

### INTRODUCTION

A team of health care professionals at [Kumar Medical Centre](#) in Slough is using the new segmentation tool within the Johns Hopkins ACG<sup>®</sup> System to help ensure patients are seen at the right time, by the right health care professional for the right amount of time. Patient Need Groups<sup>1</sup> (PNGs) is a segmentation tool that categorises people by their overall level of complexity – taking into account all of the diseases and conditions they have. The PNGs are clinically relevant, mutually exclusive and hierarchical.



Frimley Integrated Care System (ICS) has developed a nationally leading population health intelligence capability that builds upon a mature shared care record programme called Connected Care, which is supported by Graphnet and incorporates the ACG System. Using Connected Care and PNGs, the team at the Kumar Medical Centre (KMC) were immediately able to segment people needing a [Quality and Outcomes Framework](#) (QOF) review based on their level of complexity. This has helped KMC to transform their approach to the annual QOF review process.

### THE CHALLENGE

A key component of the QOF is to help improve outcomes for patients with certain conditions. GP practices are encouraged to maintain a register of patients with 19 conditions and ensure their care and medication is managed according to best practice. Typically, the process includes an annual review of the patient.

The team at KMC, led by Dr Priya Kumar, had up until recently carried out these reviews in a very traditional way — patients were invited for a review based on the month of their birth and the workload had been distributed amongst all qualified staff. All patients needing a review were treated the same, irrespective of whether they were complex and multimorbid patients — or relatively fit with just one of the QOF conditions.

Dr Kumar, who was familiar with PNGs from work in other parts of the Frimley Integrated Care System (ICS), saw an opportunity to redesign the QOF review process at the KMC. The redesigned process

would be able to address some of the limitations and unintended consequences of their historical approach — such as some people having to be seen more than once as the health care professional they first saw wasn't able to change their prescription; or seeing people most at risk of complications based on their complexity prior to the winter, to optimise their care.

Dr Priya Kumar explains: 'By using a population health approach and identifying our most complex patients using the Johns Hopkins Patient Need Groups, we are able to review the patients according to complexity rather than date of birth and allocate the right health care professional the first time.'

Dr Kumar wanted to challenge the current way of working and organise QOF reviews differently by planning QOF appointments for more complex patients earlier in the year, while resources were more flexible, and before seasonal pressures kicked in.

## THE SOLUTION

By using the Connected Care System Insights Population Health Management tool, all patients at the Kumar Medical Centre who needed a QOF review were assigned to one of the eleven PNGs.

Prioritising QOF by need — i.e., the PNG they are assigned to — means offering appointments for more complex patients earlier in the year. Complex patients account for approximately 60% of the bed days used at the local hospital, so the main aim is to optimise these complex patients' health prior to winter. The redesigned QOF review process also considered one or more of these factors:



