were referred to specialists for services outside the scope of the primary care practice and detail the top 5 specialist referrals. What % were referrals to specialists that are NCQA Patient Centered Specialty Care / Connected Care Recognized. Do you have/offer any telemedicine/virtual specialist visits from your practice? If yes – which ones?

4. Support and training provided to care teams - please respond accordingly to the following table

Content	Percent of staff trained	Mode of training	Frequency of training	Required or optional
Mission of the practice		• Online • In-person • Peer-to-peer • Other (detail)	• As needed • Quarterly • Annually • Other (detail)	• Required • Optional
Population Health Management		See above	See above	See above
Motivational interviewing				
Patient Activation		See above	See above	See above
Social determinants of health		See above	See above	See above
Providing psycho-social support		See above	See above	See above
Data/IT Platform		See above	See above	See above
Risk Stratification		See above	See above	See above

Decision-support tools		See above	See above	See above
Shared-Decision Making techniques		See above	See above	See above
Shared-Decision Making tools		See above	See above	See above
Overused procedures		See above	See above	See above
Communication including health literacy		See above	See above	See above
Care coordination		See above	See above	See above
BH integration including billing for collaborative care codes		See above	See above	See above

5. For the listed USPSTF (United States Preventive Services Task Force) A and B recommended preventive services, what is **frequency of screening and/or intervention for all applicable patients**?

At Every Visit	New patient visit and as needed based on result	At least once a year	Other (detail in detail box below)
Multi, Checkboxes. 1: Aspirin preventive medication: adults aged 50 to 59 years with a ≥10% 10-year cardiovascular risk, 2: Depression screening: adults, 3: Depression screening: adolescents (12-18), 4: Diabetes screening, 5: High blood pressure in adults: screening, 6: Tobacco use screening, counseling and interventions: non-pregnant adults, 7: Tobacco use screening, counseling: pregnant women, 8: Alcohol misuse: screening, 9: Alcohol misuse: counseling, 10: Obesity screening: adults, 11: Obesity counseling/referral to counseling: adults, 12: Obesity screening: children >= 6, 13: Obesity counseling/referral to counseling: children>= 6, 14: Hepatitis C virus infection screening: adults (in persons at high risk for infection and also offering one-time screening for HCV infection to adults born between 1945 and 1965), 15: None of the above	Same list	Same list	Same list

Details on frequency of screening/interventions_____

14. What processes or systems do you have in place to support patients who need emotional, social support and/or are on specialty drug administration to increase adherence and improve outcomes? Please select all responses that apply.

1: Proactive care team outreach prior to initial fill and each subsequent refill to assess the member's compliance to prescribed regimen,
2: Scheduled outbound nurse calls to member,
3: 24/7 Nurse on-call line for incoming calls,
3b:24/7 Pharmacist on call for incoming calls
3c: 24/7 Non-clinical staff on call for incoming calls
4: Online chat feature support or similar interactive feature,
5: Outbound emails to member on a fixed schedule,
6: Mobile application text inbound messaging support,
7: Mobile application outbound text messaging,
8: Group chat room,
9: Group text messaging,
10: Other (describe)

15. It is important that the practice engages with the patient in shared decision-making, please select all that apply to your approach to shared-decision making with the patient

- Elicit member preferences (e.g., expectations for survival/recurrence rates, tolerance for side effects, patient's role within each course of treatment, etc.),
- Use of patient-decision aid with patient
- Walk through an online tool or phone app with patient (describe which you use)
- Walk through patient's insurer's decision-support/treatment option support tool with them
- Provide patient with link and/or name of app to patient for them to use (describe which one(s))

- Discuss treatment/condition, i.e. symptoms, stages of disease, and expectations/trade-offs from treatment
- Review information about what the decision factors are with their condition and/or circumstance
- Review benefits and risks
- Review likely condition/quality of life if no treatment
- Walk through patient's insurer's cost calculator with them
- Review potential costs
- Call patient's health plan to review details while patient is in the office
- Discuss patient's or caregivers' role or responsibilities
- Provide other patient narratives/testimonials so user can consider how patients with similar condition/stage of illness made a decision
- Provide patient with questions or discussion points to address with their health plan/insurer
- Other (describe)

16. For patients in your practice, for the 12-month period ending June 2019, please provide the following rates

Measures	**Percent**
NCQA Cancer screening (breast, cervical and colorectal) – 3 rows	
NCQA Immunizations (childhood Combo 10, Adolescent and Adult Flu) – 3 rows	
PQA - 2 measures on controlling asthma	
IHA/NCQA - %with HBP controlled	
NCQA – Beta Blocker after AMI	
MNCM – Depression remission after 6 months (or 12 months or the progress towards remission measure)	
CMS - Screening for Clinical Depression & Follow Up Plan	
NCQA - Initiation and Engagement of Alcohol and Other Drug Dependence Treatment	
Either MNCM Optimal Diabetes Care Combination OR NCQA Comprehensive Diabetes Care set of measures	
CMS - Adult BMI Screening & Follow Up	
AMA/PCPI - Preventive Care & Screening: Tobacco Use: Screening & Cessation Intervention	
PQA - Use of Opioids at High Dosage OR Concurrent Use of Opioids & Benzodiazepines	
NCQA - Weight Assessment & Counseling for Nutrition and Physical Activity for Children/Adolescents	

17. Add table question on # claims submitted and # claims reimbursed for the 4 collaborative care codes in the past 12 months ending December 2018?

Sign in

NEWS / Press Releases / Mental Health Survey

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Almost 80% of Employers Consider Mental Health Important to Management Strategy per National Alliance of Healthcare Purchaser Coalitions Survey

WASHINGTON – April 23, 2019 – Nearly all (99%) purchasers/employers agree that the mental health of their employees is directly linked to the overall performance of the organization. This is among the findings of a survey on mental health attitudes and strategies of employers across the country conducted by the National Alliance of Healthcare Purchaser Coalitions.

"While almost universally employers understand the importance of mental health in their workplace, they vary widely in their behavioral health strategies," said Michael Thompson, National Alliance President & CEO. "We've learned a lot from leading companies in how to best address emotional health and are encouraged to see that purchasers have this issue on their radar – but there's still much work to be done. In addition, employers have underestimated the degree of the problem related to network access to high quality care and need to demand more from their vendors."

Additional survey findings include:

- Only one in eight respondents have data that directly connects mental health with overall health and performance, but employers generally acknowledge that the emotional wellbeing of employees impacts absenteeism (63%), work performance (73%) and conflicts at work (42%)
- Most employers evaluate the cost of mental illness based on the direct medical care costs for treating mental illness (less than 20% of related economic costs) even though the biggest costs associated with mental illness are non-medical costs such as lost productivity and expenses associated with co-morbid conditions
- When asked about network access standards for behavioral health compared to medical, 64% of employers responded that health plans administer the same standards for behavioral health but less than half (43%) believe that out-of-network usage for behavioral health is comparable to that for medical/surgical conditions; only about a quarter of employers are aware of health plan strategies to address barriers to network access
- About one-third of employers (32%) replied that an independent assessment has been conducted of mental health parity and only 13% of employers believe they are indemnified for the risks associated with mental health parity non-compliance
- For tele-health behavioral benefits, 39% of employers have implemented with an additional 23% considering doing so in the next 12-24 months
- When asked about medications to serve diverse population needs, 80% of employers believe that they offer comprehensive coverage, while only 16% measure first medication failure rates
- Almost all (97%) of respondents offered an employee assistance program with 72% considering those programs valuable or highly valuable; 44% of employers have designated an individual responsibility for "whole person wellbeing;" and 41% of organizations have training for HR and/or supervisors on how to recognize behavioral health concerns in employees

April 23 mental health webinar

To share insights and implications for purchasers, the National Alliance is hosting a complimentary webinar today from 3:00 pm-4:00 pm Eastern. Learn more and register here.

