7 Quick Wins
In Population Health Analytics

Introduction:

The Johns Hopkins ACG® System is relied on by health systems, health plans, accountable care organizations, health care analytics companies and others across the globe for analytics and insights into population health. In this guide, we'll be looking at specific ways the ACG System can be used to analyze your data to reveal potential cost savings and improve health outcomes. We'll also explore several real-world examples of how ACG users around the globe have achieved concrete results.

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QUICK WIN #1
OPTIMIZE ENROLLMENT IN EXISTING PROGRAMS

LEVERAGING YOUR EXISTING CLINICAL PROGRAMS

Most large provider, payer and population health organizations have programs in place to facilitate care coordination for complex patients, support specific conditions, or to support transitions from one care location to another. Oftentimes, these programs have capacity for additional patients. How can you quickly align patient needs with available resources? The ACG System can help.

To get started, generate an inventory of existing care programs, criteria for patient enrollment, and program completion requirements. This will help you see what programs are currently offered and what kinds of patients could benefit from enrollment. In addition to your organization's programs, you may find community programs or locally-funded initiatives. Using the patient enrollment criteria, you can use the ACG System to quickly generate a case-finding search of your existing patients. See who may be a good candidate for a care program, who is not already enrolled in a program, and refer as appropriate.

You may also use your care program list to compare current program enrollment to specific clinical goals, which will help you evaluate whether patients are enrolled in the appropriate services.*
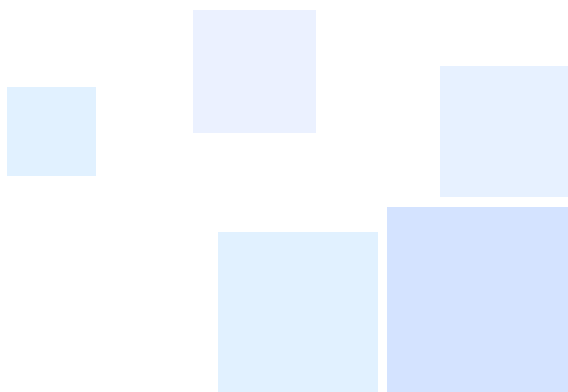
WANT TO KNOW MORE?

Read about care coordination in action at Johns Hopkins Health Plans by clicking HERE.

*If you have questions about these applications, please contact your ACG System account manager or info@ hopkinsacg.org.

THE WIN

This exercise can supplement and enhance your population health strategy, and can be deployed quickly to improve patient access to services and internal resource allocation. Filling existing care programs to capacity allows your organization to maximize clinical resources by directing patients to existing programs, rather than creating new initiatives from scratch. You can also ensure your existing care programs have optimal enrollment by catching patients who may not have been enrolled.

This means increased effectiveness of clinical interventions and funded resources—a win-win for patient outcomes and your organization as a whole.

QUICK WIN #2
STREAMLINE MEDICATION NEEDS

ADJUST PATIENTS' MEDICATION REGIMEN TO REDUCE PILL BURDEN, IMPROVE ADHERENCE, AND REDUCE COSTS

Polypharmacy is a phenomenon of taking many medications, often long-term. While these medications provide patients with essential disease and symptom management, as more and more medications are added, it becomes more difficult to take all pills as prescribed.

Polypharmacy can be a challenge for patients, who face the cost burden of copays for multiple prescriptions, difficulty organizing medications into a daily routine, as well as increased risk of medication interactions.   It's also a source of increased pharmacy costs: oftentimes, in a group of patients, those with the highest number of medications and chronic diseases generate the highest pharmacy costs. Fortunately, the ACG System can help providers simplify medication needs to improve patient overall health and well-being.

HERE'S THE STRATEGY:

Use the ACG System's Active Ingredient Count to understand the burden of polypharmacy and which patients are taking multiple medications. Establish a set number of medications as a threshold, adjusting for local prescribing patterns (we at Johns Hopkins commonly use 16 meds in a year). Once you've identified the patient group with polypharmacy, you can work with clinical pharmacists to complete person-level medication reviews, ensuring all medications are still required and evaluating which may be eliminated or are causing unwanted side effects.

