

Briefing: Realising the potential of community-based multidisciplinary teams

Insights from evidence

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Key points

- Better integration between health and social care services is a longstanding policy objective in England and other countries. Recent reforms to the NHS in England established 42 area-based integrated care systems (ICSs) to lead local efforts to develop more integrated models of care.
- A common approach is the development of community-based multidisciplinary teams (MDTs), in which a mix of health and care professionals come together to plan and coordinate people's care. Many MDTs are based around general practices and typically focus on care for adults with complex health and care needs. This briefing brings together evidence from Improvement Analytics Unit (IAU) evaluations of three MDTs and wider evidence to inform current efforts to develop integrated care in England.
- Despite widespread policy support, evidence on the impact of community-based MDTs is mixed. Our three IAU evaluations found that MDTs did not reduce emergency hospital use – and may even have led to increases – at least in the short term. Our longer term evaluations of the broader programmes in which these teams were implemented found some evidence of reductions in emergency hospital use, but this took between 3 and 6 years. Wider evidence on the impact of community-based MDTs was limited and mixed – though some studies suggest broader integrated care interventions can improve patient satisfaction, perceived quality of care and access.
- MDTs are not new and are widely thought to be needed to deliver high-quality care for people with chronic conditions. There could be several explanations for lack of clear evidence on impact – including unrealistic assumptions about MDTs and challenges in evaluating impact. The effect of MDTs also depends on many factors, including team resources and skills, staff engagement, IT resources, access to data, population characteristics and the broader context, such as local community services and overall levels of investment.

- To realise the potential of MDTs, local implementation needs to be carefully planned and supported by ongoing monitoring and evaluation. We make four recommendations:
 1. **Develop a clear, evidence-informed 'logic model' (or 'theory of change') for how service changes are expected to lead to improvements in care.** This will help identify the support needed to make MDTs work and set meaningful goals.
 2. **Collect data on key aspects of the logic model as part of the implementation of MDTs.** This should include resource inputs, activities and outcomes that can be accessed in a timely way.
 3. **Monitor inputs, activities and short- and medium-term outputs.** This can provide early indications of whether the MDT is working as intended and identify opportunities to learn and course-correct.
 4. **Undertake robust evaluation to understand what works, for whom and in which contexts.** This should include measures beyond emergency hospital use and reflect outcomes that matter to patients. Robust evaluation requires careful design, reliable data and resources – and input and support from both local and national decision makers.

About the Improvement Analytics Unit

The Improvement Analytics Unit (IAU) is a unique partnership between NHS England and the Health Foundation. We evaluate complex initiatives in health care in order to support learning and improvement.

Introduction

Better integration between health and social care is a longstanding policy objective in England. Recent NHS reforms divided the country into 42 area-based integrated care systems (ICSs), covering populations of around 500,000 to 3 million.¹ ICSs are based on the idea that collaboration between the NHS, social care and others is needed to improve health and reduce health inequalities.²

ICSs follow a long line of policy initiatives to encourage more integrated care in England – including integration ‘pilots’, ‘pioneers’, ‘vanguards’, and more.³ Similar reforms are being developed elsewhere in the UK^{4,5} and other countries.⁶ And new policy initiatives continue to appear. Government published a further white paper on health and social care integration in England in 2021.⁷ A new programme of ‘integration frontrunners’ was also announced to help improve discharge for patients leaving hospital.⁸

The rationale for developing more integrated care is clear. More people are living with multiple long-term conditions that require ongoing management and support, such as diabetes or depression.⁹ The prevalence of multimorbidity increases with age, but people in more deprived areas are at greater risk of having multiple health conditions and develop them earlier in their lives.^{9,10} Improving health and care for people with complex needs depends on a mix of services and professionals. Yet care is often fragmented and imbalanced towards treating illness in hospitals rather than preventing it further upstream. Over the past 20 years, there has been a major shift in the composition of NHS spend towards hospital care and away from other areas, despite policy goals to strengthen prevention and primary care.¹¹

What are multidisciplinary teams?

Integrated care is a broad concept¹² and efforts to achieve it differ depending on the aims and context. A common approach is to develop multidisciplinary teams (MDTs), in which a mix of health and care professionals come together to plan and coordinate services for patients (Box 1).¹³ The intended rationale is that professionals care for patients in a more holistic way – they exchange information, make shared decisions and plan interventions to meet patients’ needs, contributing to better quality care.

