



Kent and Medway Health and Care Analytics Strategy

Quality of life, quality of care



**Transforming
health and social care**
in Kent and Medway



Kent & Medway Clinical Vision

Quality of life, quality of care

What this means:

A holistic view of individuals

Prevention is at the heart of our approach

Apply interventions that address the interactions between mental and physical health, social and general wellbeing, and wider determinants of health

We enable people to access care and support in the right place to manage their conditions and recovery better, at the right time based on need

We strive to achieve the best outcomes and the highest standards of care by adopting evidence based practice, applying best practice guidelines and embracing research and development.

We continually assess our performance, are always learning, including from our mistakes, and make changes to improve.

Jane Ollis,
Non-Executive Director
Kent Surrey Sussex Academic Health
Science Network



Unmet health and wellbeing needs: A call to use data to save lives

The next few decades will see enormous opportunities for data to be used to understand patterns of ill health and wellbeing, and to plan how services can be proactive to meet the needs of the population in the most effective and efficient way possible.

The number of people living in Kent and Medway is predicted to rise by almost a quarter by 2031, a higher rate of increase than the average across England. Local people are living longer and older people tend to have additional health needs.

Many people (including children) in Kent and Medway have poor physical and/or mental health with over 528,000 local people – that’s almost one in three of those living in Kent overall – living with one or more significant long-term health conditions. Many long-term conditions such as Diabetes, high blood pressure or breathing problems (for instance COPD – Chronic Obstructive Pulmonary Disease) can be better managed and improved if people can get the right support easily and quickly.

Too many of these conditions are largely attributable to living unhealthy lifestyles are preventable with the right lifestyle interventions and changes.

There are also unacceptable differences in health across the region. For example, women in the most deprived areas of Thanet live on average 22 years less than those in the least deprived. With the right help it can

be possible to prevent the main causes of death, which are often linked to issues, such as obesity, smoking and childhood poverty.

The scale of this local challenge means that if we don’t change how we work and spend our money for the greatest benefit, we will be overspent by £486m by 2020/21.

Kent and Medway are one of the most advanced areas in the country for linking longitudinal patient data across a number of health and care settings – this has the significant advantage of being able to understand the whole picture of people’s health and care. It is critical that we make the most of this advantage by ensuring our analytical capabilities can use this data to optimise health and care across Kent and Medway.



Glenn Douglas
Chief Executive, Kent and Medway STP



Dr Fiona Armstrong
Chair, Kent and Medway Clinical and Professional Board

Current state





Our vision for Analytics

Through the existence of leading integrated datasets and a mature analytical and research capability, Kent and Medway is well placed to use data to transform the prevention, early detection and treatment of ill health by 2030.

We will ensure our communities are enabled to have the best quality of life and quality of care through leading-edge, actionable analytics and innovation.

We will:

- Develop shared health and care analytics, which will enable us to understand the health needs of the population and to estimate how we can make the biggest improvements in improving health outcomes, patient experience, cost efficiency, workforce wellbeing and reducing health inequalities.
- Examine the bigger picture of the drivers of good health and provide an understanding of the relationship and variation between care received throughout different points in an integrated care system.
- Design how to move from reactive care to preventative care, through the use of prescriptive rather than descriptive analytics to provide a more holistic view of a patient's requirements and care.
- Develop the new and collaborative ways of working across organisational health and care boundaries needed to deliver the changes that our patients and communities need.



The strategic goals

Population Health Intelligence

We will develop intelligence to plan and commission services based on what will offer the most value for individuals, considering every aspect of their health and wellbeing, proactively preventing poor health and being ready to best manage it when it happens.

Intelligence for citizens

We will enable citizens to take control of their health and wellbeing through informed decision making, optimised self-care and opportunities to influence their health and care services.

Driving innovation by working with research and industry partners

We will drive world class research and collaboration at scale that is translated to patient communities so that Kent and Medway can increase the pace of innovation in how technology is adopted.

Whole-system demand and capacity intelligence for integrated care management

We will develop a system-wide view of the flow of people and service performance, to optimise the efficiency in how our services are developed and delivered.

Intelligent decision support for clinicians and care teams

We will enable clinicians and care teams to identify people who are at risk of poor health and wellbeing, match them to the most appropriate interventions, and view personalised information on likely risks or benefits to inform shared decision making.

The new integrated care system will work collaboratively to achieve these goals, supported by robust foundations in:

- Information governance
- Data management
- Analytical workforce and processes
- Procurement and partnerships
- Skills and environment to turn intelligence into action

Goal: Population Health Intelligence

We will develop intelligence to plan and commission services based on what will offer the most value for individuals, considering every aspect of their health and wellbeing, proactively preventing poor health and being ready to best manage it when it happens.