"We've been working with coalition members and their employers/purchasers to improve their mental health strategies for the last few years," said Margaret Rehayem, National Alliance Director of Initiatives & Programs. "As serious deficiencies in access are revealed, we encourage coalitions and purchasers to partner with their health plans and pharmacy benefit managers so that adequate coverage and engagement of the workforce moves in the right direction to change the behavioral health debate from a focus on cost to the broader value discussion."

The online survey was conducted earlier this year with 113 employers responding, 90% of which have over 1,000 covered lives. This study is an extension of the National Alliance Mental Health Initiative and was informed by the Achieving Value in Mental Health Report released in fall of 2018.

2019 Leadership Summits

Improving mental health system access and quality are among the topics of discussion at the National Alliance's 2019 Leadership Summits, June 24-26, 2019 in Pittsburgh. Learn more and register here.

About National Alliance of Healthcare Purchaser Coalitions

The National Alliance of Healthcare Purchaser Coalitions is the only nonprofit, purchaser-led organization with a national and regional structure dedicated to driving health and healthcare value across the country. Our members represent more than 12,000 employers/purchasers, 45 million Americans, and $300 billion in annual healthcare spend. To learn more, visit nationalalliancehealth.org, connect with us on Twitter and LinkedIn.

# # #

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Chris Adamec

From: Walen, Alyssa (CMS/CMMI) <Alyssa.Walen@cms.hhs.gov>
Sent: Wednesday, April 24, 2019 12:05 PM
To: Walen, Alyssa (CMS/CMMI)
Subject: Thank You from CMS - More Info on Primary Care

Follow Up Flag: Follow up
Flag Status: Flagged

Thank You!

Whether in-person or remotely, thank you for taking the time on Monday to participate in the announcement and discussion of the CMS Primary Cares Initiative, including the new payment model options available under Primary Care First and Direct Contracting. We're encouraged by your enthusiasm for the effort and hope we can continue to partner with you in the months ahead.

If you haven't already, you can read more information in the Press Release, along with an overview of the initiative and fact sheets for Primary Care First and Direct Contracting. In addition, the Direct Contracting Geographic Population-Based Payment Model Option Request for Information (RFI) is open for responses until 11:59 p.m. EDT on May 23, 2019.

We encourage you to sign up to receive email updates from the CMS Innovation Center as well as participate in one of the upcoming webcasts to learn more:

Primary Care First

- Tuesday, April 30, 12 p.m. EDT Register here
- Tuesday, April 30, 3 p.m. EDT Register here
- Thursday, May 16, 12 p.m. EDT Register here
- Thursday, May 16, 3 p.m. EDT Register here

Direct Contracting

- Thursday, May 2, 2019, 3 p.m. EDT Register here
- Tuesday, May 7, 2019, 3 p.m. EDT Register here

Finally, questions on Primary Care First can be directed to primarycareapply@telligen.com and questions on Direct Contracting, including the RFI, can be directed to DPC@cms.hhs.gov.

Thank you again for your commitment to improving care for patients and beneficiaries, we look forward to your engagement in these models.

Sincerely,

Alyssa Walen
On behalf of the CMS Innovation Center

Alyssa Walen
Stakeholder Engagement and Policy Division
CMS Innovation Center
Alyssa.Walen@cms.hhs.gov

Study Design	Cost	Utilization	Quality	Key Takeaways and Limitations
Example Section: Study citation here				
Study design information including type of research, location, timespan, and sample size	Outcomes related to cost	Outcomes related to utilization	Outcomes related to quality	Narrative summary or relevant findings and possible study weaknesses/threats to validity
AIMS Center (Advancing Integrated Mental Health Solutions). Collaborative care evidence base. *University of Washington.* 2014. http://aims.uw.edu/sites/default/files/CollaborativeCareEvidenceBase_0.pdf				
Multiple studies looked at; randomized controlled trials and systematic reviews from 2002-2012				
Archer J, Bower P, Gilbody S, et al. Collaborative care for depression and anxiety problems. *Cochrane Database Syst Rev.* 2012. doi: 10.1002/14651858.CD006525.pub2.				
Systematic review and meta-analysis of 79 randomized controlled trials; searched databases from 1950-2012				
Coventry PA, Hudson JL, Kontopantelis E, et al. Characteristics of effective collaborative care for treatment of depression: A systematic review and meta-regression of 74 randomized controlled trials. *PLoS ONE.* 2014;9(9). doi: 10.1371/journal.pone.0108114				
Systematic review and meta-regression of 74 randomized controlled trials; any time before 2012;				
Fortney J, Sladek R, Unützer J, et al. Fixing behavioral health care in America: A national call for integrating and coordinating specialty behavioral health care with the medical system. *The Kennedy Forum.* 2015. https://thekennedyforum-dot-org.s3.amazonaws.com/documents/KennedyForumBehavioralHealth_FINAL_3.pdf				
White paper; literature review	Provides support for a return on investment of 6X to			

Study Design	Cost	Utilization	Quality	Key Takeaways and Limitations
	implement collaborative care			
Gilbody S, Bower P, Whitty P. Costs and consequences of enhanced primary care for depression: Systematic review of randomised economic evaluations. *Br J Psychiatry.* 2006;189:297-308. doi: 10.1192/bjp.bp.105.016006				
Systematic review of 11 randomized economic evaluations; included 4757 patients;				
Glied S, Herzog K, Frank R. Review: The net benefits of depression management in primary care. *Med Care Res Rev.* 2010;67(3):251-274. doi: 10.1177/1077558709356357				
Literature review;			CC interventions generate net social benefits at conventional valuations of quality-adjusted life years	
Lanyone A, Stewart KE, Rybarczyk BD, et al. The impact of integrated psychological services in a safety net primary care clinic on medical utilization. *Clinical Psychology.* 2017;73(6):681-692. doi: 10.1002/jclp.22367				
Retrospective pre- and posttreatment analysis with quasi-experimental control group; 1440 patients		PC Integrated care high-risk inner-city Richmond VA; reduced acute medical admissions		
Melek S, Norris DT, Paulus J, et al. Potential economic impact of integrated medical-behavioral healthcare. *Milliman Research Report.* 2018. http://www.milliman.com/uploadedFiles/insight/2018/Potential-Economic-Impact-Integrated-Healthcare.pdf				
Research report; analysis of healthcare costs through administrative claim data;	Actuarial evidence for cost reductions of 9-17% of total healthcare costs when utilizing evidence-based integration strategies			

Study Design	Cost	Utilization	Quality	Key Takeaways and Limitations
Perrin JM, Asarnow JR, Stancin T, et al. Mental health conditions and health care payments for children with chronic medical conditions. *Academic Pediatrics.* 2019;19(1):44-50. doi: 10.1016/j.acap.2018.10.001				
Cross-sectional analysis of a national database of paid commercial insurance claims for 2012–2013; ages 0-26; 6.6 million children and 5.8 million parents				
Peterson M, Turgesen J, Fisk L, McCarthy S. Integrated care in rural health: Seeking sustainability. *Fam Syst Health.* 2017;35(2):167-173. doi: 10.1037/fsh0000267				
Pilot project placing BHPs in 3 clinics to provide integrated care. Patient utilization of medical services for 6 months following BHP services was compared with baseline utilization; 256 patients and 459 consultations;	Net savings of $674.22 for each of the 256 patients.	The overall effect sizes for reduced medical utilization for patients at clinics B and C were very large, Hedge's g = -2.31 and -4.79, respectively.		
Reiss-Brennan B, Brunisholz KD, Dredge C, et al. Association of Integrated Team-Based Care with Health Care Quality, Utilization, and Cost. *JAMA*. 2016;316(8):826–834. doi:10.1001/jama.2016.11232				
Retrospective, longitudinal, cohort study; adults aged >= 18 years old; 113 PCPs; 2003-2005;	Net Savings were $114 PMPY that is net savings after costs.	Per 100 person-years, rates of health care utilization were lower for TBC patients compared with TPM patients for emergency department visits		