The time of the year the patient needed to be seen



How long the appointment should be



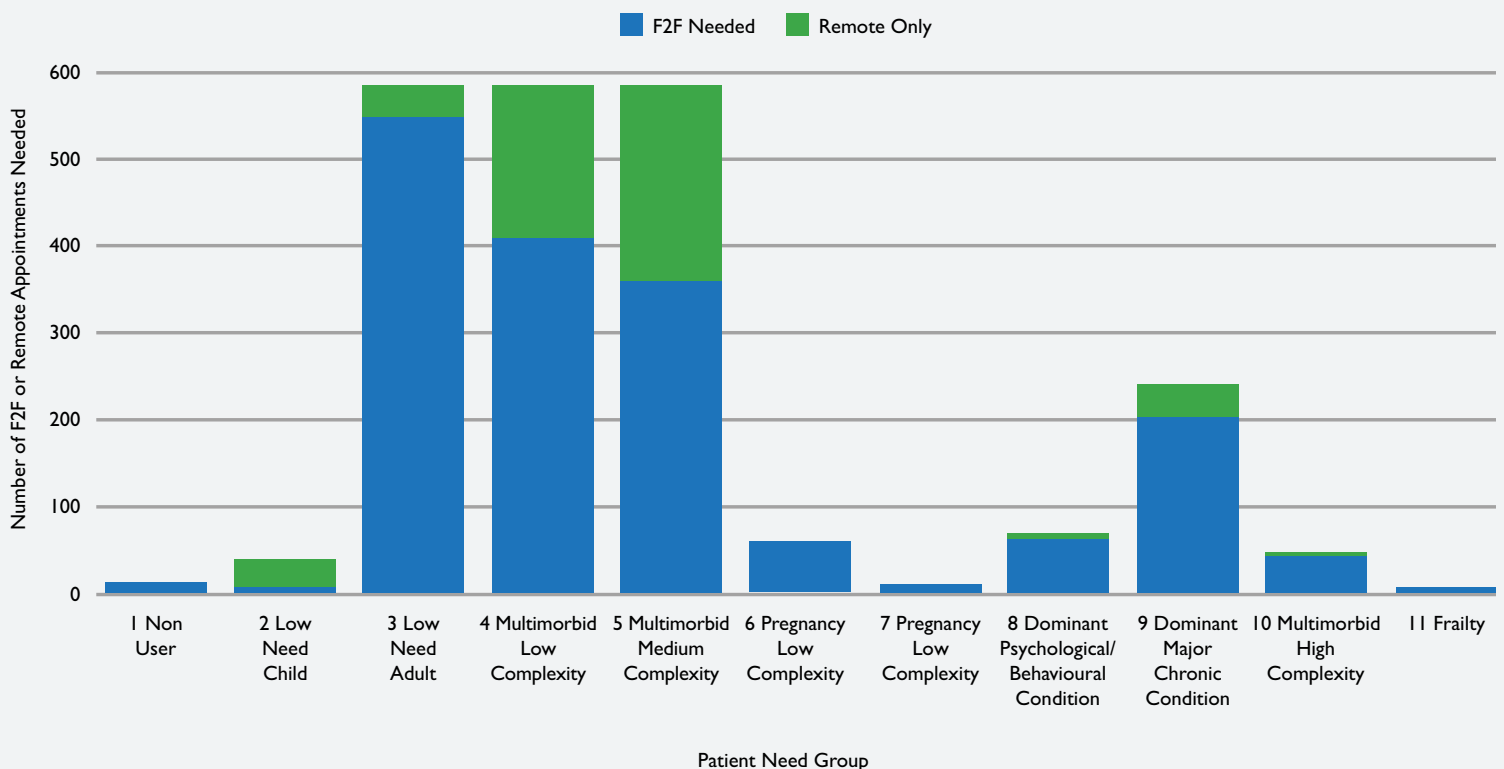
Which type of health care professional was best suited to assess the patient's overall need (not just the QOF condition)



Whether it needed to be a face-to-face appointment or whether the patient could be reviewed using digital technology

Dr Kumar says 'Once we had used PNGs to create our list, we realised that the most complex patients should be seen early in the financial year so we could optimise their health before autumn and winter and therefore reduce the risk of an emergency admission. It also meant we could allocate the right health care professional to the right patient and make the most efficient use of our personnel. For example, with a complex patient with diabetes or hypertension (PNG 9 and above) who is likely to have their medication reviewed – there is no point sending them first to a health care assistant to do the monitoring and then to the GP. We would simply allocate them to be seen by the senior diabetic nurse specialist in the first instance, who is trained to change the medication with the oversight of the GP. This approach creates vital GP capacity within the system to support other patients.'

Numbers of QOF Review Needed by PNG and Type of Appointment



Dr Kumar continues: 'We know that the PNGs are great at describing the complexity of individual patients — so we have used them to organise our QOF reviews in a different way. We have essentially redesigned QOF reviews so they work better for the clinicians who use them and to improve patient outcomes for our most high risk individuals.'

### An Example of How QOF Review Appointments are Now Scheduled

#### Kumar Medical Centre QOF Appointment Scheduling

	April	May	June	July	August
Target PNG Groups for F2F	PNG 9, 10 & 11	PNG 5	PNG 5	PNG 4	PNG 4
Target PNG Groups for Digital	PNG 4 & 5		PNG 9		PNG 3
Combined Face to Face	265	182	182	203	203
Combined Digital	283		39		37
Bitesize* Face to Face PNG 3	107	107	107	107	107
Total F2F Appointments Required	372	289	289	310	310
Appointments Per Day Required	19	14	14	16	16
Appointments Per Week Required	93	72	72	78	78
Appointments Per Month Required	372	289	289	310	310

\*Face to Face PNG 3 has been split up into “bitesize” chunks as these patients are low need but high in volume so a chunk is done every month. Most require cervical smears, an activity that does not impact on winter pressures.