Active Ingredient Count	% of Members	Mean Annual Pharmacy Cost Per Member ($USD)
0	34.7%	$3
1	15.9%	$154
2	11.9%	$475
3	8.5%	$749
4	6.4%	$882
5	5.0%	$1,247
6	4.1%	$1,614
7	2.8%	$1,851
8	2.5%	$2,713
9	1.8%	$2,773
10	1.2%	$2,718
11	1.1%	$2,722
12	0.7%	$3,770
13	0.7%	$5,537
14	0.6%	$4,746
15+	2.0%	$6,973

LARGER ACTIVE INGREDIENT COUNT GENERATES HIGHER ANNUAL PHARMACY COST

THE WIN

This deceptively simple analytics tool can help tackle a complex, costly problem. By pinpointing specific patients who may be taking too many medications, struggling with monthly copay costs, or who may be suffering unwanted side effects, the ACG System helps providers offer specific interventions to streamline medication use and reduce adverse reactions. The result? Patients feel better, are more adherent, and pharmacy cost goes down. For us, that's a win-win.

QUICK WIN #3
EFFECTIVELY MANAGE MULTIMORBIDITY

PATIENTS WITH MULTIPLE CHRONIC CONDITIONS

One of the largest sources of health care costs are patients with multiple chronic conditions, often referred to as multimorbidity. The health impacts of multimorbidity are well-documented: increased need for health care services, worse single-disease outcomes, and increased mortality risk.[1] The presence of multiple long-term health conditions presents day to day challenges for patients and providers alike. Patients may struggle with multiple specialists, prescriptions, and higher out-of-pocket costs. Providers often encounter conflicting quality metrics and management recommendations, which, frustratingly, are often focused on single disease states.[2] With the ACG System, users can pinpoint patients with multimorbidity, understand common disease categories and groupings, and ensure patients are receiving the best possible care.

MULTIMORBID PATIENTS INCUR MOST HOSPITAL DAYS, EMERGENCY DEPARTMENT VISITS AND COST

No. of Chronic Conditions	% of Patients	Average Cost PPPY ($)	Average no. of Days in Hospital PPPY	Rate of ED Visits PPPY (Population Mean of One)	Average Risk of Hospitalization
0	48.9%	1454	0.00	0.5	1%
1	18.1%	4566	0.05	0.8	3%
2	11.4%	8268	0.16	1.1	4%
3	7.4%	11704	0.35	1.1	6%
4-7	11.6%	21955	1.12	2.4	10%
8+	2.7%	53147	7.44	5.6	25%

How does it work? With the ACG System's segmentation analysis tool, users can divide their patient populations into groups based on number of health conditions. Using gap analysis on these groups, users can verify if they are meeting desired targets for services and care for these specific types of patients. Going a step further, ACG System users can drill down into disease patterns within each subgroup, or take a single disease (like diabetes) to understand common comorbidities.

WANT TO KNOW MORE?

See how an integrated health delivery system in Israel used the ACG System to pinpoint high-risk patients for enrollment in a complex care management program by clicking HERE.

THE WIN

The ACG System allows users to quickly target specific patient groups for further analysis. In the case of patients with multimorbidity, this allows providers to better meet the needs of the most medically complex patients in the entire population, focusing beyond single-disease quality metrics and workflows. By streamlining these patients' care and prioritizing their needs, providers can reduce emergency department visits, hospitalizations, and ensure optimal use of specialists. And if you ask us, that's one in the win column.

QUICK WIN #4
## MAXIMIZE PRIMARY CARE PROVIDER (PCP) USAGE

Primary health care is essential to optimizing health, managing acute health needs, and helping patients navigate complex health care needs. Primary care providers (PCPs) can identify, treat, and manage chronic disease, and in many cases prevent complications or worsening. Patients with routine primary care have fewer disease complications, acute needs, and health care costs than those who do not access primary care. So how can organizations ensure patients are fully utilizing the benefits of PCP care?