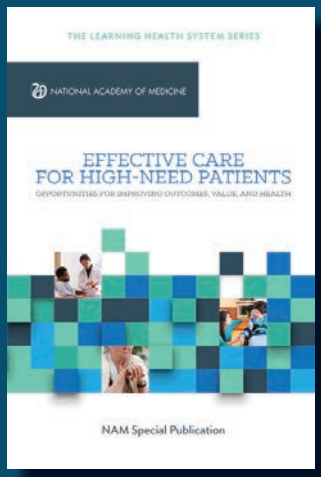
Study Design	Cost	Utilization	Quality	Key Takeaways and Limitations
Ross KM, Gilchrist EC, Melek SP, et al. Cost savings associated with an alternative payment model for integrating behavioral health in primary care. *Translational Behavioral Medicine.* 2018;9(2):274-281. doi:10.1093/tbm/iby054				
Demonstration project of the alternative SHAPE payments in Colorado; 6 practices; 18-months;	Net savings of $100 PMPY; generated approximately $1.08 million in net cost savings for their public payer population	The cost savings were primarily achieved through reduction in downstream utilization		
Ross KM, Klein B, Ferro K, et al. The cost effectiveness of embedding a behavioral health clinician into an existing primary care practice to facilitate the integration of care: A prospective, case-control program evaluation. *J Clin Psychol Med Settings.* 2019;26(1):59-67. doi: 10.1007/s10880-018-9564-9				
Prospective, case-control design; 239 patients;	Of the 239 patients seen by the psychologist in primary care, a net savings of $860 PMPY			
Unützer J, Harbin H, Schoenbaum M, et al. The collaborative care model: An approach for integrating physical and mental health care in Medicaid Health Homes. *Health Home Information Resource Center (CMS).* 2013. https://www.chcs.org/media/HH_IRC_Collaborative_Care_Model__052113_2.pdf				
Issue brief?	An initial investment in Collaborative Care of $522 during Year 1 resulted in net cost savings of $3,363 over Years 1-4.			
Unützer J, Katon WJ, Fan MY, et al. Long-term cost effects of collaborative care for late-life depression. *Am J Manag Care.* 2008;14(2):95-100. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3810022/pdf/nihms-521130.pdf				
largest RCT to date of the CoCM - the IMPACT study involving adults 60+ across 5 states and	IMPACT participants had lower mean total healthcare costs ($29 422; 95% confidence interval, $26 479-$32		At 12 months, 45% of intervention patients had a 50% or greater reduction in depressive	

Study Design	Cost	Utilization	Quality	Key Takeaways and Limitations
18 primary care clinics; 551 patients	365) than usual care patients ($32 785; 95% confidence interval, $27 648-$37 921) during the 4 years		symptoms from baseline compared with 19% of usual care participants	

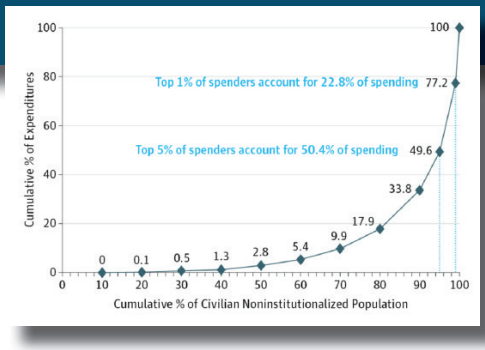
Effective Care for High-Need Patients: Opportunities for Improving Outcomes, Value, and Health

A Special Publication from the National Academy of Medicine

Key Points



Today, 5% of patients account for nearly half of the nation's spending on health care. To advance insights and perspectives on how to better manage the care of the these high-need patients, the National Academy of Medicine, with guidance from an expert planning committee, was tasked with convening three workshops held between July 2015 and October 2016 and summarizing the presentations, discussions, and the relevant literature. What follows is an overview of the key points discussed in the resulting Special Publication, Effective Care for High-Need Patients: Opportunities for Improving Outcomes, Value, and Health.



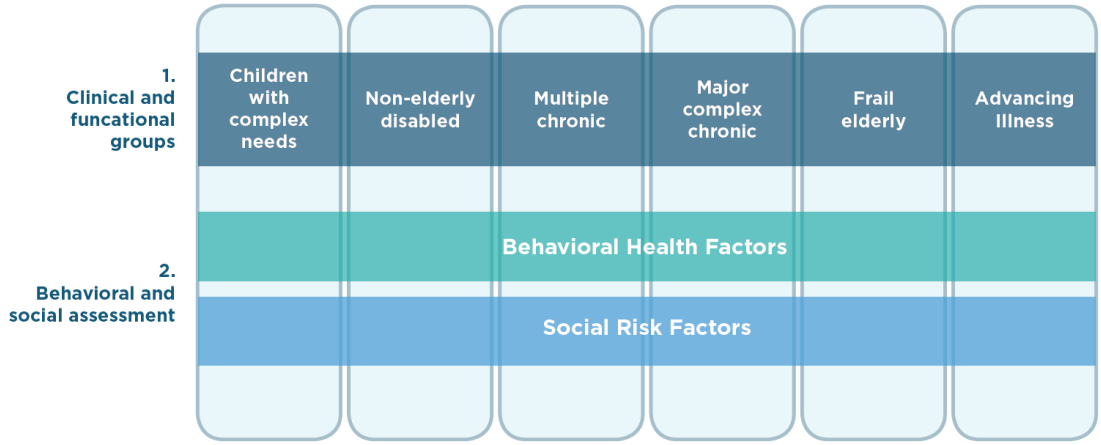
Key Characteristics of High-Need Patients

- To date, there is no consensus on the defining characteristics of high-need patients
- Three criteria that could form a basis for defining and identifying high-need patients include:
  (1) total accrued health care costs,
  (2) intensity of care utilized for a given period of time, and
  (3) functional limitations, such as limitations in activities of daily living (e.g. dressing) or limitations in instrumental activities of daily living that support an independent lifestyle (e.g. housework).
- High-need individuals tend to be disproportionately older, female, white, less educated, publicly insured, have fair to poor self-reported health, and be susceptible to lack of coordination within the healthcare system.
- The needs of this patient population often extend beyond care for their physical ailments to social and behavioral services, which are often of central importance to their overall well-being. Therefore, to improve outcomes for this population, it will be necessary to address functional, social, and behavioral needs, largely through the provision of social and community services.

The Patient Taxonomy and Implications for Care Delivery

- A taxonomy that segments high-need individuals in a health system's population based on the care they need and how often they might need it can help determine how to serve that population more effectively.
- Building on recent scholarly work and the workshop series, an expert taxonomy working group developed a new conceptual starter taxonomy that incorporates functional, social, and behavioral factors into a medically oriented taxonomy.

Conceptual Model of a Starter Taxonomy for High-Need Patients



Note: For this taxonomy, functional impairments are intrinsically tied to the clinicial segments.

- To operationalize this taxonomy, 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 required.
- Additional work is needed to refine the taxonomy and develop an ideal framework that presents holistic guidance on how care and finite resources should be targeted and delivered to improve outcomes and reduce costs for high-need patients. Achieving this requires health information technology systems that support integrated and streamlined data collection.

Care Models that Deliver

- 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. Attributes related to each of these dimensions are described in chapter 3 of the Special Publication.
- 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.