### THE BENEFITS

The key short-term benefits have included:



Reduced repeat appointments due to more effective use of clinical time



Freed up clinical capacity, which is required in the winter months due to staff sickness



More efficient use of patient time with longer, single appointments



Providing better patient experience by efficiently managing patients where checks can be done entirely remotely



Prioritising the most frail and high-risk patients earlier in the year, ahead of winter

## Kumar Medical Centre QOF Achievement (Financial Year) compared to System Average in July 2023

Complexity Group	Patient Need Group	Indicator % for Kumar Medical Centre	Indicator % for Whole System (CCG)	Difference from System Average (%)
Lower Need Group	<b>Total</b>	<b>29.8%</b>	<b>27.7%</b>	<b>2.1%</b>
	2 Low Need Child	24.4%	30.4%	-6.1%
	3 Low Need Adult	9.1%	16.2%	-7.1%
	4 Multimorbid Low Complexity	36.1%	32.2%	3.9%
Moderate Need Group	<b>Total</b>	<b>48.8%</b>	<b>40.2%</b>	<b>8.6%</b>
	5 Multimorbid Med Complexity	49.6%	41.6%	8.0%
	6 Pregnancy Low Complexity	16.1%	13.6%	2.5%
	7 Pregnancy High Complexity	23.5%	22.8%	0.7%
	8 Dominant Psych Behavioural Condition	47.6%	37.2%	10.4%
	9 Dominant Major Chronic Condition	48.3%	39.4%	8.9%
Higher Need Group	<b>Total</b>	<b>54.3%</b>	<b>44.1%</b>	<b>10.2%</b>
	10 Multimorbid High Complexity	56.0%	44.2%	11.9%
	11 Frailty	46.1%	43.7%	2.4%
<b>Total</b>		<b>44.6%</b>	<b>36.9%</b>	<b>7.6%</b>

PNG 4 & 5: Remote health checks completed digitally

PNG 8, 9 & 10: Face to Face health checks prioritised for these groups

PNG 11: These patients are also part of the 'virtual ward' project and are being remotely monitored

Dr Kumar explains: 'After starting the process in 2023, we reviewed all the most complex patients by September, so their health had been optimised before winter! In fact, overall, we had carried out 70% of QOF reviews by September this year, as opposed to only 33% in the years before, allowing more time in the autumn to undertake vaccinations and more time in the winter months to see other patients more quickly.' As of November 2023, this figure had risen to over 90%.

Dr Kumar continues: 'By using a single metric we seem to have solved the perennial problem of not having enough appointments! Using PNGs, you can organise your resources to work much more efficiently for yourself, while also bringing benefits to the wider system. Patients are seen at the right time by the right health care professional for the right amount of time. The principle is fundamentally simple — but really effective!'

## OUTCOMES AND NEXT STEPS

The informatics team within Frimley ICS will be helping Dr Kumar and colleagues measure outcomes for people with QOF conditions — especially the most complex patients — to evaluate whether this new approach to managing QOF reviews has achieved the expected outcome of reducing the number of emergency admissions and lengths of stay.

Early data has shown two major benefits:

- There has been a reduction of 2.8% of urgent care activity for patients at Kumar Medical Centre (4.5% against the upward trend across Slough).
- There has been a reduction in Emergency Department attendances, admissions and LOS in Kumar Medical Centre's population between the end of August and the end of December 2023. Again, this is against an upward trend across the rest of Slough.

It is hoped that other GP practices within the ICS will adopt this simple and effective approach.

Note: The Patient Need Group segmentation methodology uses information about a person’s diagnoses, conditions and medication to assign them to one of eleven mutually exclusive segments. The eleven segments are:

Category	PNG No.	Description
High Complexity; Multi-Morbidity	11	Frailty
	10	Multi-Morbidity, High Complexity
Dominant Chronic	09	Dominant Major Chronic Condition
	08	Dominant Psychiatric/Behavioral Condition
Pregnancy	07	Pregnancy, High Complexity
	06	Pregnancy, Low Complexity
Moderate Needs	05	Multi-Morbidity, Medium Complexity
	04	Multi-Morbidity, Low Complexity
Healthy	03	Low Need Adult
	02	Low Need Child
	01	Non-User

## ABOUT THE JOHNS HOPKINS ACG SYSTEM

The ACG System is a flexible, transparent set of tools developed and validated by scientists and clinicians at the Johns Hopkins Bloomberg School of Public Health. Customers use the ACG System to segment their patient populations and to process their organization’s existing medical, pharmacy and lab data to generate clinical risk markers and predictive models at the population and patient level. The ACG System provides health care analytics teams with the insights they need to inform rapid decisions about patient care, resource planning and service design.



To learn more about how the ACG System can support your organisation, visit: [hopkinsacg.org](https://hopkinsacg.org) or contact us at [acginfo@jh.edu](mailto:acginfo@jh.edu). If you are an ACG customer, reach out to your Account Manager.

1 PNGs are an innovative segmentation model, that apply to all age groups and the whole population, building upon the ACG System’s whole-person approach to measuring health needs. There are eleven mutually exclusive segments that describe an individual’s health need based on the diseases and conditions they have.