Improving Cancer Services

Personalised Cancer Care Intelligence Framework

Understanding Individual Need, Shaping Individual Care

Draft Strategic Discussion Paper | Version 2.0

For Stakeholder Review and Contribution

Programme Overview

The Personalised Cancer Care Intelligence Programme is designed to help NHS organisations move beyond a one-size-fits-all approach to cancer support by using patient-reported outcomes, healthcare intelligence and population insights to better understand the differing needs of people living with and beyond cancer. Using the National Cancer Quality of Life Survey (CQOLS) alongside other NHS datasets, the programme identifies variations in patient experience, quality of life and support needs, helping organisations target personalised interventions where they are likely to deliver the greatest benefit.

The programme rests on a principle that has become central to modern healthcare philosophy but remains incompletely realised in practice: that what matters to the patient should be as important as what is the matter with the patient. Cancer care has made extraordinary strides in understanding the biology of cancer, in developing increasingly effective treatments and in improving survival rates across most tumour types. What it has sometimes struggled to do with equal consistency is understand the person behind the diagnosis - the individual whose experience of cancer and its treatment, whose priorities and fears and practical circumstances and social context, diverges from those of the person in the next clinic room who happens to share the same cancer type and treatment pathway.

CQOLS is the primary instrument through which this programme makes individual variation visible at population scale. By capturing patient-reported quality of life across five domains - mobility, self-care, usual activities, pain and discomfort, and anxiety and depression - and across the broader multidimensional profile of the EORTC QLQ-C30, CQOLS reveals the extraordinary diversity of experience that lies beneath the surface of any cancer diagnosis or treatment pathway. Two patients who have received identical treatment for the same cancer are, in their CQOLS responses, frequently remarkably different from each other - in the burden they carry, in the aspects of their lives most affected and in the kind of support most likely to help them. It is this diversity, made legible through systematic measurement, that personalised cancer care is designed to respond to.

Executive Summary

The Promise and the Gap

Personalised care has become an increasingly important component of modern healthcare, and in cancer specifically it has been given strategic prominence through NHS Long Term Plan commitments to ensure that every person with cancer receives a Holistic Needs Assessment, a personalised care and support plan and access to a Health and Wellbeing Event. These commitments reflect a recognition that is now well established in both clinical evidence and patient experience research: that the needs of cancer patients vary enormously, that generic service models systematically fail to meet those needs, and that more targeted, individualised approaches to support and follow-up consistently produce better outcomes and more efficient use of resources.

The gap between this recognition and its consistent realisation in practice remains, however, significant. Personalised care requires not just the right values - patient-centredness, holism, respect for individual priorities - but the right intelligence: reliable, systematic and actionable information about how individual patients are actually experiencing their cancer and its treatment, what their specific needs are and where targeted support would make the greatest difference. This intelligence has historically been difficult to generate at scale. Holistic Needs Assessments are valuable but depend on skilled clinical implementation and are not uniformly conducted. Patient feedback is rich but unstructured. Clinical assessments capture disease status but not the full breadth of patient experience. The result is that personalised care, even where it is the stated aspiration, often rests on a thinner evidence base than its ambition requires.

What This Programme Provides

The Personalised Cancer Care Intelligence Programme addresses this gap by providing the intelligence infrastructure that genuine personalisation requires. CQOLS is the centrepiece of that infrastructure: a systematically administered, validated, nationally benchmarked instrument that generates consistent, comparable quality-of-life data across cancer patient populations at the scale needed to identify meaningful variation in need. When CQOLS data is analysed at the level of patient sub-groups - by cancer type, by treatment modality, by demographic characteristic, by pathway stage - it reveals the clustering of needs that makes targeted, personalised intervention both possible and efficient. It identifies the patients for whom pain management is the priority; those for whom psychological support is the dominant unmet need; those whose principal challenge is returning to work and maintaining economic participation; those whose social isolation and loss of community connection is the greatest threat to their wellbeing.

