

10 Quick Wins in Population Health Analytics



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Introduction

Whether you're new to population health management or looking to expand your current approach, this guide shows how the Johns Hopkins ACG® System can help you achieve meaningful results quickly. As the NHS delivers its [10 Year Health Plan](#) — with a greater focus on accessible neighbourhood health services, prevention and proactive, personalised care — organisations are increasingly bringing together primary, community, local authority and voluntary sector partners to deliver more coordinated, person-centred care.

Population health analytics provides the intelligence to support this shift. Drawing on real examples from across the NHS, these 10 Quick Wins show how providers, Integrated Care Boards (ICBs), trusts and primary care organisations can use the ACG System to identify patients earlier, target interventions more effectively and improve outcomes and patient experience within their communities.



Together, these analytic tools and corresponding Quick Wins show how population health management can support the ambitions of neighbourhood health — enabling Integrated Neighbourhood Teams to identify needs earlier, coordinate care around the person, improve continuity of care across care settings, reduce pressure on acute services and use data-driven insights to improve equitable access to care.

Coordinate Patient Care across Neighbourhood Services

As the NHS renews its focus on neighbourhood health, prevention and proactive care, understanding who needs support — and how to provide it in a coordinated way — has never been more important.

Bringing care closer to people and organising services around their needs is central to neighbourhood health. The challenge lies in identifying which patients will benefit most from earlier support and connecting them with the right multi-disciplinary teams across community and health and care organisations.

The ACG System helps Integrated Care Boards and health and care providers build a clearer picture of their population by looking beyond individual diagnoses or risk scores to the whole person's needs. By analysing clinical information, healthcare utilisation and social needs factors, users can identify people whose needs are changing — often before they reach a crisis point.

Neighbourhood teams need to know both **who** to prioritise and **how** care is being coordinated. The clinically meaningful **Patient Need Groups (PNGs)** segmentation framework, combined with care modifiers that help identify care coordination risk, highlight people who are most likely to benefit from proactive intervention.

The ACG System's **care density** metric complements this by showing how well a patient's care is connected across clinicians and care settings. Lower care density can indicate fragmented care and highlight opportunities to strengthen collaboration between providers and improve continuity of care.



THE WIN

Using the ACG System, neighbourhood teams can proactively identify people who are most likely to benefit from coordinated support based on their clinical needs, social factors and indicators of care coordination risk.

Care density insights then help teams understand how well care is connected across clinicians and care settings, highlighting opportunities to strengthen collaboration, improve continuity of care and target resources where they will have the greatest impact.



IN PRACTICE

Cheshire East, part of Cheshire and Merseyside ICB, is using a data-driven population health management approach, combined with community services, to transform neighbourhood care for residents with complex health and care needs.

Using the ACG System's PNG segmentation model within Graphnet's population health platform, Integrated Neighbourhood Teams identified high-risk, high-needs cohorts for holistic community care across eight targeted areas.

The programme reduced Emergency Department (ED) attendances by up to 48%, while improving outcomes for residents living with complex needs, frailty and high utilisation.

Support More Equitable Access to Care

Reducing health inequalities and improving equitable access to care remain central to good neighbourhood health and population health management. Neighbourhood health is built on understanding the needs of local communities and ensuring people can access the right care, in the right place, at the right time.

The ACG System supports more equitable care by providing a richer understanding of population needs, by considering clinical complexity, multimorbidity and wider determinants of health. By understanding differences in need across communities, teams can prioritise services more effectively and allocate resources more fairly — targeting interventions where they are needed most.



THE WIN

With just a few steps, the ACG System enables teams to identify areas where need is greatest, so resources and services can be targeted more effectively.

Using **PNGs** to segment the population and identify clinical complexity, users can then apply **care modifiers** and **social need markers** to identify risk drivers such as access to transport, food insecurity, housing needs, medication needs and frailty risk. By understanding the needs of different cohorts within communities, neighbourhood teams can co-design services with the people they serve.