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 necessary to care for high-need patients, health system fragmentation, workforce training issues, and disparate data systems that cannot easily share data.
- While many insurers are starting to embrace value-based purchasing, additional progress in aligning financial incentives and the services necessary to care for high-need patients could be made by combining Medicare and Medicaid funding streams for dual-eligible patients into an integrated benefit and care delivery structure and further supporting and rewarding the seamless integration of medical, social, and behavioral services.
- 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 the provision of evidence-based social support services in conjunction with the delivery of medical services.
- To prepare the workforce, academic health centers and professional societies should develop training and certification opportunities focused on caring for high-need patients, including training on team-based care and care coordination across health and social sectors.
- To ensure that high-quality data and analytics are available to match high-need individuals with specific interventions, 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

- 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.
- Overarching opportunities for action and reform 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.

Planning Committee for the Workshop Series on Models of Care for High-Need Patients

Peter V. Long (Chair), President and Chief Executive Officer, Blue Shield of California Foundation
Melinda K. Abrams, Vice President, Delivery System Reform, The Commonwealth Fund
Gerard F. Anderson, Director, Center for Hospital Finance and Management, Johns Hopkins Bloomberg School of Public Health
Tim Engelhardt, Acting Director, Federal Coordinated Health Care Office, Centers for Medicare & Medicaid Services
Jose Figueroa, Instructor of Medicine, Harvard Medical School; Associate Physician, Brigham and Women's Hospital
Katherine Hayes, Director, Health Policy, Bipartisan Policy Center
Frederick Isasi, Executive Director, Families USA; former Health Division Director, National Governors Association
Ashish K. Jha, K. T. Li Professor of International Health & Health Policy, Director, Harvard Global Health Institute, Harvard T.H. Chan School of Public Health
David Meyers, Chief Medical Officer, Agency for Healthcare Research and Quality
Arnold S. Milstein, Professor of Medicine, Director, Clinical Excellence Research Center, Center for Advanced Study in the Behavioral Sciences; Stanford University
Diane Stewart, Senior Director, Pacific Business Group on Health
Sandra Wilkniss, Health Division Program Director, National Governors Association Center for Best Practices

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David Labby, Founding Chief Medical Officer & Health Strategy Adviser, Health Share of Oregon
Prabhjot Singh, Director, Arnhold Institute for Global Health, Mount Sinai Health System

Policy Workgroup

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Katherine Hayes, Director, Health Policy, Bipartisan Policy Center
Sandra Wilkniss, Health Division Program Director, National Governors Association Center for Best Practices

National Academy of Medicine Staff

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What Do We Know About Patients with High Health Care Use and Costs?

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In this week's episode of *On the Evidence*, we discuss a major question surrounding health care reform: What do we do about the small share of patients who represent a much larger share of overall health care use and costs? For this conversation, I brought in three guests from Mathematica's deep bench of health care researchers—Purvi Sevak, Ann O'Malley, and Dana Jean-Baptiste, who have each studied high-need, high-use patients and efforts to improve their care.

Click here to listen to the full interview. You can also read edited excerpts of the interview in the following transcript.

What do we know about this group of patients?

Dana: Ann and I looked at how different health care delivery organizations were identifying their high-need, high-cost patients. The National Academy of Medicine uses a definition [for high-need, high-cost patients] that has three criteria: these patients have high total accrued health care costs; they also have high intensity of health care utilization over a given period of time; and lastly, these patients have functional limitations, [which] can include limitations with activities of daily living, such as dressing yourself, grooming yourself, or bathing yourself.

One key finding about high-need, high-cost patients is that they have heterogeneous needs, and there's no one-size-fits-all solution to address these needs. These patients are diverse. They have complex issues. They're expensive. They're also dynamic, because their needs can change over time. A lot of these needs also include unmet social and behavioral health needs. When I say social needs, I'm talking about housing instability, food insecurity, and transportation. In terms of behavioral health needs, that can include things like depression and schizophrenia.

Why is it important to find ways to identify these patients and improve their care?

Purvi: Some are motivated by cost. The high utilizers represent a disproportionate share of the cost, so if you can improve their care and reduce costs, it might make a dent in aggregate costs. But another motivation is to help these patients because they're not being served well. They're not getting the care that they need despite the fact that they have high levels of service use and high levels of spending. They're not getting the care that they need in the most helpful way.

What progress have we made in trying to help high-need, high-cost patients?

Ann: One of the approaches being tested now is the use of care managers. The definition [of a care manager] is not universally accepted, but it basically refers to a person, typically a nurse, who works closely with the patient's primary care physician—ideally in their practice—to enhance the care that the primary care physician and team are already giving the patient. That care manager reaches out to the patient between visits to make sure that their chronic conditions are well monitored and managed. They try to catch things early before [the patient] gets to a crisis point and requires a visit to the emergency room or to the hospital.

Several different models are currently being tested. One is called Comprehensive Primary Care Plus (CPC+), and it is, to date, the largest and most ambitious primary care payment and delivery reform ever tested in the United States. It's funded by the Centers for Medicare & Medicaid Services, which partnered with 79 public and private payers across 21 regions in the United States and reaches over 15 million patients. This doesn't apply just to the high-need, high-cost patients; this applies to primary care patients, generally.

The CPC+ initiative is focused on bolstering primary care, both by improving payment for primary care and by improving the infrastructure and staffing for primary care. One of the ways that CPC+ does this is to emphasize this concept of identifying high-need, high-cost patients and giving those patients the extra attention and extra care management that they need—not just when they're in the office, but between visits by phone and through remote monitoring and all kinds of other ways.

It also emphasizes improving the comprehensiveness of primary care and, in particular, improving primary care's recognition of patients' social support and behavioral health needs. The model encourages primary care practices to coordinate with community-based resources that support patients' social and behavioral health needs, because failing to address such needs compromises a person's ability to manage their health conditions and their quality of life.

Purvi: Rutgers University led one program that targeted patients with high levels of hospital use and spending, with funding from the Center for Medicare & Medicaid Innovation. Mathematica did the evaluation of the program. Rutgers University helped four organizations that were very different: an independent physician's association in California; a nonprofit community health center in Colorado; a nonprofit health system that was affiliated with two hospitals in Kansas City, Missouri; and a nonprofit operator of two federally qualified health centers in Allentown, Pennsylvania. The program focused on development of individualized care plans and integrated care management services through the use of mobile care teams that met patients in the community—as opposed to meeting them in the hospital or at a doctor's office. The care teams, which included some combination of nurses, community health care workers, and social workers, met with patients frequently. They provided education about the importance of using primary and specialty care. They also helped them make doctor's appointments.

The patients in the program met the profile of the [high-need, high-cost] population that we're talking about. On average, they had seven chronic conditions, such as diabetes, hypertension, and chronic kidney disease, and most had additional behavioral health conditions, such as depression. In the year prior to their involvement with the program, they had an average of four inpatient hospital admissions and five visits to the emergency department. Their spending was very high. [Among] the Medicare

beneficiaries that we were able to study, their annual spending averaged $70,000, which is about seven times the national average among Medicare fee-for-service beneficiaries. We found that the program resulted in a reduction in service use. In particular, we found that the program reduced unplanned readmissions by about one-third.

What do the patients think about these care management programs?

Ann: We interviewed high-risk, complex patients who were working with a care manager and physician at their primary care practices. We asked patients, what's your experience like working with this care manager?

If they were willing to engage with the care manager, patients tended to have positive experiences. [For example,] the patients value the time that the care manager spent listening to them and explaining things to them in lay terms. Patients [found] the care managers helpful in managing their medications, managing their chronic conditions in between visits, and—if they had been hospitalized—following up and getting them back into the office to meet with their doctor. Patients [also] liked that the care managers help them to navigate the health care system and resources in the community such as social supports. That's just one study of complex patients who worked with care managers. There haven't been a lot of studies like this that ask for the patient's perspective on care management, but hopefully there will be more going forward.

It seems to me that an underlying part of our conversation is whether, or how, the health care system is addressing the social determinants of health. Do you see that as a through line in all of this research?