We will:

- Describe the whole picture of individuals' health and wellbeing, how this is likely to change in the future, and what interventions would have the most value.
- Identify where we can make the most impactful improvements by addressing prevention, vulnerable groups, gaps in care, inequalities and poor outcomes.
- Review which interventions work well to address similar problems elsewhere, as well as where local or service specific adaptations may be needed.
- Assess the holistic impact of different options before implementation.
- Evaluate continuously which care pathways do and do not work well, for whom, and why.

We will begin by developing a population health intelligence solution that:

- Is co-designed with clinicians, managers and commissioners from across the system, developed iteratively and reviewed annually.
- Can be viewed at Integrated Care System, Integrated Care Partnership and Primary Care Network level, with the option to drill.
- down to organisation or other appropriate levels of interest.
- Considers whole health pathways from prevention to end of life, including, for example, risk factors, social determinants, mental health, quality of life and health outcomes.
- Allows users to extract data and to build reports themselves.
- Incorporates and aligns with pre-existing national intelligence sources.

By 2024 we will be:

- Maximising the potential and safety of artificial intelligence to identify patterns that allow us to predict and target poor health before it happens.
- Using accurate patient-level predictions of future health and care need to support value based planning and commissioning within and across organisations.

Goal: Intelligence for citizens

We will enable citizens to take control of their health and well-being through informed decision making, optimised self-care to influence their health and care services.

We will do this by:

- Engaging with citizens to see how they would want to see their data used for public benefit.
- Involving citizens from the beginning in the design and implementation of applications that are populated with their data.
- Empowering citizens to manage their own health and influence their own care.

We will begin by:

- Scoping a programme to engage directly with citizens around co-design, data-sharing and trust.
- Ensure all uses of health and care data are transparent and for public benefit.
- Build on successes in maternity and cancer care to develop pathway guidance apps in all major health and care pathways.

By 2024 we will have:

- A mature, system-wide, service user-driven design capability across Kent and Medway.
- Delivered user-friendly, real time information on personal health data, empowering patients to take responsibility for their own health and access appropriate support.
- Care that is increasingly personalised, from prevention to screening and diagnosis to treatment and decision support, enabled by data-driven technologies.
- Citizens who are confident in using data-driven technologies where appropriate, and alternative solutions where they are not.
- A workforce that is confident in their decisions about when and how human interaction must take priority over interactions between humans and artificial intelligence.

Goal: Driving innovation by working with research and industry partners

We will drive world class research and collaboration at scale that is translated to patient communities so that Kent and Medway can increase the pace of innovation in how technology is adopted.

We will do this by:

- Ensuring research will be integrated with health and care analytics in Kent & Medway, with aligned priorities, and a number of research partners who will work together and integrate into the health and care system.
- Providing access to Kent and Medway's linked datasets for researchers, to enable population-level research and feasibility studies.
- Ensuring that the results of research undertaken within and beyond Kent & Medway will be included in the Kent & Medway Knowledge Management System.

We will begin by:

- Setting up a research subgroup for the Shared Health and Care Analytics Board to establish partnerships with academia and industry, and set research priorities.
- Writing a Kent and Medway Research Strategy that aligns with Integrated Care System priorities.
- Setting up a knowledge management system that can be accessed and intuitively used by the whole system.

By 2024 we will have:

- Established a self-funding and internationally recognised 'Data Research Laboratory'. This will provide a real-world simulation and synthetic data that academics and SMEs can use to test their hypotheses before service changes are made.
- Set up a placed based real-world research service supporting retrospective and prospective public health and clinical studies with established links with national agencies such as NICE, MHRA, NIHR to inform local, national and international clinical policy.
- Created more efficient links with the quality improvement and operational teams, so that there remains an emphasis on actionable research.
- Registered at least 30,000 citizens to participate in research.

Goal: Whole-system demand and capacity intelligence for integrated care management

We will develop a system-wide view of the flow of people and service performance to optimise efficiency in how our services are developed and delivered.

We will do this by:

- Modelling the flow of people across the Integrated Care System, Integrated Care Partnerships and Primary Care Networks in real time, from primary care to community care.
- Mapping capacity in real-time across the system, and balancing this against demand.
- Directing people to the right part of the system, to receive the right care in the most efficient way for both the patient and the health and care system.
- Tracking performance targets in real-time and alerting to any issues before they happen.
- By monitoring the drivers of performance to understand and predict issues.