Alongside CQOLS, the programme draws on Holistic Needs Assessment data where available, patient feedback intelligence from sources including the SIA EQ-5D Plus and CareOpinion, and population health intelligence that supports the segmentation and targeting

of personalised interventions across geographic and demographic groups. Together, these sources create an intelligence picture of unusual depth and actionability - one that supports personalised care not as an aspiration but as a practical, evidence-based programme of targeted support.

Chapter 1
Understanding the Challenge

The Diversity Beneath the Diagnosis

One of the most consistent findings in cancer patient experience research is the extent to which patients with similar or identical diagnoses report radically different experiences of cancer and its treatment. Two patients with the same cancer type, diagnosed at the same stage and treated with the same protocol, may emerge from that experience with entirely different physical, emotional and practical situations. One may experience severe and persistent fatigue that prevents return to work; the other may recover physical function relatively quickly but carry a heavy psychological burden of anxiety about recurrence. One may find their social relationships and community connections largely intact; the other may have experienced a profound disruption to the relationships and activities through which they previously derived meaning and identity.

This diversity is not random. It reflects the complex interaction of biological factors - including tumour characteristics, treatment response and pre-existing health status - with the psychological, social and practical circumstances of the individual patient. Age, employment status, family situation, housing security, financial resilience, social support networks, prior mental health history, cultural background and health literacy all influence how a cancer experience unfolds and what kind of support is needed in its aftermath. A service model that treats all patients with a given diagnosis as equivalent is not simply imprecise; it is, for large numbers of those patients, actively misaligned with their actual needs - delivering support they do not need while failing to provide support they do.

The Failure of Generic Service Models

Traditional cancer service models have been designed primarily around the disease rather than the person. The pathway - diagnosis, staging, treatment, discharge, follow-up - is defined by the clinical requirements of managing the cancer itself, and the support services attached to that pathway are typically generic rather than individually tailored. Follow-up appointments are scheduled according to clinical protocol rather than individual risk or need. Psychological support services, where they exist, are typically reactive rather than proactive - available to those who can articulate their need and navigate the referral process, rather than systematically provided to those whose quality-of-life profiles indicate they are most likely to benefit. Rehabilitation is offered to some patients but not systematically assessed and prescribed as a function of individual functional need.

The consequences of this generic approach are visible in CQOLS data. Patients with high levels of unmet psychological need who have never been referred to psychological support services. Patients with significant functional limitations who have not been offered

rehabilitation. Patients in financial difficulty because of lost employment whose welfare support needs have not been assessed. These are not exceptional or unusual cases: they are patterns that appear consistently in quality-of-life data when it is examined with the question of individual need in mind, and they represent both a failure of care for the patients concerned and an inefficiency in the system that is providing it.

Chapter 2
Why Existing Intelligence Is Not Enough

The Limits of Activity and Pathway Data

The NHS generates substantial data about cancer patients. Treatment episodes, pathology results, imaging findings, prescriptions, waiting times, referral outcomes and clinical correspondence all flow through NHS systems in large volumes. This data is invaluable for many purposes: monitoring pathway performance, ensuring clinical safety, identifying system bottlenecks and tracking population-level trends in incidence, treatment and survival. But for the purposes of personalised care, it has a fundamental limitation: it describes what happened to the patient in clinical terms, not what the patient is experiencing as a human being.

Activity data cannot tell a clinician whether their patient is in significant pain that is not being adequately managed. It cannot reveal whether a patient is experiencing depression so severe that it is preventing them from taking prescribed medication. It cannot identify whether a patient is struggling financially because their cancer diagnosis has caused them to lose employment, or whether a patient is isolated because the physical consequences of treatment have made them unable to participate in the social activities that previously sustained them. These are the things that most profoundly determine a cancer patient's quality of life, and they are systematically invisible in the data systems that cancer services currently rely on most heavily.

The Patient-Reported Intelligence Gap

The solution to this gap is not more of the same kind of data but a different kind of data: patient-reported intelligence that captures the experience, priorities and wellbeing of individual patients directly, in terms that reflect what actually matters to them. Patient-reported outcome measures, holistic needs assessments and patient experience feedback all have a role to play in providing this intelligence, and each has its own strengths. The challenge is that these sources are not currently collected systematically, analysed consistently or connected to each other in ways that would make their full potential realisable. CQOLS addresses the systematic collection and consistent analysis requirement for quality-of-life measurement. The programme described in this paper provides the framework for connecting CQOLS intelligence to other sources and translating the resulting picture into the personalised care responses it implies.