Ann: While it's not the health care system's job to provide all sorts of social supports to people in the United States—that's why we have housing and transportation and food agencies—it is important for people in the health care setting to recognize when patients come to them with those kinds of needs. Because, absent addressing those needs, it's hard to help them improve their health and live with their chronic conditions—or, at least, minimize the problems that they're going to have from chronic conditions.

We're in a real bind in this country because we invest much less in our systems for social support, whether it's housing, transportation, insurance coverage, food, security in your neighborhood, safety at home, compared with other western industrialized democracies. The failure to adequately support such needs ends up materializing in a lot of ways in people having poorer health. We have huge socioeconomic disparities in health by income, by race, and by where people live that in other countries aren't nearly as exaggerated. It ends up becoming a problem for the health care system, and obviously it's a problem for the people of this country. This is just one way that we're trying to make up for that inadequate social investment as a nation.

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ISSUE BRIEF
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How Accountable Care Organizations Use Population Segmentation to Care for High-Need, High-Cost Patients

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ABSTRACT

ISSUE: New payment and care delivery models such as accountable care organizations (ACOs) have prompted health care delivery systems to better meet the requirements of their high-need, high-cost (HNHC) patients.

GOAL: To explore how a group of mature ACOs are seeking to match patients with appropriate interventions by segmenting HNHC populations with similar needs into smaller subgroups.

METHODS: Semistructured telephone interviews with 34 leaders from 18 mature ACOs and 10 national experts knowledgeable about risk stratification and segmentation.

KEY FINDINGS AND CONCLUSIONS: ACOs use a range of approaches to segment their HNHC patients. Although there was no consistent set of subgroups for HNHC patients across ACOs, there were some common ones. Respondents noted that when primary care clinicians were engaged in refining segmentation approaches, there was an increase in both the clinical relevance of the results as well as the willingness of frontline providers to use them. Population segmentation results informed ACOs' understanding of program needs, for example, by helping them better understand what skill sets and staff were needed to deliver enhanced care management. Findings on how mature ACOs are segmenting their HNHC population can improve the future development of more systematic approaches.

TOPLINES

- ACOs use a range of approaches to segment, or group, their sickest and costliest patients by the level of care and management they require.
- By engaging primary care clinicians' help in subdividing the high-need, high-cost patient population, ACOs can increase the usefulness of results and frontline providers' willingness to use them.

The Commonwealth Fund

INTRODUCTION

Five percent of the U.S. population has complex medical and behavioral or social needs, but this group accounts for 50 percent of the country's health care spending.[1] New payment and care delivery models such as accountable care organizations (ACOs) have prompted decision-makers at health care delivery systems to seek the best ways to meet these patients' needs while controlling costs.[2]

To this end, many ACOs have used predictive modeling and risk stratification to sort their entire population into risk levels (such as low, medium, and high). ACOs typically linked their high-risk patients to the ACO's general care management program. This approach has had mixed results, perhaps because high-risk patients have wide-ranging, heterogeneous needs, and different care management services benefit certain kinds of high-risk patients more than others.[3]

Fewer ACOs have taken the approach of subdividing (segmenting) this high-need, high-cost (HNHC) population into smaller subgroups with similar needs.[4] The National Academy of Medicine and others have highlighted the importance of recognizing that all HNHC patients are not alike, and recommend segmentation of HNHC patients.[5] It is theorized that segmentation will allow ACOs to better match patients to appropriate interventions, enabling them to provide higher-quality care and allocate limited resources more effectively. Interventions are most effective when they target the patients that they were intended to serve.[6] For example, an intervention might include outreach to socially isolated patients with congestive heart failure (CHF); additional social support might improve their medical condition and avoid preventable emergency department (ED) visits.

Because few ACOs have tackled segmentation of HNHC patients,[7] little is known about the best approach. To better understand the use of segmentation, we look beyond the few most visible efforts[8] to explore how mature ACOs segment their HNHC adult population, as well as the challenges these initiatives face.

FINDINGS

We completed interviews with 44 respondents: 10 national experts and 34 respondents from 18 ACOs. Most ACO respondents were medical directors, executives, care management program leads, clinician leaders, or data analytics leads. ACOs' characteristics were balanced by region, type (Medicare Shared Savings Program [MSSP], Next Generation, Medicaid[9]), ownership type, and size of population served (see Appendix).

Population Segmentation Goals and Team Make-Up

In tackling risk stratification and segmentation, some ACOs' goals are aspirational: improving patient outcomes, reducing costs, and achieving the Triple Aim.[10] ACOs also hope to inform program management by improving their understanding of several elements: which patients are high cost, and why; which patients have needs that health care organizations could address; how to allocate resources, such as staff, to care teams; and how to help teams prioritize workloads. They also want to identify the needs of HNHC subgroups, identify any additional necessary training of care management staff, and determine manageable panel sizes for care managers or teams.

ACO teams conducting population segmentation typically include ACO chief medical officers, chief executives, population health leads, care coordination or care management program leads, data analytics leads, and practicing physician representatives (such as those from clinical leadership committees). To tailor care for the identified subgroups, teams add more frontline clinicians such as primary care physicians (PCPs), nurse care managers, social workers, care transition staff, and behavioral health providers.

Approaches to Population Segmentation

Most ACOs use both quantitative information, such as claims data, and qualitative data, including clinician assessments, to risk-stratify their population. This hybrid approach seems to offer the best compromise between consistent implementation and clinical salience. All 18

ACOs use claims data, utilization data, and/or reports from payers to risk-stratify their entire population. Sixteen ACOs also use limited clinical data elements from their electronic health records (EHRs) to inform risk stratification. In many of these, ACOs or third-party vendors employ an algorithm to analyze the available structured data and compute a numeric risk score. Based on this score, they typically classify their entire ACO population into low-, medium-, and high-risk groups. Several ACOs also identify a "rising risk" group. Some national experts and ACO respondents reported that numeric risk scores from vendors were not actionable because patients with the same risk scores could have wide-ranging needs, and the output lacked sufficient clinical context.

While all ACOs interviewed engage in whole-population risk stratification, some further segment their HNHC patients into subgroups. Some ACOs describe this process as sequential, with risk stratification preceding the segmentation of HNHC patients into smaller subgroups. Alternatively, the two efforts can occur as part of a single process. However, a few ACOs first identified patients with particular conditions or combinations of conditions, and then performed risk stratification and segmentation within those groups to determine which patients should receive more intensive and tailored care management.

Of the 13 ACOs reporting HNHC population subgroups, seven define their subgroups by incorporating clinical evaluation and risk assessment data that have been gathered in person from patients. Only four of these ACOs use data on patients' social and behavioral needs in the segmentation process. Most ACOs identify these needs during patient assessments made while tailoring care management services for HNHC patients, rather than during segmentation.

There are numerous challenges to accurately and efficiently capturing data on social and behavioral needs for risk stratification and segmentation. One challenge is documenting meaningful social and behavioral health data in a discrete structured format in current EHRs. Systematic data on social needs are also scarce at both the population and individual patient levels. Given that social service agencies and community organizations already collect their own data on substance abuse, housing, and food programs, there is a need for improved data coordination between them and health care delivery systems.

Among ACOs that incorporate social and behavioral health needs into segmentation, some use a hands-on approach while others opt for more automated tactics. For example, Rio Grande Valley ACO, an MSSP with clinics in Texas and New Jersey, takes a hands-on approach (Exhibit 1). Its interdisciplinary clinical team employs a tool to categorize HNHC patients into subgroups based on four domains: the patient's medical neighborhood; social support; medical status and trajectory; and self-management and coping skills, and mental health. Each subgroup is then assigned to an appropriate level of care management. In contrast, Montefiore ACO uses a highly automated approach to segmentation, incorporating claims and pharmacy data as well as indicators of patients' psychosocial needs (Exhibit 2). Montefiore's Next Generation ACO, an integrated hospital and physician entity in The Bronx, New York, serves 55,000 Medicare patients who typically receive medical care from Montefiore over their lifespan. Montefiore ACO has strong, in-house analytic capabilities and involves patients' PCPs after segmentation is complete.