We will begin by:

- Harmonising current solutions, through standardised definitions, processing and methods, to enable an agreed set of data upon which to plan by.
- Developing a whole-system view of real-time demand and capacity.
- Developing consistent standards for demand and capacity modelling, building on those already working well and using the latest simulation technologies.

By 2024 we will be:

- Using data-driven algorithms in real-time to support a virtual command and control centre, and associated live dashboards.
- Using data collected through electronic tracking devices to map demand and capacity in real-time.
- Using accurate predictions of demand and capacity issues consistently across all services, with directives to management as to the best courses of action.

Alan Day,
Technology Commissioning
and Strategy,
Kent County Council

If we are transparent and open in our use of data, people will reward us with their trust



Goal: Intelligent decision support for clinicians and care teams

We will enable clinicians and care teams to identify citizens who are at risk of poor health and wellbeing, match them to the most appropriate interventions, and view personalised information on likely risks or benefits to inform shared decision-making.

We will do this by:

- Developing risk stratification models with acceptable levels of sensitivity and specificity, that have been validated by local clinicians.
- Developing models to identify not only citizens with the highest risks, but also those who are likely to have increasing risk, and those who are likely to be most impacted by available interventions.
- Routinely identifying missed elements of pathways of care for individuals and ensuring that those gaps are filled.
- Providing clinicians and care teams with personalised intelligence for each citizen, so that they can inform them of likely impacts of different care options.

We will begin by:

- Creating and implementing a framework to evaluate current decision support tools, enabling recommendations for using existing tools in a consistent way, and identifying gaps for further development.
- Exploring initial uses of artificial intelligence and machine learning.
- Ensuring that we have a workforce that is confident in their decisions about when and how human interaction must take priority over artificial intelligence-human interaction.

By 2024 we will have:

- Consistent risk and impactability algorithms for that consider the whole picture of an individual's health and wellbeing, and can be easily applied directly at the point of care by clinicians and care teams for all individuals in the population.
- Decision support algorithms that alert clinicians and care teams of personalised matches to intervention options based on predicted risks and benefits.
- Reduced unwarranted variation by providing clinicians with tools to compare their outcomes with peers.



Enablers: What do we need to make this happen?

Enabler 1: Governance and Leadership

To achieve our ambition of whole person population-based care, we need understandable analytics that can be used to make decisions in a complex and inter-related healthcare system.

Enabler 2: Information Governance

We will optimise the data sharing process with joint data control so that we can utilise data for designing improvement as well as direct patient care. We will ensure transparency and public trust in the secure, robust and beneficial use of data.

Enabler 3: Data Management

We will optimise the data infrastructure and management of our data to ensure seamless connectivity between different sources, agreed recording conventions and a single view of data from live through to research. We will take account of system agreed priorities and reduce duplication in the movement and storage of data.

Enabler 4: Analytical Workforce

We aim to develop the best analytical workforce in the UK, we will adopt national standards and work towards professional accreditation for all staff. We will develop analysts that can work alongside decision makers so that the right questions are designed and rigorous evaluation conducted.

Enabler 5: Communication and Engagement

We will develop a range of presentation methods that span clinicians, managers and patients so that there is greater understanding of data and a greater readiness to make decisions based on rigorous evidence.

Enabler 6: Population health intelligence

We will develop intelligence and statistical modelling tools so that services can be planned and commissioned to provide the best value for money, considering every aspect of a citizen's health and wellbeing, pro-actively managing poor health and being ready to best manage it when it deteriorates.

Enabler 7: Integrated Care Management

We will develop a system-wide view of the flow of people and services performance, and to optimise efficiency in how our services are developed and delivered.

Enabler 8: Clinical Engagement

We will enable clinicians and care teams to identify people who are at risk of poor health and wellbeing, match them to the most appropriate interventions, and view personalised information on likely risks or benefits to inform shared decision making.

Enabler 9: Research and Innovation

We will drive world class research and collaboration at scale that is translated to patient communities so that Kent and Medway can increase the pace of innovation in how technology is adopted.

Enabler 10: Citizen Engagement

We will enable citizens to take control of their health and wellbeing through informed decision making, optimised self-care and opportunities to influence their health and care services.



Abraham George,
Consultant in Public Health, Kent County Council

“To become a Learning Health System, data has to be everybody's business, so that we can align science, informatics, incentives and culture for continuous improvement and innovation.”





Dr Marc Farr

Chief Analytical Officer
East Kent Hospitals University Foundation Trust

“There is an incredible coincidence of individuals with an interest and expertise in the use of data in Kent.