Chapter 3
Available Intelligence Sources

The Cancer Quality of Life Survey

CQOLS is the primary intelligence source for the Personalised Cancer Care programme. Its value in this context lies not only in its validated measurement of health-related quality of life but in the analytical possibilities that systematic, nationally consistent data collection creates. When CQOLS data is available for large numbers of patients across multiple organisations and tumour types, it becomes possible to identify patterns - the characteristic quality-of-life profiles associated with particular cancer types, treatment modalities, demographic groups and pathway stages - that cannot be discerned in individual clinical encounters. These patterns are the population-level foundation of personalised care: they reveal which groups of patients are most likely to have particular needs, enabling services to be designed and targeted in ways that are responsive to those needs even before individual assessment has been completed.

CQOLS captures quality of life across five core EQ-5D domains and the broader multidimensional profile of the EORTC QLQ-C30, which includes functional scales covering physical, role, cognitive, emotional and social functioning, symptom scales covering fatigue, nausea, pain and dyspnoea, and global health status assessment. This breadth of measurement means that CQOLS can reveal the specific character of quality-of-life burden for different patient groups: whether the dominant challenge for post-treatment colorectal cancer patients is physical functioning, fatigue or emotional wellbeing; whether the primary unmet need for younger breast cancer survivors is return to work and role functioning or sexual health and body image; whether the quality-of-life trajectory for prostate cancer patients diverges significantly depending on treatment modality.

Holistic Needs Assessment and Patient Feedback

Holistic Needs Assessment is the clinical instrument through which population-level CQOLS intelligence is translated into individual care planning. Where HNA is conducted well - with skilled clinical facilitation, genuine openness to the patient's own account of their needs and concerns, and a clear process for converting assessed needs into a personalised care and support plan - it provides the individual complement to the population intelligence that CQOLS generates. The programme supports the systematic use of HNA data, where available, to enrich the intelligence picture and to evaluate the effectiveness of personalised interventions.

Patient feedback intelligence, including open responses from the SIA EQ-5D Plus and narrative feedback from CareOpinion, provides a further dimension of intelligence that structured questionnaires cannot fully capture. Patients describe their experiences in their

own words, identifying the aspects of their care that matter most to them with a specificity and emotional authenticity that closed-response instruments necessarily constrain. This narrative intelligence, analysed systematically using the AI-driven text analytics described in the Patient Feedback and Experience Intelligence Programme, complements and enriches the quantitative picture that CQOLS provides. Population health intelligence - demographic data, deprivation indicators, social care needs assessments and community health profiles - supports the geographic and demographic segmentation needed to target personalised interventions towards the populations most likely to need them.

Chapter 4
The Unique Contribution of CQOLS

Making Individual Variation Visible at Scale

The unique contribution of CQOLS to personalised cancer care is its capacity to make individual variation visible at population scale. In any given cancer service, the clinical team knows - from daily experience, from individual encounters, from the accumulation of case knowledge over years of practice - that their patients vary greatly in their needs and experiences. What they typically lack is the systematic evidence to describe that variation precisely, to quantify its extent and to identify the patient characteristics that predict where different kinds of need are most likely to be concentrated. CQOLS provides this evidence, transforming clinical intuition about patient diversity into data-driven insight that can inform service design.

When CQOLS data for a cancer patient population is examined not as an aggregate but as a distribution, the diversity it reveals is often striking. Patients at the top of the quality-of-life distribution may be living with relatively modest burden - managing their daily activities, maintaining social connections, experiencing limited pain and anxiety. Patients at the bottom may be carrying a profound and multi-dimensional burden: severe pain, significant functional impairment, high levels of anxiety and depression, and limited capacity for social participation or independent living. Between these extremes lies a broad range of intermediate situations, each representing a different configuration of needs and a different set of support priorities. CQOLS makes this distribution visible, and in doing so it provides the intelligence foundation for designing services that are responsive to its full breadth.