Although there is no consistent set of subgroups into which ACOs segment their HNHC patients, certain subgroups are common. These subgroups include frail elderly, advanced illness (palliative, hospice, and end-of-life care), transitional care, homebound, comorbid medical conditions (often including diabetes, CHF, or chronic obstructive pulmonary disease [COPD]), comorbid medical and mental health conditions, chronic care rising risk, disabled, and end-stage renal disease (ESRD). The national experts and ACO clinicians in our study cautioned against using single disease-focused segments, because they risk missing the underlying cause of a patient's problems or fail to address comorbid conditions. ACOs identify frail elderly patients in a variety of ways: clinician referral, in-person clinical frailty assessments, in-house or vendor analyses based on diagnoses, claims-based utilization and patient demographics data, and frailty constructs such as the Johns Hopkins Adjusted Clinical Groups (ACG) System.[11]

Exhibit 1. Rio Grande Valley ACO Health Providers, LLC (Texas)

ACO characteristics

- Physician-owned Track 3 MSSP with 10,600 patients; 36 percent are dually eligible for Medicaid.
- "Hands-on" (nonautomated) approach to segmentation of high-risk patients into subgroups.

Segmentation process

Defining target population

- Identify top 10 percent of high-cost patients each month using Medicare claims, ADT data, and internally developed software.
- Concurrently with segmentation process, ACO sends primary care physicians (PCPs) monthly lists of high-risk patients. PCPs can reach out to patients on list while awaiting segmentation results.

Defining subgroups (includes data sources used)

The ACO-level interdisciplinary complex case management (CCM) team uses a stratification tool to segment the high-cost patient list; this is not an automated process. The tool (developed in-house but based on GRACE, CalOptima, and other models) covers four domains:

1. Patient's medical neighborhood: access to care; experience with primary and specialty care providers; receipt of needed services; coordination of care; and enrollment in medical home.
2. Patient's social supports (home and social environment), using the Humboldt stratification tool.
3. Medical status, trajectory, and complexity (medications, treatments, compliance, severity).
4. Self-management, coping skills, and mental health.

Patients are assigned from one to 57 points based on the certification tool, with the four domains receiving equal weights. Total points determine high-need, high-cost patients' risk levels.

Clinician involvement in segmentation

- Multidisciplinary team that applies the stratification tool includes clinicians.
- CCM team works closely with primary care team to agree on care plan.
- If PCP, primary care team, or patient prefers not to enter CCM program, primary care team will receive guidance. Patient written consent is required to participate in CCM program.
- ACO has embedded care coordinator (licensed practical nurse or medical assistant) at each primary care practice. CCM team communicates closely with high-risk patients' care coordinator and PCP.

Tailoring care

Segmentation results used to tailor care management to the four levels of high-risk, high-cost patients:

- Level 4: **Highest-acuity patients** receive close supervision, regular visits by care manager during the week, 24-hour call service, frequent communication with PCP about patient, regular phone calls including medication and appointment reminders.
- Level 3: **Consistently high users of inpatient services** receive weekly visits by care manager, increased phone contact, and engagement of enhanced family or other supports.
- Level 2: **Patients with high social needs** have care coordinator to help address social needs alongside primary care team management of medical needs.
- Level 1: **Patients with rising risk** have a care coordinator who tracks and works with family to prevent patient from moving to a higher acuity level.

Exhibit 2. Montefiore ACO (Bronx, New York)

ACO characteristics

- Next Generation ACO with 55,000 patients; includes low-income, long-term patients of Montefiore Health System.
- Montefiore is an integrated delivery system (primary care, specialty care, hospitals).

Segmentation process

Data sources and their uses

- ACO receives claims files from payers and an attribution file from CMS. Its enterprise data warehouse contains clinical and pharmacy data from the EHR.
- Montefiore incorporates some external data sources on patients' social needs, such as U.S. Department of Housing and Urban Development data on housing.
- Montefiore conducted a baseline assessment of 4,000 patients. Those with substance abuse issues, psychological disorders, and unstable housing had much higher costs, which led Montefiore to incorporate six additional social determinant categories into its algorithms, as well as other qualitative and quantitative information.

Defining target population

- Six medical directors identify variables to include in algorithms, using clinical risk group (CRG) mapping.
- Patient claims data and the EHR are run through a proprietary, in-house risk stratification algorithm, using the CRG methodology, to identify patients who may benefit from targeted health care services. Montefiore refers to this step as patient identification. Results are updated monthly.
- The ACO further stratifies patients after identifying who may benefit from targeted services.

Defining subgroups

Patients identified through the algorithm are segmented by disease state. Segments are assigned to one of five "pods" that specializes in specific patient populations:

1. Congestive heart failure, asthma, chronic obstructive pulmonary disease, hypertension.
2. Diabetes.
3. End-stage renal disease and chronic kidney disease.
4. Complex/high-risk patients with comorbid conditions.
5. Advanced illness management for patients in hospice and palliative care.

Clinician involvement in segmentation

- Frontline PCPs are involved after, not during, the segmentation process.
- Clinicians can adjust patients' assigned risk groups after they have been enrolled in a care management program. Changes to assigned risk groups usually occur during monthly clinical meetings where frontline clinicians discuss how to better serve challenging patients.

Tailoring care

- Care management programs are designed to meet the needs of patients in each subgroup.
- After patients are enrolled in care management, a nurse administers a baseline assessment to collect timely information about the patient's medical, social, and behavioral needs.
- After segmentation and assignment to care management programs, staff assess patients' willingness to engage in care management. More than 90 percent agree to participate, a high engagement rate credited in part to the use of nonclinical staff to approach patients.
- Pods provide an enhanced layer of care management for the patient's PCP. The primary care team is informed of the care management activities through the EHR. A pod includes multiple health care teams. In the diabetes pod, for example, an integrated behavioral health team works with the diabetes care team, given that one-half of the diabetics also have mental illnesses.

Engaging PCPs to refine their segmentation approaches can increase the usefulness of results, as well as frontline providers' willingness to use them. Involvement of primary care teams can help address PCPs' initial skepticism and concern that an ACO is "interfering" in their patients' care. ACOs use provider input to adapt algorithms to include variables that are particularly important to their population. For example, one interviewee said they "constantly solicit provider feedback," noting that "three physicians found issues with the algorithm not accurately identifying patients with chronic kidney disease and some basic mental health issues." Based on physician feedback, "we went back and layered GFR [glomerular filtration rate] values and PHQ-9 [Patient Health Questionnaire-9] data so these patients would be picked up in the high- and rising-risk categories."[12] A few ACOs have a team of clinicians that identifies important variables to include in their algorithms.

Many ACOs ask the PCP or other clinical staff to review the results of their segmented high-risk patient subgroups. They allow clinical staff to add or remove patients, using their clinical judgment of who could benefit from enhanced care management. A medical director described how to engage frontline providers early in the segmentation process: the ACO must carve out time in the providers' schedule "30 minutes a week for a month, where you pull them off the front line, they don't see patients, the nurse sits down with them, and they look at the list." Conversely, a few ACOs do not seek clinician input; for them, risk stratification and segmentation "happen behind the scenes."

Some ACO and national expert respondents said it was important to communicate segmentation results to frontline clinicians in a transparent, accessible, and actionable way — such as a banner or button in the EHR that indicates the patient's risk group. In at least one ACO, clinicians also can click the button to see the top 10 variables used to calculate the patient's risk level. In another ACO, the patient's risk score is "literally a flag in the electronic record with a pulldown tab to get in touch with the care manager."