ACG System users can rapidly identify patients with chronic disease and moderate-to-high health care needs who have not accessed primary care services.* By sorting a patient population using the 'generalist seen' marker, users can quickly find out which patients have had a recent primary care visit, and which have not. When combined with the ACG System's Resource Utilization Bands (RUBs), which break patients into groups based on anticipated health needs, users can easily identify patients who have not seen a PCP recently and may benefit from a visit.

The ACG System team's population health experts recommend an inital focus on patients in **RUB 2, 3 or 4** without a generalist seen. Patients in these groups will typically have acute medical needs or moderate chronic conditions that would benefit from generalist services, to prevent worsening and facilitate preventive screenings. Users may include **RUB 5** patients in the analysis; however, those few RUB 5 patients without a generalist visit typically have serious conditions (such as oncology or frailty-related needs) that are being managed by a specialist.

PARTICIPANTS IN EACH CATEGORY WITHOUT A PCP ENCOUNTER
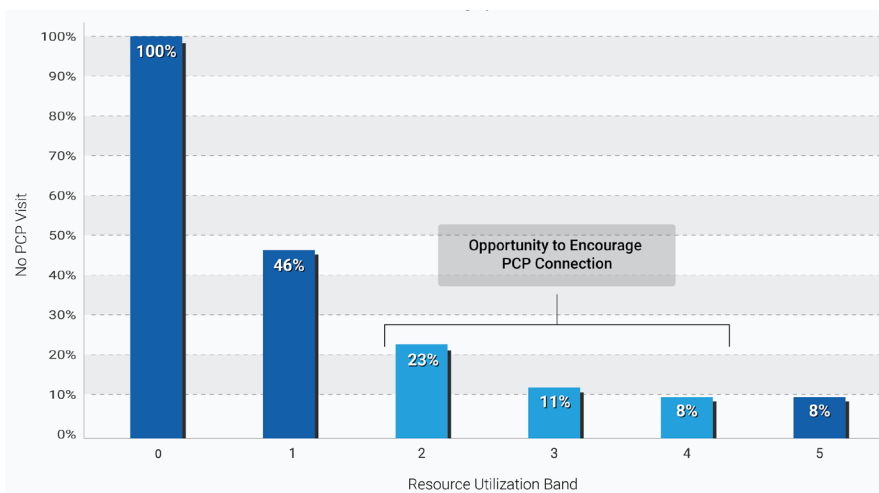
THE WIN

The ACG System's pre-existing measures and ability to easily drill down makes it easy to target patients who could benefit from primary care services. Providers can help patients reconnect with their PCP if they have a historical relationship with one, or assist in getting patients connected to a PCP if they don't have one. All in all, this helps to provide essential preventive care, identify new health conditions early, and increase patient satisfaction with the health system. In our book, that's a winning combination.

* The ACG System defines generalist as family medicine, internal medicine, geriatrician, preventive medicine, pediatrician, or, for women, OBGYN services.

QUICK WIN #5
REDUCE AVOIDABLE EMERGENCY DEPARTMENT VISITS
IDENTIFY AND ADDRESS POTENTIALLY AVOIDABLE EMERGENCY CARE

Emergency Departments (EDs) are an essential link in the health care system; however, they can often become safety nets for non-urgent health care needs or treatment of conditions that could have been addressed in a primary care setting. ED visits for non-urgent conditions strain limited health care resources, incur unnecessary health care costs, and contribute to suboptimal care coordination. Fortunately, the ACG System can help users identify and address these potentially avoidable visits, to streamline access to health services for patients.