Segmentation and Targeting

The practical application of CQOLS intelligence for personalised care involves the identification of patient segments - groups of patients whose quality-of-life profiles share sufficient characteristics to make similar support needs likely, and for whom tailored interventions can therefore be designed and tested. Segmentation approaches vary in their methodology - from simple threshold-based classification to more sophisticated cluster analysis - but they share the objective of identifying meaningful groupings within the patient population that correspond to distinct patterns of need.

For example, analysis of CQOLS data might identify a segment of post-treatment patients characterised by high physical functioning but significantly elevated anxiety and emotional distress - patients who have recovered well physically but are carrying a heavy psychological burden, for whom psychological support rather than physical rehabilitation is the priority. A second segment might show the inverse pattern: relatively well-managed anxiety and emotional wellbeing but significant physical impairment and fatigue, pointing to a need for

rehabilitation and functional support. A third segment might show multi-dimensional burden across both physical and psychological domains, indicating patients with the most complex needs who are likely to benefit from more intensive, comprehensive support. These segments are not simply analytical constructs: they correspond to real differences in patient experience and real differences in what would help, and CQOLS is the instrument that makes them identifiable.

Chapter 5
What the Intelligence May Be Telling Us

Patterns of Need Across Patient Populations

The intelligence generated by CQOLS and complementary patient experience sources reveals consistent and clinically significant patterns in the variation of cancer patient needs. These patterns are visible across tumour types, treatment modalities and pathway stages, and they point clearly to the dimensions of cancer experience that generic service models most frequently fail to address. Understanding these patterns is the first step in designing services that respond to them.

Pain and symptom burden, while often well-managed during active treatment when clinical monitoring is intensive, frequently persists at clinically significant levels into the post-treatment phase - a phase when clinical contact typically reduces and patient self-management capacity becomes more important. CQOLS data consistently identifies a proportion of post-treatment patients who continue to report high levels of pain and discomfort that are not being adequately addressed within existing follow-up arrangements. For these patients, more frequent review, better access to symptom management advice and clearer guidance on when to seek urgent clinical input would represent a meaningful improvement in their experience and outcomes.

Fatigue, Work and Social Participation

Fatigue is one of the most pervasive and one of the most underestimated consequences of cancer and its treatment. It is the symptom that cancer patients themselves most frequently identify as having the greatest impact on their daily lives, and it is the symptom that receives the least systematic clinical attention in post-treatment follow-up. CQOLS consistently reveals that a substantial proportion of cancer survivors experience fatigue at levels that significantly impair their capacity to perform usual activities - including, for working-age patients, their capacity to work. The economic consequences of cancer-related fatigue are substantial and largely hidden within conventional NHS activity data: lost employment, reduced earnings, benefits dependency and the secondary social and psychological consequences of economic disruption.

Return to work is an outcome that matters profoundly to many cancer patients, particularly those of working age, and it is an outcome that the cancer care system has historically paid insufficient attention to. CQOLS data - particularly the role functioning scale of the EORTC QLQ-C30, which captures the extent to which health problems interfere with work and daily activities - provides evidence of the scale of occupational impact that cancer and its treatment produce. Social participation, which CQOLS captures through the social functioning scale, reveals another dimension of impact that generic follow-up models frequently miss: the

extent to which cancer survivors are unable to maintain the social connections and community engagement that are among the strongest protective factors for psychological wellbeing.

Psychological Wellbeing and Unmet Emotional Need

The psychological burden of cancer - anxiety about recurrence, depression following treatment, adjustment to changed body image and changed life expectations, the existential challenges that a life-threatening diagnosis provokes - is pervasive and frequently under-treated. CQOLS data, across virtually all cancer types and treatment modalities, identifies elevated levels of anxiety and depression in cancer survivor populations relative to general population norms. This elevation is not uniformly distributed: it is higher in some patient groups than others, higher at some pathway stages than others and higher in patients with certain characteristics - younger age, greater disease burden, lower social support - than in others. Understanding this variation is what makes it possible to target psychological support where it will make the greatest difference, rather than offering it generically to all patients or, more frequently, not offering it at all.