Even among ACOs pursuing population segmentation of HNHC patients, only a few go beyond preexisting care management programs to further tailor care to those subgroups. ACOs that tailor care to subgroups use existing disease-specific care management programs, such as a program for ESRD patients. They also create new or modify existing care management efforts based on the needs of various subgroups. Most respondents stressed the importance of keeping HNHC patients with their usual primary care practice while adding an enhanced layer of care management. That might mean embedding a care manager in the primary care site or using a care manager or care management team housed elsewhere in the organization. Tailoring care for subgroups typically includes addressing the care management team's clinical backgrounds and care management skills, or the frequency, duration, and type of the team's contacts (home visits or phone calls, for example).

The care management team usually adapts an enhanced care management approach for individual patients within a high-risk subgroup, based on in-person or telephone-administered risk assessments conducted by a nurse care manager or nurse care coordinator. At several ACOs, physicians and lead care managers are heavily involved in designing or identifying existing risk assessment tools that guide how care is tailored.

ACOs struggle to tailor care to HNHC subgroups when lack of funding limited their ability to hire enough care managers. Care management staff are sometimes so busy with current high utilizers that they lack resources to reach out to rising-risk patients. And many are frustrated with the lack of coordination among care management programs from different health plans and initiatives. As one ACO clinician observed:

> [Care management is] siloed and business-driven, not patient-driven. Why do we have nurse care managers in primary care? Because someone's paying us to do it in the [primary care demonstration] program. Why do we have nurse care managers doing discharge planning in the hospital? Because DRG [diagnosis-related group] payments make that a valuable activity from the hospital's perspective. Why don't we have nurse care managers managing our cystic fibrosis patient population? Because nobody pays for it.

Refinement of Population Segmentation Approaches over Time

National experts and ACO respondents stressed the need for ongoing feedback loops. To improve its utility, they either refined or completely replaced their segmentation approach over time. A few ACOs used continuous feedback loops that incorporated short-term process measures, such as chronic condition control and rates of emergency department utilization.

Respondents offered examples of improvements made to risk stratification and segmentation approaches after such assessments: incorporating new or more current data sources, such as EHR data; enhancing the collection of social and behavioral health data; modifying the care management team (hiring more social workers, for example, or reallocating care managers); and changing relationships with third-party vendors. Process refinement often includes better engagement of frontline clinicians as well as more oversight from formal physician advisory committees.

Challenges to Assessing Effectiveness of Population Segmentation and Care Management

Although care management informed by risk stratification and segmentation can help improve program management and some process measures, changes in cost or quality outcomes cannot necessarily be attributed to these efforts. Some study respondents noted improvements, including a decline in admission rates for particular conditions (CHF and COPD, for example); reduced ED visits; increased contact with patients who had not contacted the system in the prior two years; increased use of evidence-based preventive services; and improved patient self-confidence in their ability to manage their chronic conditions. ACO respondents also noted that population segmentation influenced program management goals.

Respondents noted numerous challenges to quantitatively assessing the effectiveness of current risk stratification, segmentation, and care management approaches. These include:

- Regression to the mean.[13]
- Small sample sizes of high-risk subgroups within an ACO, resulting in insufficient statistical power to assess effects on outcomes.
- Limited actionability of claims data because of the time required for health plans to process claims, as well as claims' lack of clinical nuance.
- Cost of integrating EHR data when ACO medical practices use different EHR platforms.
- Difficulty of establishing causality when ACOs participate in simultaneous initiatives, such as same-day appointments or efforts to reduce readmissions and increase access to urgent care clinics.

Exhibit 3 summarizes respondents' collective advice to ACOs new to population segmentation.

Vendors' claims of achieving savings can be hard to validate, as some respondents reported. One ACO physician said "they did not provide the statistical analysis that [would let] me know for sure that they're not just reporting regression to the mean." Another ACO physician noted that both vendors and ACOs "face immense pressure . . . to come up with any data that supports their work." This respondent stated it is unrealistic to expect "you could hire a turn-key solution from the outside and drop it on top of existing practices and within a year have a positive outcome."

Exhibit 3. Respondents' Advice and Tactics for Segmentation

1. Start small and take it slowly.

"Just start off somewhere. Don't let perfect be the enemy of the good." — Chief medical officer

2. Keep the initial approach as efficient as possible.

"These are expensive processes [so] think about how you keep the intervention as tight and efficient as possible. If you prove that you can do something valuable in a small, efficient way, then maybe you can grow it rather than thinking, hey, let's try to throw the entire kitchen sink at people and see what sticks." — ACO physician lead

3. Use a model that is transparent and understandable to clinicians.

4. Involve physicians and care teams in working closely with the analytics team.

"The person generating the scores and setting the strategic needs and goals needs to see what it's like on the ground. . . . That gap is really common . . . [but] it's a two-way street. [Frontline clinicians] have to feel heard, but they also have to listen." — National expert

5. Start with a focus on good data capture and storage, then expand the scope of data over time.

"The 'up-front investment' to create a single clean data repository is 'money-well spent.'" — Executive from well-resourced ACO

6. Build in an ongoing feedback system to learn from on-the-ground providers in the practices how well your segmentation and care-tailoring approaches are working.

- Be sure your process helps rather than disrupts practices' workflows.
- Adjust your approach over time.

7. Focus on patients with addressable needs for whom you can have an impact — not just high-cost patients.

"Identify small pockets that will have the biggest impact." — Care coordination lead

8. How to decrease "regression to the mean" for within-ACO model evaluation efforts:

- Require a patient to have a constellation of conditions to join the high-risk group, for example, one or more chronic conditions as well as high prior utilization.
- Update population's risk scores weekly or monthly, so that patients who are not chronically high-risk tend to "fall out over time."
- Care management programs can have "enrollment and disenrollment criteria" that incorporates "clinical judgment" to help identify patients who could "graduate" from case management.
- Obtain clinician input to exclude particular diagnoses (such as those that are likely to have time-limited costs) from the risk stratification and segmentation model.

9. Risk stratification and segmentation can inform:

- Identification of high-risk, high-cost patients.
- Understanding of reasons why these patients are high-risk, high-cost.
- How to allocate needed resources to care teams, including prioritizing team workloads.
- The type of staff training needed for managing care.
- Identification of manageable panel sizes for care managers/teams.

DISCUSSION

In this report, we described how 18 mature ACOs approach population segmentation and tailor their resources. While all the ACOs in our sample risk-stratify their entire population to identify high-need, high-cost patients, only two-thirds segment the HNHC patient population into smaller subgroups to identify those with similar needs. Most have in place a sequential process, with risk stratification preceding the segmentation of HNHC patients into subgroups. A few first identify patients with particular conditions, or combinations of conditions, and then perform risk stratification and segmentation within those groups. This latter approach is similar to one taken by Denver Health.[14]

Similar to the results of prior research,[15] our study finds that algorithms based solely on claims data do not capture sufficient information on clinical, behavioral health, or social needs. On the other hand, prior research documents the challenges of solely relying on patient-completed health risk assessments or clinician judgment to identify individual patients for care management.[16] Like others,[17] we find that hybrid approaches — using both quantitative and qualitative data to segment a population and identify patients most likely to benefit from care management — offered the best compromise between consistent implementation and clinical salience. Although there are no consistent sets of subgroups into which ACOs further segment their high-risk patients, ACO respondents in our study frequently identify certain subgroups. High-risk subgroups sometimes correspond to categories supported by their existing care management programs, in part because of funding and expediency. Others adapt existing programs or create new ones for some subgroups. ACOs use their segmentation results to help determine manageable patient panel sizes, as well as how to allocate staff resources and workforce training to their care management teams.

Although our qualitative sample has good variation by ACO and respondent characteristics, we cannot generalize from our study to all ACOs, or even to all mature ACOs.

Challenges and Emerging Opportunities

Respondents identified several challenges to population segmentation and resource tailoring, as well as potential strategies to address them. Ongoing needs include:

- Improving the availability of current, accurate data on patients' clinical, functional, social, and behavioral health needs.
- Strengthening analytic and clinical resources.
- Improving the evaluability of segmentation and care management programs.