IN PRACTICE

At [Brookside Surgery](#) in Berkshire, PNG segments were used to inform a digital triage system that prioritised patients according to clinical need. By combining historical population health insights with patients' presenting symptoms, the practice improved equitable access to care, ensuring patients were directed to the right clinician the first time — regardless of whether they contacted the practice by phone, online or in person.

Call waiting times fell from 18 minutes to 4 minutes, and the practice received national recognition for their work through the HSJ Award for Improving Primary Care Through Digital.

Effectively Manage Multimorbidity

Multimorbidity – the presence of multiple long-term conditions – is one of the strongest indicators of future healthcare need and resource use. People living with multiple conditions often face complex care journeys, including multiple appointments, competing treatment priorities and challenges managing their health day to day.

The ACG System helps ICBs and neighbourhood teams understand the full complexity of an individual's health needs by looking beyond a single disease or risk factor. By combining diagnoses, prescribed medications, healthcare utilisation and social risk, teams can identify people whose needs are changing and who may benefit from proactive intervention.

Teams can use these risk markers to segment populations, identify patterns of multimorbidity and utilisation, and align interventions with the people most likely to benefit. Considering frailty alongside multimorbidity and utilisation helps organisations identify individuals who may benefit from earlier, more coordinated support.



THE WIN

The ACG System provides multiple **risk markers** and **predictive models** which enables teams to quickly identify **cohorts of people with complex needs**, without relying on manual searches across multiple disease registers.

By identifying people earlier and connecting them with the right support, organisations can work across neighbourhood teams to coordinate support, improve patient experience and efficiently allocate resources.



IN PRACTICE

Slough CCG (now part of Thames Valley ICB) used the ACG System to understand the factors driving healthcare costs and hospital utilisation. The analysis found that 5% of the population accounted for over 40% of costs, and that multimorbidity was a stronger predictor of both cost and hospitalisation risk than age, frailty or any single high-impact chronic condition such as diabetes or heart failure.

By identifying people with complex needs, high costs and increased hospitalisation risk, and enrolling them in a complex care management programme, the organisation achieved an 18% reduction in unplanned hospitalisations and a 19% reduction in ED attendances.

Multimorbid Patients Incur Most Hospital Days, Emergency Department Visits and Cost

No. of Chronic Conditions	% of Patients	Average Cost Per Patient Per Year (PPPY) (£)	Average no. of Emergency Bed Days Per Patient Per Year (PPPY)	Rate of ED Attendances (Population Mean of 1.0)	Average Risk of Emergency Admission
0	52.8%	360	0.07	0.76	2%
1	22.2%	778	0.18	0.99	4%
2	10.4%	1317	0.44	1.21	6%
3	5.8%	1886	0.73	1.40	9%
4-7	7.7%	3203	1.93	1.74	16%
8+	1.1%	6444	5.47	3.21	35%

Match the Right Patients to the Right Care Management Programmes

Care management programmes provide targeted support for people with complex needs and long-term conditions. A key challenge is identifying the individuals most likely to benefit and ensuring they receive the right support at the right time.

Using existing enrolment and discharge criteria, teams can apply the ACG System's risk markers to create customised case-finding searches and generate targeted patient lists. These insights, combined with local clinical knowledge, help healthcare teams prioritise people for referral to care management programmes and other ongoing support.

Case-finding criteria can also support programme evaluation by identifying comparable groups of patients who are, and are not, enrolled in an intervention, enabling matched cohort analysis to assess impact and outcomes (see Quick Win #8).



THE WIN

Using the ACG System, teams can identify people who meet the criteria for care management programmes and compare them with those already enrolled. These insights help identify individuals who may benefit from proactive intervention but are not yet enrolled, and ensure resources are directed to the people most likely to benefit. By supporting more targeted care management, neighbourhood teams, community services and primary care can better coordinate care around the person.