Chapter 6
Service Improvement Opportunities

Holistic Needs Assessment as the Intelligence-to-Care Bridge

The Holistic Needs Assessment is the clinical instrument through which the population-level intelligence that CQOLS generates is translated into individual care planning. An HNA conducted in the light of CQOLS evidence - where the clinician conducting it has access to information about the quality-of-life profile of patients with similar characteristics and can use this to structure the conversation and direct attention to the areas of greatest likely need - is more focused, more comprehensive and more likely to result in a care plan that accurately reflects the patient's actual priorities than one conducted without this intelligence context. The programme supports the integration of CQOLS population intelligence with HNA clinical practice, providing clinical teams with the evidence they need to make HNA a genuinely personalised rather than a generic exercise.

Personalised care and support planning, which should flow from HNA, similarly benefits from intelligence that helps both clinician and patient understand what kinds of support have been found to be most effective for patients with similar characteristics and needs. CQOLS outcome data, tracking quality-of-life trajectories for patients who have received different types of support, provides the evidence base for these conversations - enabling care planning that is grounded not in clinical convention or service availability but in evidence about what actually improves outcomes for patients like this one.

Risk-Stratified Follow-Up and Rehabilitation

Personalised follow-up - the replacement of generic, appointment-based follow-up with a system in which the frequency, format and content of post-treatment support is matched to individual clinical and quality-of-life need - is one of the most significant service transformation opportunities that CQOLS intelligence supports. Patients with low quality-of-life burden and stable clinical status do not require the same frequency of clinical review as patients with high burden and complex needs. Making this distinction systematically, using CQOLS data to stratify patients by need and to allocate follow-up resource accordingly, enables the same total investment in follow-up to reach more patients more appropriately, improving both the efficiency and the quality of post-treatment support.

Rehabilitation pathways - physical, psychological and vocational - represent another major opportunity for CQOLS-informed personalisation. The evidence for the effectiveness of structured rehabilitation in improving quality-of-life outcomes for cancer survivors is strong and growing, but rehabilitation is not currently offered systematically, and it is not currently targeted on the basis of individually assessed need. CQOLS data provides the population-level evidence needed to identify the patient groups for whom rehabilitation investment

would yield the greatest return, and HNA provides the individual assessment needed to ensure that the rehabilitation offered matches the specific functional and psychological needs of each patient. Together, they create the conditions for rehabilitation that is both evidence-based and genuinely personalised.

Psychological Support, Welfare and Community Services

Access to psychological support services is among the most consistently identified unmet needs in CQOLS data, and it is an area where personalised targeting - directing intensive support to those with the greatest need, while providing lighter-touch resources to those with more modest requirements - can substantially improve both outcome and efficiency. The anxiety and depression scales of the EQ-5D and EORTC QLQ-C30 provide the evidence base for this targeting, identifying the patients for whom prompt referral to specialist psychological support is indicated and distinguishing them from those whose needs might be adequately addressed through peer support, self-management resources or community-based wellbeing services.

Welfare and practical support - advice and assistance with benefits entitlement, employment rights, debt management and the practical consequences of cancer-related financial difficulty - is an area that conventional cancer services rarely address systematically but that CQOLS data reveals to be a significant source of burden for many patients. The role functioning and social participation scales of the EORTC QLQ-C30 provide proxies for the extent to which occupational and economic disruption is affecting quality of life, and population health intelligence about deprivation levels and employment patterns provides the geographic and demographic context needed to target welfare support towards the communities where the need is greatest. Community-based services - exercise programmes, peer support groups, social prescribing and voluntary sector provision - complete the personalised care landscape, offering accessible and flexible support that reaches patients who may not engage readily with NHS-provided services.