Community-based MDTs have been a core component of recent efforts to integrate health and social care services in England, often introduced as part of broader programmes to improve the quality and efficiency of local services.^{12,14,15,16,17,18} Greater MDT working is also a central part of the ambition for primary care networks (PCNs) in England, where GPs are expected to work alongside an expanded primary care team.^{19,20} ICSs are likely to pursue similar approaches – and national guidance for the new systems includes developing community-based MDTs.^{21,22} But introducing new models of care is challenging and may not deliver the benefits policymakers expect. If MDTs are to realise their potential, they need to be carefully designed and implemented, drawing on existing evidence and insights.^{23,24,25}

Box 1: Community-based MDTs

MDTs are teams of health and care professionals who plan and coordinate services for their patients. MDTs broadly aim to improve quality of services and identify opportunities to proactively address people's health and care needs.

The make-up of MDTs varies depending on their aims and focus – and they might involve GPs, district nurses, social workers, mental health staff, staff from the voluntary, community and social enterprise sector, and other health and care professionals. Sometimes MDTs include case managers or care navigators to help coordinate services. Patients and their representatives (such as unpaid carers) may also be considered MDT members.

The functions of MDTs include exchanging information between health professionals, making joint decisions and facilitating access to services depending on patients' needs. MDTs use a variety of approaches and interventions, such as risk-stratification tools to identify high-risk patients and care planning to help identify relevant services. MDTs operate in a variety of settings including hospitals, care homes and the community – and are not exclusive to health and social care.

In this briefing, we generally focus on community-based MDTs caring for people living at home. These MDTs might include primary care teams, social care staff and other staff from relevant services. Many are based around general practices and typically focus on care for adults with complex health and care needs – for example, with multiple long-term health conditions – or people living with frailty or at high risk of hospitalisation. Individuals may also be identified for support from MDTs due to social risk factors, such as social isolation or poor housing.

The MDTs evaluated by the IAU were structured teams that met regularly to plan the care of the individuals enrolled to their services (Box 2). Our review of the evidence used a broader definition of MDTs, focusing on MDTs involving at least one health care professional. See Appendix for more details.

About this briefing

The IAU has undertaken quantitative evaluations of three local MDT programmes implemented as part of NHS England's New Care Models programme, as well as of the longer term impacts of the broader vanguard programmes of which these MDTs formed part.

In this briefing, we bring together findings from these evaluations to inform current efforts to develop more integrated care in England. We put these findings in the context of broader evidence on the effect of community-based MDTs in the UK and other countries. In the final section, we reflect on what this means for local leaders looking to implement MDTs, as well as for national leaders seeking to support these models of integrated care.

Approach and methods

IAU evaluations of three MDT initiatives

The IAU evaluated the effect of three MDT initiatives in England (Box 2) by comparing the outcomes of patients receiving care or support from MDTs to a comparison group. This group consisted of patients with similar characteristics to those enrolled in the MDT (eg age, gender, ethnicity, level of deprivation, long-term conditions, frailty and historic hospital use).

Characteristics were identified from pseudonymised patient-level hospital records. As one of the aims of the new care model vanguard programmes was to reduce unnecessary emergency hospital use, we predominately investigated the effect of MDTs on A&E attendances and emergency hospital admissions. As we used routine health data for our analyses, we were not able to analyse the effect on other outcomes, such as patient satisfaction or quality of life. Further details on the methods can be found in the original reports and in the Appendix.^{26,27}

Box 2: The MDTs and integrated care programmes evaluated

The IAU evaluated three MDT initiatives in England, implemented as part of a wider set of integrated care initiatives introduced within the New Care Models vanguard programme in 2015 or 2016. These sites were chosen based on strategic relevance, local interest and feasibility at the time.