IN PRACTICE

Kumar Medical Centre is using the ACG System's Patient Need Groups within Graphnet's population health platform to better understand the complexity of its patient population and improve care delivery. By moving beyond traditional disease-based reviews, the practice can identify patients with the most complex needs, prioritise proactive reviews and optimise care pathways.

This approach has helped improve patient outcomes, increase efficiency and support better demand management – including a ~14% increase in capacity released per 1,000 encounters, and around 88% of proactive long-term condition reviews completed ahead of the winter period.

Kent and Medway Integrated Care Board identified the highest-need patients who would benefit from targeted interventions, using the ACG System's segmentation and risk stratification capabilities.

Within a complex-need cohort of 10,000 people, around 70% gained access to an increased number of community services, and the programme is estimated to have prevented approximately 600 emergency admissions in its first six months.

Identify and Support Rising-Risk Patients

As the NHS continues to develop neighbourhood health services, there is a growing focus on preventing ill health, intervening earlier and delivering more proactive care closer to home. ICBs need to identify people whose needs are changing sooner — before they become high users of healthcare services.

Clinically meaningful population segmentation and risk stratification can help organisations identify rising-risk patients — such as those with a single chronic condition — quickly and easily, before their needs become more complex. Additional **social need markers** — such as frailty, housing instability or transport access — can further inform the factors driving risk and affecting a person's ability to access care or stay adherent to treatment.

Using clinical risk markers and **unplanned hospitalisation predictive risk models**, organisations can better understand local need and identify the patients most likely to benefit from proactive support. Combining these insights with local clinical knowledge helps neighbourhood teams target resources where they will have the greatest impact, bringing together primary, community and wider partners to deliver more personalised, preventive care closer to home.



THE WIN

Teams can use the ACG System's **risk stratification and segmentation** tools to identify rising-risk patients earlier, pinpointing individuals with low to moderate risk factors — including diagnoses likely to contribute to a hospital admission.

Neighbourhood health teams can then target proactive interventions before health needs escalate, strengthening services and supporting more personalised, preventive care closer to home.

IN PRACTICE

Thatcham Medical Practice is using the AGG System's segmentation and stratification capabilities to analyse how patients are interacting with health and care teams and ensure they are seen at the right time by the right care team, based on their needs.

The team found that 43% of face-to-face visits were with lower-risk patients, while fewer than 10% of face-to-face visits were with high-risk patients, despite their higher and more complex needs. The analysis allowed the practice to proactively direct patients to the most appropriate care based on clinical need, resulting in increased telephone consultations for lower-risk patients; a 5% increase in face-to-face consultations for higher-risk patients, and leading to better complex condition management and a trend towards reduced hospital admissions.

Reduce Avoidable Emergency Department Visits

Emergency Departments play a vital role in delivering urgent care, but some visits involve care needs that could have been managed in primary or community care settings. Understanding patterns of potentially avoidable ED use helps organisations improve care coordination, strengthen relationships, optimise resource use and support more appropriate access to services.

The ACG System helps teams identify and address potentially avoidable visits by classifying ED visits into eleven categories. Analytics are available at both the visit level and the patient level, enabling organisations to understand trends by patient type, chronic disease and GP practice or neighbourhood subgroup.

By identifying patients whose ED visits may have been better supported through primary, community or neighbourhood-based services, the ACG System provides actionable insights to inform targeted interventions, improve care pathways and support more proactive models of care.



THE WIN

Using the ACG Systems ED classification tool, teams can quickly understand reasons for emergency service use and identify those at increased risk of future ED admission.

Neighbourhood teams can then create clear patient messaging, connecting people with the most appropriate services based on their needs. This supports earlier intervention, improves patient experience, reduces potentially avoidable ED attendances and helps optimise the use of NHS resources.