Chapter 7
Health Economics Considerations

The Cost of Generic Care

Uniform service delivery in cancer care generates two distinct categories of economic inefficiency, each significant in its own right. The first is unmet need: patients who require support that generic service models do not provide - psychological input, rehabilitation, welfare advice, more intensive symptom management - and who therefore experience poorer outcomes, more frequent unplanned healthcare contacts and greater long-term burden. The costs of unmet need are real but difficult to attribute precisely: they appear in emergency department attendances, in unplanned hospital admissions, in delayed return to independent functioning and in the chronic mental health burden that inadequately supported cancer survivors carry. Because these costs are dispersed across the health system and across time, they are typically invisible in cancer service budget analyses.

The second category of inefficiency is over-service: the provision of support to patients who do not need it, or not need it at the level of intensity currently provided. Generic follow-up arrangements that bring patients with low clinical and quality-of-life need back to clinic repeatedly consume resources that could be better deployed elsewhere. Generic psychological support offered to all patients regardless of need may engage those with mild concerns while failing to reach those with severe distress who would benefit from more intensive and specialist input. Personalised care, by targeting support more precisely to need, has the potential to address both categories of inefficiency simultaneously - improving outcomes for under-served patients while releasing resource from those who are over-served.

The Economic Case for Personalisation

The economic case for personalised cancer care is therefore not simply a case for spending more - though for some patient groups, appropriate support requires additional investment. It is a case for spending more intelligently: for deploying the resources already committed to cancer survivorship support in ways that are more precisely matched to individual need and therefore more likely to achieve the outcomes that justify the expenditure. CQOLS provides the intelligence infrastructure that makes this intelligent deployment possible, enabling organisations to identify where the greatest unmet need lies and where targeted investment would generate the greatest return in patient quality of life.

Future evaluation opportunities abound. CQOLS outcome tracking for patients who have received different models of personalised support - risk-stratified follow-up, rehabilitation programmes, targeted psychological services - will generate the longitudinal evidence needed to demonstrate the quality-of-life benefit and economic return on these investments. The EQ-5D component of CQOLS generates utility values that support Quality-Adjusted Life Year

calculations compatible with NICE health technology assessment frameworks, making it possible to express the benefit of personalised care interventions in the same terms used to evaluate pharmaceutical and technological innovations. This analytic capability is important for commissioning: it makes the case for personalised care investment directly comparable with other investment options and demonstrably grounded in patient-reported outcome evidence.

Chapter 8
Strategic Questions for Stakeholders

Defining Personalisation and Measuring Success

The Personalised Cancer Care Intelligence Programme raises a set of strategic questions that require genuine engagement from the clinical, operational and commissioning communities if they are to be answered in ways that drive improvement. The most fundamental of these is the question of definition: what does personalised care actually mean in the context of cancer services, and how is it distinguished from high-quality generic care? The answer matters because it determines what the programme is trying to achieve and what counts as evidence of success. A useful working definition might be that personalised care is care in which the support offered to each patient reflects an evidence-based understanding of their individual needs, priorities and circumstances - not just their diagnosis and treatment pathway - and in which the delivery of that support is adjusted over time in response to evidence about how the patient is actually doing.

With this definition in mind, the strategic questions become more concrete. Which outcomes matter most to patients - and how do the answers to this question vary across patient groups, cancer types and cultural contexts? How should CQOLS segmentation be used to identify and target patient sub-groups, and what segmentation methodologies are most appropriate for different service contexts? Which interventions - specific models of personalised follow-up, rehabilitation, psychological support, welfare advice - have the strongest evidence of effectiveness for which patient groups? What additional intelligence sources, beyond CQOLS and HNA, would enrich the programme's picture of individual patient need? And how should success be measured - not just in terms of patient-reported quality of life improvement but in terms of the equity of access to personalised support, the consistency of implementation across different services and settings and the sustainability of the care model over time?

Chapter 9
Conclusion: Care That Sees the Person

A Philosophical Shift with Practical Consequences

The ambition of personalised cancer care - to ensure that what matters to the patient is as important as what is the matter with the patient - is not merely a philosophical aspiration. It is a practical programme with specific, achievable objectives, an evidence base that continues to grow and an intelligence infrastructure, provided by CQOLS and the other data sources this programme brings together, that makes its realisation genuinely possible at scale. The shift from disease-focused to person-centred care in cancer services is not a marginal refinement; it is a fundamental change in how the NHS relates to the people it is treating - a change that has the potential to improve outcomes, reduce inequity, increase efficiency and, most importantly, to make cancer care something that responds to the full humanity of the people who need it.