The evaluations of these MDTs covered periods up to 2018. Each of the programmes will have evolved since then, so the evaluation findings may not reflect their current impact – though the MDTs we evaluated are likely to share similarities with community-based MDTs currently being implemented.²⁸

The MDT initiatives were:

- Integrated care teams (ICTs) in North East Hampshire and Farnham (NEHF), study period 2015–2017.²⁶
- Extensive care services (ECS) in Fylde Coast, study period 2015–2018.²⁷
- Enhanced primary care (EPC) in Fylde Coast, study period 2016–2018.²⁷

All three programmes were based in the community and targeted patients at higher risk of emergency hospital use. The MDTs consisted of medical and non-medical staff that met regularly (typically once a week) to plan and coordinate services for patients referred to their services. Each programme consisted of several MDTs that served a local area of around 30,000 to 50,000 individuals – similar in size to PCNs.

The MDTs were run in a similar way but with some notable differences between the three programmes. ECS replaced patients' usual GP, taking over full clinical responsibility for their patients for the period of enrolment, whereas the other two models provided additional support to GP care (eg care planning or self-management advice).

There were also differences in referral criteria and how patients were identified for referral to MDTs. ECS and EPC used risk stratification models, while ICT referrals in NEHF were predominately identified by clinical judgement.

All three MDT programmes were core components of new care models vanguard programmes – wider integrated care initiatives starting in 2015, which encompassed a range of interventions. An additional programme evaluated by the IAU – the Integrated Care Transformation programme in Mid-Nottinghamshire – also included MDTs as a core

component.²⁹ This programme launched in 2013 and received vanguard status in 2015. One of the aims of the new care model vanguard programmes was to reduce unnecessary emergency hospital use. The four programmes covered areas of varied demographics, rurality and deprivation. Vanguard services differed between areas – for instance, interventions in NEHF included a rapid home response service and out-of-hours support for people having or nearing a mental health crisis. Fylde Coast introduced support for frequent 999 callers and Mid-Nottinghamshire introduced proactive care planning for those using A&E services most frequently.

Further details on the MDTs, the vanguard programmes and the local context can be found in the original reports.^{26,27,29}

IAU evaluations on the longer term impact of integrated care programmes with MDTs

Implementing and embedding new models of integrated care is complex and it can take time to deliver improvements.³⁰ The IAU also evaluated the broader integrated care programmes that implemented the three MDTs over a longer time period. The evaluations covered the areas of Fylde and Wyre, Blackpool (both of which implemented EPC and ECS under the overarching Fylde Coast vanguard but were analysed separately as they differed in demographics, rurality and deprivation) and NEHF. We also evaluated the Integrated Care Transformation programme in Mid-Nottinghamshire, which included MDTs as one of its main initiatives (Box 2).²⁹

For each of the analyses, we evaluated the effect of the integrated care programme by comparing emergency hospital use against a comparison area for a period ranging from 4.5 to 6 years. These comparison areas were constructed from other comparable areas in England (in terms of factors such as population size, age distribution and deprivation levels) in such a way as to have similar outcomes to the evaluated areas in the 2 years prior to the start of the programme. We looked at the effect on the whole populations aged 18 years and older and 65 years and older, respectively. Further details on the methods can be found in the original reports.^{29,31,32}

Wider evidence of MDT impacts

To put the findings from our IAU studies in the context of the broader evidence, we conducted a rapid review of relevant systematic reviews of quantitative evidence on the impacts of community-based MDTs for adults with complex health and care needs – for example, with multiple long-term health conditions – or people living with frailty or at high risk of hospitalisation. We focused on reviews that included at least one study of MDTs from the UK alongside evidence from other high-income countries, and where the MDTs included at least one health care professional, such as a GP. More detail about the studies is included in Box 3. See the Appendix for further detail on the methods.

Box 3: The studies we reviewed

Our review included eight studies – six systematic reviews^{33,34,35,36,37,38} and two umbrella reviews (reviews of systematic reviews) of the literature^{39,40} (see Appendix, Table 2). Two included meta-analysis (pooling data from several studies to understand overall effects).^{37,38} The reviews focused on studies of MDTs from high-income countries and all included at least one study from the UK. The quality of evidence was weak.

The reviews studied MDTs in a mix of ways. Some focused on interventions that make use of MDTs, such as community mental health teams for older people³³ and intensive primary care support.³⁶ Others looked at MDTs alongside a mix of similar interventions involving care coordination. The MDTs studied typically formed part of more complex integrated care initiatives – for instance, combined with case management and wider organisational changes – making their impacts hard to measure and interpret.