The ACG System classifies ED visits into eleven granular categories. System users may use the visit- and patient-level outputs to quantify trends by patient type, chronic disease, and provider subgroup. The ACG System easily identifies patients who have ED visits for non-emergent or PCP-treatable diagnoses. Ultimately, this classification system reveals visits that could have been addressed at a lower level of care.
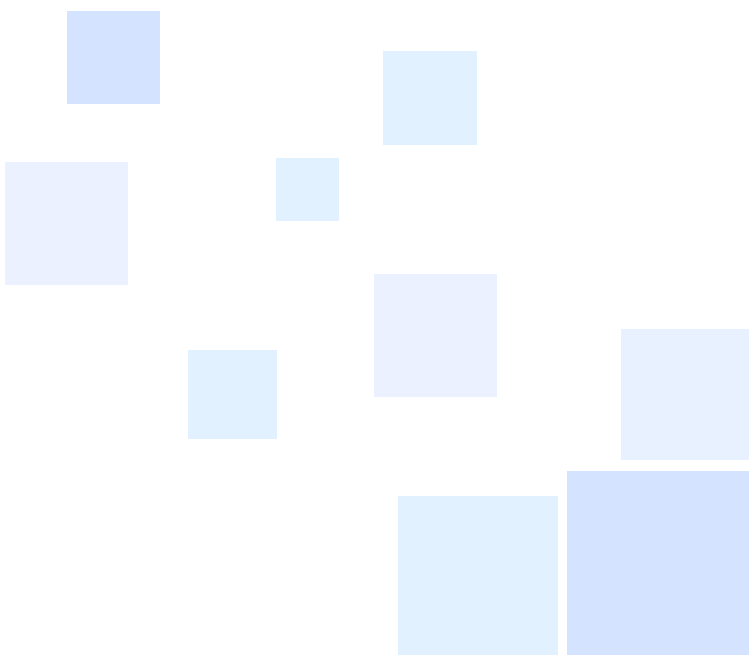
WANT TO KNOW MORE?

Take a deep dive into ED visit classification statistics and how they can reveal potential cost savings by clicking HERE.

View the infographic HERE.

THE WIN

When ACG System users know which patients could benefit from care coordination, they can take action, whether connecting these patients with a primary care provider, educating patients on preventive care, or utilizing case management. Revealing data to provider and health system stakeholders can drive change, particularly in situations where Emergency Departments are overburdened. Ultimately, analytics-driven interventions can reduce unnecessary ED visits, improve primary care relationships, and free up ED resources for more critical patient needs. That's a win in our book.

QUICK WIN #6
OPTIMIZE EXISTING PROGRAMS

IMRPOVING EFFICIENCY OF EXISTING HEALTH CARE PROGRAMS

Care management, disease management, and transitional care are critical tools to support patients with chronic disease and to optimize outcomes. These essential programs are often resource-intense and some of the most expensive to operate—making their efficiency a top priority. The ACG System can help users confirm existing programs are running at optimal performance, and more finely target the right program for each patient, to make better use of resources.

How does it work? The ACG System's patient-level clinical markers support detailed analysis to refine program targeting. Once an organization has defined enrollment criteria, the ACG System can automate program referrals and, where appropriate, program enrollment. For instance, users may flag patients with a specific chronic disease so they can receive automated information about a disease management program, while system users can leverage predictive markers and multimorbidity measures to refer patients to programs for more complex care. Additionally, specific markers can help identify patients to exclude from certain programs, such as pregnant patients, patients with cancer diagnoses, or specific age groups, such as pediatrics. Clinical resources such as physicians and nurse practitioners may focus on patients with multiple chronic diseases, more complex needs, or high risk of cost, hospitalization or readmission. The ACG System's ability to stratify a patient group by level of health risk can help target specific groups that need services from specific programs.

To illustrate, let's look at an example of a diabetes medication adherence program. In a single practice, 1134 patients were eligible based on initial criteria of suboptimal MPR (medication possession ratio) – clearly too many for the PCPs to manage as a bulk referral list. How can the panel be optimized to make the best use of the clinician's time?

- 10% of the target patients had not seen a PCP in the past year.* These patients can be outreached by office staff to schedule a routine PCP appointment, in alignment with best practices for patients with diabetes.

- Half the patients had suboptimal adherence and polypharmacy.** These patients may see the clinical pharmacist for review of overall medication regimen and assistance with medication adherence.

- 81 patients had Emergency Department visits for non-emergent purposes, and can be referred to the practice's nurse-led ED diversion program to ensure optimal preventive and urgent care.