The evidence for the inadequacy of generic, disease-focused care models is now substantial. CQOLS data, patient experience research and clinical outcomes evidence converge on a consistent finding: that patients with similar diagnoses have very different needs; that those needs, when not met, lead to poorer quality of life, more frequent unplanned healthcare contacts and greater long-term burden; and that targeted, personalised support consistently produces better outcomes than generic provision for the patients who receive it. The question is no longer whether personalised care is the right aspiration but how to build the systems, the intelligence and the clinical culture needed to make it consistently real.

CQOLS as the Intelligence Foundation of Personalised Care

CQOLS is the instrument that makes personalised care at scale analytically possible. Its core contribution is to make individual variation visible - to transform the clinical knowledge that every experienced cancer team has about the diversity of their patients' experiences into systematic, quantified, comparable evidence that can be acted upon in designing services, allocating resources and planning individual care. When CQOLS data is examined not as a single aggregate score but as a distribution across a patient population, what emerges is a picture of extraordinary diversity: patients at every point along a broad spectrum of quality-of-life experience, with different burdens in different domains and different implications for what kind of support would help.

This diversity is not random noise. It has structure: it clusters in patterns that correspond to identifiable patient characteristics - cancer type, treatment modality, age and life stage, employment status, social support, pre-existing mental health history. These patterns are the foundation of patient segmentation, and patient segmentation is the analytical bridge between population-level CQOLS intelligence and the individual-level care planning that personalised

care requires. By identifying which patient groups are most likely to have particular kinds of need - high psychological burden, significant physical functional impairment, occupational disruption, social isolation - CQOLS makes it possible to design services that are structurally responsive to those needs rather than structurally blind to them.

The Five Dimensions Where Personalisation Makes the Biggest Difference

Across the range of cancer types and patient populations captured in CQOLS data, five dimensions of individual experience stand out as the areas where the gap between individual need and generic service response is most consistently significant. Pain is the first: a substantial proportion of cancer survivors live with significant pain that persists well beyond the end of active treatment and that is not being adequately addressed within conventional follow-up arrangements. The experience of pain is highly individual - in its character, its intensity, its daily pattern and its interaction with other aspects of the patient's life - and effective pain management requires an individualised approach that generic services rarely provide.

Fatigue is the second dimension, and arguably the most pervasive. Cancer-related fatigue is more complex and more persistent than the tiredness of everyday life, and it has consequences that extend far beyond physical discomfort - interfering with work, with social participation, with relationships and with the capacity for the activities that give life meaning. Anxiety and emotional distress constitute the third dimension: the psychological burden of cancer, from the fear of recurrence to the existential challenges of a life profoundly disrupted by serious illness, is among the most significant determinants of quality of life in cancer survivors and among the most consistently under-addressed by clinical services. Independence and self-care - the fourth dimension - determines the extent to which patients can maintain autonomy and manage their own daily lives, and the loss of independence that cancer and its treatment can cause is both practically burdensome and deeply threatening to patients' sense of self and identity. The fifth dimension, social participation and return to work, captures the extent to which cancer survivors are able to re-engage with the social roles and economic activities that defined their lives before diagnosis.

In each of these five dimensions, CQOLS provides the measurement capacity to identify which patients are experiencing the greatest burden, and HNA provides the clinical process through which that measurement is connected to individual care planning and personalised support. Together, they create the conditions for cancer services that respond to the real, individual, multidimensional needs of cancer patients rather than to the diagnostic category to which they happen to belong.

From Population Intelligence to Individual Care: The HNA Bridge

The Holistic Needs Assessment is the instrument through which the population-level intelligence that CQOLS generates becomes the basis for individual care. This connection is more powerful than either tool alone. CQOLS population intelligence tells a clinician conducting an HNA which domains of quality of life are most likely to be affected for a patient with this cancer type and treatment history, and where the questions most worth asking are concentrated. It provides a structured, evidence-based framework for the HNA

conversation, ensuring that the domains of greatest likely need receive attention rather than being overlooked because the patient has not yet found the language to articulate them or because clinical time pressure has led to a more superficial assessment.