Limited availability of current and accurate data. ACO respondents reported the need for timely, high-quality clinical data that can capture patients' current risk factors more accurately than claims data; this sentiment has been described by others.[18] Using the most recent patient information recorded in the EHR might allow the segmentation results to more accurately reflect the current needs of the patient, particularly compared to using claims data.

ACOs also struggle to capture data on their patients' social and behavioral health needs that can systematically be used in the segmentation process. Although clinicians may already record social and behavioral health needs in a text field in the patient's record, these data cannot be readily used in an algorithm that stratifies patients by risk.

ACOs could especially benefit from tailoring enhanced care management services to patients' functional status. Frail people with poor functional status, for example, are challenged by carrying out activities of daily living, and drive higher costs over time. To tailor services, however, ACOs would need to create new structured data or access existing data. For example, ACOs could work with their EHR vendors to develop a standardized assessment of social and behavioral health needs, including functional status. Moreover, health care delivery organizations and government and social service programs (for example, corrections, foster care, or the Supplemental Nutrition Assistance Program) could enter into data-sharing agreements. These collaborations could help ACOs determine which patients need particular services.

Resource-intensive processes. Though many mature ACOs do their risk stratification and segmentation in-house, others lack the technical infrastructure, funding, and workforce to do so. ACOs without in-house analytic capabilities often find the risk stratification and segmentation process to be a "heavy lift," and some relied on third-party vendors to support their work.

Involving frontline clinicians in the segmentation process was a time-intensive activity, but one that could make the overall process more efficient. Involving frontline clinicians reportedly makes them more likely to accept the results of segmentation, which in turn affects whether patients accept enhanced care management services. Clinician input also helps tailor services to patients' needs. To reduce the burden on busy clinicians, some ACOs seek this input from a select subgroup of knowledgeable physicians, as well as from other clinical staff.

Improving the evaluability of segmentation and tailored care programs. A very large ACO may be able to quantitatively evaluate its own program,[19] but small and medium ACOs often lack adequate sample sizes of HNHC patients. Methods for real-world evaluations of such programs across health delivery organizations exist,[20] but we first need a better understanding of what population segmentation looks like on the ground. We hope this paper adds to a growing knowledge base.

The complex financing of health care in the United States also complicates ACOs' abilities to evaluate their programs. ACOs find themselves torn between meeting the reporting requirements and quality measure goals of different payers and programs and analyzing data for internal evaluations of program impact. Furthermore, some respondents note that payer initiatives' concern for annual costs influence ACOs. It leads them to apply that narrow, short-term focus to their internal evaluations of segmentation and tailored care programs, instead of considering the impact on multiyear costs or broader population health outcomes. If ACOs could move beyond these short-term requirements, they might focus more on true population health by segmenting along the lifespan to address the root causes of patients' needs.[21]

HOW WE CONDUCTED THIS STUDY

We studied Medicare ACOs and a few Medicaid ACOs operating under Centers for Medicare and Medicaid Services authority that had been in place for at least three years, or that had a long history of risk contracting before becoming an ACO. We wanted to hear from well-established health care delivery organizations that had developed incentives to control costs. We did not interview representatives from Medicare Advantage plans because they are typically not health care providers, and they face a variety of local issues that affect how they interact with their network and local payers. We focused on their approaches to risk stratification, segmentation, and tailoring care to their adult patient population. The New England Institutional Review Board (NEIRB) determined that this study was exempt from NEIRB review (WO-1-20071-1).

Sample Identification

Before interviewing ACO respondents, we interviewed national experts knowledgeable about risk stratification and segmentation; we identified them based on our literature review and referrals from experts in the field.[22]

We used two data sources to identify ACOs for interviews. The National Association of Accountable Care Organizations (NAACOS) provided us with a list of the 50 "most mature" ACOs participating in NAACOS activities and events. We emailed the contact for each ACO, explaining the purpose of our study, and asked the following: whether they pursued risk stratification and segmentation; whether they used that information to decide how to deliver care to high-risk subgroups; and whether they would be willing to put us in touch with the individual who led those efforts, for a potential interview. To reach ACOs in regions not captured by volunteers from the NAACOS' list, we purposively identified additional ACOs from *Becker's Hospital Review*.[23]

Semistructured Interview Content

We used two separate protocols with parallel content that was tailored to either national expert or ACO respondents. We asked national experts about their experiences with, and views of, ACOs' approaches to risk stratification, segmentation, and tailoring of health care resources. Within these three areas, we explored a variety of topics:

1. Terminology ACOs use for risk stratification and segmentation.
2. How ACOs define their target population for segmentation.
3. Types of staff participating on the teams conducting population segmentation.
4. Segmentation goals.
5. Description of processes and data sources, and involvement of third-party vendors in population segmentation.
6. Whether and how social support and behavioral health needs are incorporated into risk stratification and segmentation.
7. How clinicians are involved in population segmentation.
8. How clinicians have reacted to risk stratification, segmentation, and output.
9. Strengths and weaknesses of population segmentation approaches.
10. How, if at all, ACOs assess or consider patient interest in care management as part of the segmentation process.
11. How, if at all, they assess and refine their risk stratification and segmentation approaches over time.
12. How they used segmentation results to tailor care, and if they try to evaluate health outcomes.
13. How respondents would approach risk stratification and segmentation if they could focus on long-term, multiple year outcomes rather than annual outcomes.
14. Advice for ACOs or other entities interested in segmenting their HNHC population and tailoring care to resulting subgroups.

Data Collection

We interviewed national experts in early 2017 and ACO respondents in mid-2017. On average, we interviewed two respondents per ACO. Interviews lasted from 60 to 90 minutes. We audio recorded and transcribed all interviews. Characteristics of our respondents are summarized in the Appendix.

Analysis

We developed our initial code dictionary based on our literature review[24] and refined it based on themes that emerged from respondents' comments.[25] We coded the interview transcripts using Atlas.ti qualitative analysis software (version 7.5.10), meeting weekly to verify coding and minimize researcher bias.

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APPENDIX. CHARACTERISTICS OF RESPONDENTS AND ACOS

Respondent characteristics	Frequency
Total completed interviews	**44**
National experts	10
Respondents from ACOs	34
Type of ACO respondent[a]	
ACO medical director	6
Care management/care coordination program leads	6
ACO chief executive	5
Other ACO program executives (e.g., population health lead)	3
Data analytics lead	3
Third-party vendor representative	2
Frontline physicians (excluding medical directors who also saw patients)	2
ACO finance executive	2
Other[b]	5
ACO characteristics	
ACO type	
Medicare Shared Savings Program, Track 1	5
Medicare Shared Savings Program, Track 2	0
Medicare Shared Savings Program, Track 3	3
Next Generation	8
Medicaid	2
Does the organization also have commercial ACO contracts?	
Yes	12
No	6
Ownership type	
Physician-owned	6
Hospital/system-owned	5
Jointly owned	5
Publicly owned	1
Other[c]	1
ACO population size (for Medicare or Medicaid ACOs only)	
5,001–10,000 patients	1
10,001–30,000 patients	9
30,001–50,000 patients	3
>50,000 patients	5
Does the ACO use a third-party vendor for some aspect of its risk stratification and segmentation approach?	
No, in-house analytics only	9
Mix of third-party vendor and in-house analytics	7
Yes, third-party vendor only	2
Region	
Northeast	4
Mid-Atlantic	1
Southeast	3
Midwest	6
Southwest	1
West Coast	3

[a] We interviewed 34 respondents from 18 ACOs.

[b] "Other" included a director of quality management, a vice president of provider engagement, an ACO project manager, and two managers of an accountable care cooperative (ACC) that provides support to Medicaid ACOs in its state.

[c] Characteristics of the 18 unique ACOs from which we interviewed respondents.

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