IN PRACTICE

Frimley Health and Care Integrated Care System (now Thames Valley ICB) used the ACG System's ED classification tool alongside clinical segmentation to better understand patterns of emergency care use and population need. The analysis found that 15% of ED attendances were driven by patients with minor illnesses and low to moderate clinical need, with a 12.8% ED admission rate — highlighting an opportunity for targeted intervention.

Using these insights, health and care teams strengthened care coordination between primary and secondary care, improved continuity of care and optimised resources by supporting patients to access care in cost-efficient community settings based on their individual needs.

Identify and Address Polypharmacy

As prescribing volumes and associated costs increase, organisations need to manage appropriate medication use, support patient safety and make effective use of NHS resources. While medications are essential for managing some health conditions, polypharmacy can increase treatment complexity, medication burden and the risk of adverse effects. Identifying people who may benefit from a medication review helps ensure treatment remains aligned with individual needs.

Prescription patterns are one of the most clinically rich – and often underused – signals in population health analytics. Beyond financial impact, **pharmacy data can reveal clinical complexity, treatment burden, potential gaps in care and emerging health needs, even where diagnosis data is incomplete.**

The ACG System helps teams identify people who may benefit from structured medication reviews by analysing medication burden, including **Active Ingredient Count**, which captures the number of unique active ingredients in a person's pharmacy history. **Rx-Morbidity Groups** (RxMGs) provide additional insight into condition burden and clinical complexity based on prescription patterns.



THE WIN

This practical set of analytic tools helps organisations address the complex challenges associated with medication burden. By combining medication insights with clinical and utilisation data, the ACG System helps GPs, pharmacists and care teams identify opportunities for earlier intervention, support personalised care and ensure medications remain appropriate for each person's needs. This leads to safer use of medications, improved patient experience and more effective use of health and care resources.



IN PRACTICE

Healthcare organisations are using the ACG System to combine pharmacy data with wider population health insights. By understanding medication burden alongside clinical complexity and wider health needs, teams can focus support where it is most likely to improve outcomes and quality of life. [Read our blog](#) to learn more about how pharmacy data and the ACG System can help identify opportunities for medication optimisation and support more personalised care.

Larger Active Ingredient Count Generates Higher Annual Pharmacy Cost

Active Ingredient Count	% of Patients	Mean Annual Pharmacy Cost Per Patient (£)
0	41.0%	0
1	14.8%	9
2	10.4%	26
3	7.3%	49
4	5.4%	76
5	4.1%	110
6	3.2%	150
7	2.6%	192
8	2.0%	223
9	1.8%	281
10	1.4%	314
11	1.1%	354
12	0.9%	395
13	0.8%	436
14 +	3.2%	633

Evaluate Interventions and Outcomes

As neighbourhood health services are deployed, understanding whether interventions are delivering the intended outcomes is critical for health and care teams. This allows organisations to determine which population health management strategies are effective, and where to direct resources for the greatest impact.



THE WIN

The ACG System's risk markers can be used to generate a **case-mix index** for a group of patients not enrolled in an intervention programme, enabling comparison of their health risks with those of similar characteristics who are enrolled. This **case-mix adjustment** — using statistical methods such as **matched cohort analysis** — provides a practical, repeatable way to evaluate programme effectiveness, refine service delivery models and target investment towards the interventions that deliver the greatest benefit for patients.



IN PRACTICE

East Kent Hospitals and East Kent Health and Care Partnership used the ACG System risk markers to evaluate its multidisciplinary diabetes service using Propensity Score Matching. By creating matched patient cohorts based on clinical complexity, multimorbidity, medication burden and social need, the team was able to compare like with like — creating a repeatable evaluation approach now used across other services and demonstrating that patients who received the intervention experienced a reduction in hospital visits and bed days.



Propensity Score Matching using clinical markers from the ACG System enabled us to compare 'apples with apples', while allowing for case mix complexity. It has sped evaluation up by a ridiculous amount and given us a much better evidence base using statistical techniques that provide robust evidence."