Conversely, HNA data - where it is collected systematically and made available for analysis - enriches and validates the CQOLS population picture, providing a clinical account of individual need that complements and contextualises the survey-based quality-of-life evidence. The two instruments, used together within the framework that this programme provides, create a genuinely integrated intelligence-to-care pathway: population intelligence informing individual assessment, individual assessment informing personalised support planning, and the outcomes of that support being tracked through CQOLS over time to validate whether the personalised approach is achieving what it intends.

Equity and the Geography of Unmet Need

Personalised cancer care must grapple with equity as well as efficiency. The patients most likely to have unmet needs are not randomly distributed: they tend to be concentrated in areas of higher deprivation, among patients with lower health literacy, in communities where barriers to healthcare access are greatest and among patient groups whose cultural backgrounds make engagement with conventional NHS services less straightforward. Generic service models compound existing inequalities by providing the same service to all patients regardless of the structural disadvantages that make some patients less likely to benefit from it. Personalised care, properly designed, can counteract these inequalities by actively targeting support towards the patients and communities with the greatest need.

CQOLS data, combined with population health intelligence about deprivation, ethnicity and social circumstance, makes it possible to identify where quality-of-life outcomes are poorest and where the gap between need and provision is widest. Cancer Alliances and ICBs can use this intelligence to direct personalised care resource towards the areas and patient groups where it will make the greatest difference - not just improving outcomes on average, but actively narrowing the quality-of-life inequalities that cancer currently perpetuates and that generic services do too little to address.

What Truly Personalised Cancer Care Looks Like

Truly personalised cancer care is not simply care delivered more kindly or more attentively - though those qualities matter. It is care that is structurally designed to see and respond to individual difference. It is a service in which the pathway each patient follows from diagnosis through treatment and into survivorship is shaped not only by the clinical requirements of managing their cancer but by systematic evidence about their individual quality-of-life profile, their personal priorities and their specific circumstances. It is a service in which the Holistic Needs Assessment is not a paperwork exercise but a genuine, evidence-informed conversation that results in a care plan that both patient and clinician believe accurately reflects what the patient needs. It is a service in which follow-up intensity and format is determined by evidence of individual need rather than by clinical convention, and in which the range of support available - physical, psychological, occupational, social, welfare - is accessible on the basis of assessed need rather than patient initiative or system luck.

This vision is achievable. The evidence base for personalised care interventions is strong and growing. The intelligence infrastructure this programme provides - CQOLS at its centre, HNA and patient feedback as complements, population health data as context - makes the analytical foundation of personalised care solid and actionable. What is required is the organisational commitment to use that intelligence purposefully: to invest in HNA capacity, to design risk-stratified follow-up pathways, to commission psychological, rehabilitation and welfare support at the scale that CQOLS data indicates is needed, and to measure and publish the quality-of-life outcomes that result.

A Programme for the Whole Person

The most important thing that the Personalised Cancer Care Intelligence Programme offers is a way of seeing. CQOLS, HNA and patient feedback do not simply generate data: they make visible the people behind the diagnoses - the patient who is managing their physical symptoms reasonably well but is profoundly anxious about recurrence and has no one to talk to about it; the patient who has recovered physical function but lost their job and is struggling financially in ways that no one in their clinical team is aware of; the patient who appears to be coping from the outside but whose quality-of-life responses tell a very different story. These are the patients that generic service models are most likely to fail, and they are exactly the patients that personalised intelligence-informed care is designed to find and to help.

Cancer is a disease of individuals. It happens to specific people in specific circumstances at specific moments in their lives, and it changes those lives in ways that are deeply personal, profoundly individual and irreducibly complex. The NHS knows how to treat the cancer. The challenge that this programme addresses is ensuring that it also knows how to support the person - with the precision, the compassion and the intelligence that genuine personalised care requires. CQOLS provides the means to know. The programme provides the framework to act. The patients provide the purpose.