- 10% of patients were at risk of having total cost in the top 5% range in the coming year. PCPs can focus their efforts on this subset of the overall cohort, narrowing the intervention population to a more manageable size.

THE WIN

No matter what the unique health care needs of your patient population, the ACG System can assist you in optimizing program performance with its ability to identify specific patient groups. The benefit? Patients receive the care that is best for them, staff workflows are optimized, and clinicians can focus attention on high- and rising-risk patients who need the most care. Sounds like a win-win to us.

*As identified by the ACG System's 'Generalist Seen' metric
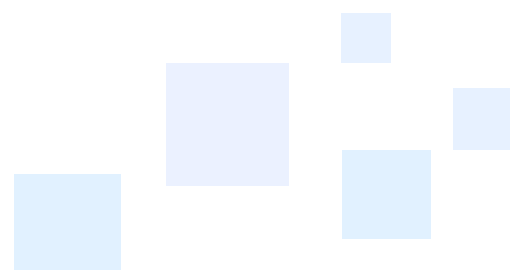** As identified by the ACG System's 'Active Ingredient Count' metric

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QUICK WIN #7
IDENTIFY AND ADDRESS VARIATION
UNDERSTANDING VARIATION ACROSS YOUR PATIENT POPULATION

Any patient population can be divided into Adjusted Clinical Groups (ACGs), where each group represents a different level of expected health care need. While patients within a single ACG are similar in terms of health care need, the truth is there can be a wide variation in costs between patients in the same health category. Some ACG System users see up to 4-fold cost variation within a single category. Determining the reason behind this variation can be tricky, but is critical to uncover challenges related to patient care and provider efficiency. Some discrepancy may be due to natural variation, while others may be caused by inefficiency in care, a breakdown in the health care system, or challenges in patient access and self-management. The ACG System can help identify what is driving this variation so that these factors can be addressed properly.

The ACG System can easily distinguish variation within patient groups by allowing users to examine prior costs and clinical attributes for patients in a particular ACG. The System can also determine which services are associated with these costs (emergency care, for example) to help users understand what led certain patients to be in the specific ACG in the first place. Importantly, with ACG System analytics tools, users can also see non-morbidity-related factors that may be contributing to variation between patients, such as patient behavior, over-provision of services, care coordination challenges, barriers to access, and more. ACG System users commonly deep-dive into subsets of patients with a moderate-to-high level of complexity, patient subsets with costs 2-3x more than the group average, or patients greater than two standard deviations from mean cost.

While these techniques are focused on US customers, we have parallel suggestions for international ACG System users, developed by our team based in Europe with support from one of our UK users, Sollis. Please contact us for more information.

THE WIN

With a few simple steps, users of the ACG System can identify and diagnose variation in their specific patient groups, catching any potentially unnecessary variation in cost. Knowing what variations exist and why they are there can help providers streamline procedures and services, increase access to care, and ultimately improve the care patients receive and reduce health care costs. And that's a winning combination, if you ask us!

ABOUT THE **ACG SYSTEM**

The Johns Hopkins ACG System is the world's leading population health analytics software. The system continues to evolve, providing ever-more refined tools used in the US and across the globe for over 30 years, from commercial health plans and governments to health systems and large employers. The beauty of the ACG System is its ability to combine data from an array of sources to reveal powerful insights that go beyond just medical records.

By identifying risk and tracking patients over time, the ACG System can help you plan ahead and reduce health care costs—especially valuable to risk-bearing health systems and provider organizations. Most importantly, the ACG System allows you to be proactive rather than reactive when it comes to your population's unique health care needs. The system helps you combine a population-level perspective with patient-level behaviors and conditions. And because the system is incredibly flexible and responsive to new information, you can rest assured that no matter what comes next, the ACG System will continuously adapt to your health care management needs.

TO LEARN MORE

Please visit www.hopkinsacg.org or email acginfo@jh.edu

1. See https://www.sciencedirect.com/science/article/pii/S0895435600003632
2. See https://pubmed.ncbi.nlm.nih.gov/16091574/