— **Tim Jones, Population Health Statistician, East Kent Hospitals and East Kent HCP**



Support Palliative and End-of-Life Care

Supporting people to receive high-quality, personalised end-of-life care is an important, yet often overlooked, part of population health management. More than [40% of deaths](#) in England and Wales occur in the hospital, despite only 6% of people saying they would prefer to die there. Earlier identification of patients who may benefit from palliative care enables care teams to have timely conversations to help ensure end-of-life care aligns with each person's wishes and coordinate support across services.

The ACG System supports this by incorporating the [Mortality Risk Score \(MRS\)](#) algorithm, which predicts the risk of mortality in the adult population over the next 12 months. The MRS helps organisations identify patients who may be approaching the end of life but are not yet on the palliative care register.

By comparing people with the highest mortality risk against those already receiving personalised palliative and end-of-life care, teams can identify opportunities for clinical review and earlier intervention.



THE WIN

Personalised end-of-life care leads to better quality of care, tailored around what matters most to the individual and reflecting the wishes of patients and families. A proactive, data-driven approach helps reduce avoidable hospital admissions and supports more efficient use of NHS resources — recognising that most people prefer not to die in hospital. The **Mortality Risk Score**, included within the ACG System enables teams to **stratify** their population and identify individuals who may benefit from earlier palliative and end-of-life care planning, often delivered in the community rather than in hospital.



IN PRACTICE

[Dorset ICS](#) used the ACG System to identify patients across its population who were likely to be approaching the end of life, enabling earlier, more proactive palliative and end-of-life care planning. Analytic insights demonstrated that increased identification and enrolment of individuals to the end-of-life programme contributed to a reduction in 600+ ED visits, 500+ fewer emergency inpatient admissions, up to 5,000 bed days saved and an increase in people dying in their preferred place of death.

Allocate Fairer Funding to GP Practices

Every patient population has different characteristics, with variation in clinical complexity, health needs and service use. This variation can arise when GP practices are funded differently, or when some care for more complex patients than others. Understanding this variation helps provider organisations identify where care can be improved, reduce health inequalities and ensure resources are used effectively – supporting neighbourhood health teams to design care around local needs rather than organisational boundaries.



The ACG System supports this by grouping patients into similar levels of expected healthcare need, based on their **case-mix**. Even within an ACG group, however, there can be significant variation in outcomes, service use and cost between individuals with similar levels of need. Understanding why this variation exists is critical – some may be expected, while other differences may highlight opportunities to improve care coordination, patient sharing between clinical teams and more equitable access to community and social services.

THE WIN

Use the ACG System to examine patients within similar clinical groups and measure **observed-to-expected ratios**, exploring why some people have higher levels of healthcare use or poorer outcomes than others. ACG System analytics help identify patients or population groups with higher-than-expected utilisation, understand the services driving this variation and focus improvement efforts where they will have the greatest impact.

IN PRACTICE

NHS Leicester, Leicestershire and Rutland (LLR) ICB used the ACG System to develop its Health Equity Payment (HEP) model – an innovative approach allocating funding to GP practices based on population need, rather than the traditional Carr-Hill funding formula. Using case-mix adjustment and Areas of Deprivation Indices (ADI), the team made a true comparison of practice performance based on variation in patient needs, and allocated resources more fairly.

The model also accounts for patient turnover and communication needs, better supporting practices serving populations experiencing greater health inequalities. Independent evaluation by the [Health Foundation Improvement Analytics Unit and the Strategy Unit](#) found the updated funding allocation improved staffing based on patient need, increased access and improved patient experience, and gave practices greater flexibility to invest in services that best met local needs.



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 U.S. 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 healthcare 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 healthcare needs. The System helps you combine a population-level perspective with patient-level behaviours 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 healthcare management needs.

Discover the value and impact of the ACG System for your organisation.

Contact our team today.

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