The opening of a Medical School and a Data Research Laboratory in Kent, the support of national funding bodies and a concentration of a superb analyst community means we are perfectly placed to exploit the opportunities for patients to benefit from leading edge use of data #datasaveslives”

Next Steps

- Establish governance to support the delivery of the strategy including oversight for the delivery of the supporting plans
- Identify individuals to lead on supporting plans ensuring they have capacity to progress high priority actions quickly
- Agree prioritisation process for work carried out under this strategy
- Determine the scale of financial commitment to deliver the agreed high priority items
- Establish joint data controller arrangements

Supporting Plans

Workstream	Purpose
Population Health Intelligence	Agree what pop health management means in K&M and what analytics are required for it
Demand and Capacity Intelligence	Scaling demand and capacity intelligence to whole system, with consistency across all elements
Intelligence to support clinicians and care teams	Identifying what is currently in use and what future requirements are
Citizen Intelligence	Identifying ways to engage citizens and scoping citizen-facing tools
Research	Health and care research strategy
Evaluation	Health and care evaluation strategy
Data architecture plan	Determine number and type of data warehouses

Workstream	Purpose
Data quality plan	Improve data quality across Kent & Medway with a particular focus on primary care
Information governance plan	Setting up a joint controller for all health and care data and updating IG documentation and notices
Review of current contracts and suppliers	Determine best ways to invest to deliver the strategy and set framework for future procurement
Analytical capacity plan	Identify work that could be stopped or optimised, and identifying most efficient ways of working
Turning intelligence into action	Giving people across the system the skills they need to ask the right questions, interpret intelligence and turn it into action

Methodology and approach to producing this strategy

Kent and Medway is proud home to some of the country's best linked health and care data assets, as well as exemplary work in health and care analytics, which is featured in NHS England's library of best practice. As the STP makes the transition to integrated system working, there is an urgent need to develop early system capability and capacity around a number of core business functions, including business intelligence, building on excellence already established in the region.

Responding to this need, Kent and Medway Shared Health and Care Analytics Board (SHcAB) commissioned this strategy in January 2019, with an aim of providing strategic direction for health and care analytics development, to ensure that it:

- Is cohesive across all of Kent and Medway
- Maximises the potential benefits of health and care analytics
- Ensures investment of resource is optimised and futureproofed

Development of the strategy was facilitated by NHS England and Kent Surrey Sussex Academic Health Science Network, with generous support from the STP Digital Strategy Group.

The strategy was developed by a dedicated task and finish group consisting of subject matter experts and system information leaders from over 15 organisations across Kent and Medway.

The working group advised on scope and underpinning principles for the strategy, and also supported the team in conducting:

- A stock-take of health analytics currently in use across Kent and Medway, conducted via interviews and information assets across NHS and non NHS (wider public Sector).
- A 'discovery' phase, aimed at understanding 'what good looks like', what other areas are doing and what national analytical products are available, conducted via a workshop.
- A needs assessment to support understanding intelligence user requirements.
- Reviews and detailed comments on multiple drafts of this report prior to submission to STP programme Boards and reviewers.
- Designate leader and key milestones for each supporting plan workstream.

Input from the working group was augmented by detailed interviews with a number of individuals from across Kent and Medway. The strategy could not have been completed without the dedication of countless individuals and organisations across the STP, as detailed in the following acknowledgements pages.

About the Kent and Medway Shared Health and Care Analytics Board

The SHcAB will be the delivery vehicle for the regional analytics strategy. The Shared Health and Care Analytics Board was established in 2017 and currently reports into the STP Clinical and Professional Board. The SHcAB brings together enthusiastic and dedicated health and care professionals and data analysts as a professional community and network. The board's aims are to ensure that sustainable change Methodology and approach to producing this strategy is cost-effective and delivers real benefits to citizens, provide professional development opportunities, and nurture the skills needed for careers in data science and analytics.

Highlights of recent work led by the SHcAB include:

- The SHcAB Research Strategy;
- NHS England Health System Led Investment funding application to modernise the local data warehouse infrastructure (known as HISBi);
- A proposal for a Strategic Intelligence Unit; and
- Plans for a Joint Data Controller arrangement on behalf of the Kent and Medway.

The SHcAB is proud to commission this business intelligence strategy, which will be key to supporting the use of data to improve the lives of Kent and Medway residents, while at the same time generating a national reputation for excellence in analytics.

Martin Griffin, Patient, East Kent

"I hear a lot about people linking data together to understand more about patterns of care and to plan where our services should be. This makes perfect sense and I would think that the NHS should already be doing it as long as the data is all secure."



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Advisory board

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- Simon Burrell, Involve



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