The reviews focused on a range of care settings, staff groups and populations. Care settings typically included primary care, residential or nursing accommodation, patients' homes, or boundary-spanning interventions across several settings. Staff groups and the composition of MDTs varied depending on the context and focus, but included a mix of staff from health and social care settings.

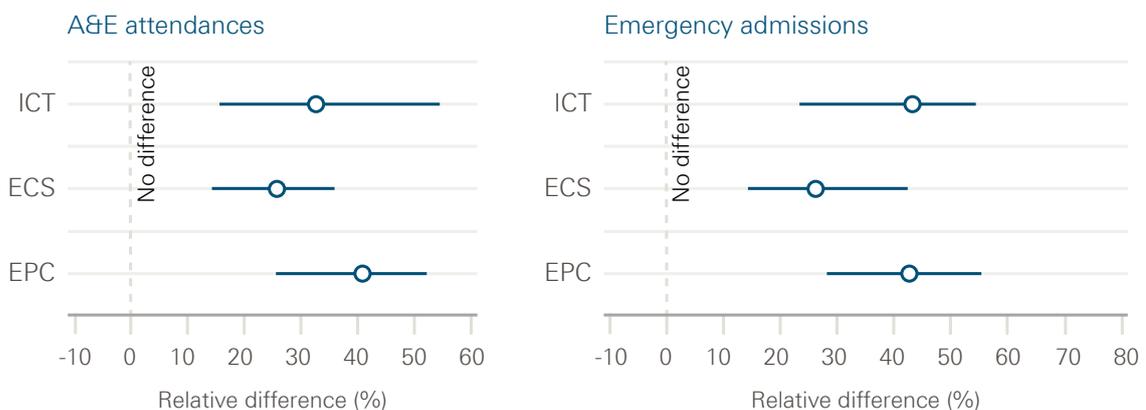
Most reviews focused on outcomes for specific groups including older people,^{33,35} patients with chronic conditions,^{37,39,40} and patients with complex needs.³⁶ Two focused on outcomes for a mix of population groups.^{34,38} The majority of reviews reported that older people, typically those with complex needs, were the most common target group for MDTs among the primary studies they reviewed.

What this evidence tells us

IAU evaluations of three MDT initiatives in England

Across the three MDT programmes we evaluated, emergency hospital use among those enrolled in MDTs was higher than for those in the comparison groups over the study periods (Figure 1). Individuals were followed for on average 7 months in the EPC and ICT evaluations and 13 months in the ECS evaluation.

Figure 1: Findings from three evaluations of MDTs: relative difference in emergency hospital use between MDT and comparison groups (point estimate and 95% confidence interval)



ICT: Integrated care teams in North East Hampshire and Farnham; ECS: Extensive care services in Fylde Coast; EPC: Enhanced primary care in Fylde Coast

Note: for results on a wider number of outcomes, see original reports

Potential limitations of the analysis

The evaluations compared hospital use between patients referred to MDTs and other individuals who were similar across a range of characteristics, including demographics, level of deprivation, long-term conditions and prior hospital use. However, the groups could differ in subtle ways. For example, in NEHF, patients were identified through clinical judgement, which could be based on information we did not have access to, such as social isolation. Among patients enrolled on the EPC in Fylde Coast, a statistically significant higher number died than in the comparison group, which might indicate they were more severely ill than their comparison group. However, because of the large differences in emergency hospital use between MDT patients and those in the comparison groups, it is unlikely that any difference between the groups could mask an actual decrease in hospital use. We therefore concluded that the three MDTs did not reduce emergency hospital use during the period of the studies, and may even have led to increases.

Evidence was mixed on a variety of other hospital measures, including elective admissions and outpatient appointments. Emergency hospital bed days were higher for patients enrolled in EPC in Fylde Coast and emergency hospital average length of stay was higher in NEHF.^{26,27}

IAU evaluations of the longer term impact of integrated care programmes with MDTs

When we looked at the longer term impact of the integrated care programmes, the results were not consistent across outcomes, vanguard areas or population groups. However, in general the programmes had very little impact on emergency hospital use in the first couple of years, but there were indications of a reduction in some areas over a longer time period.

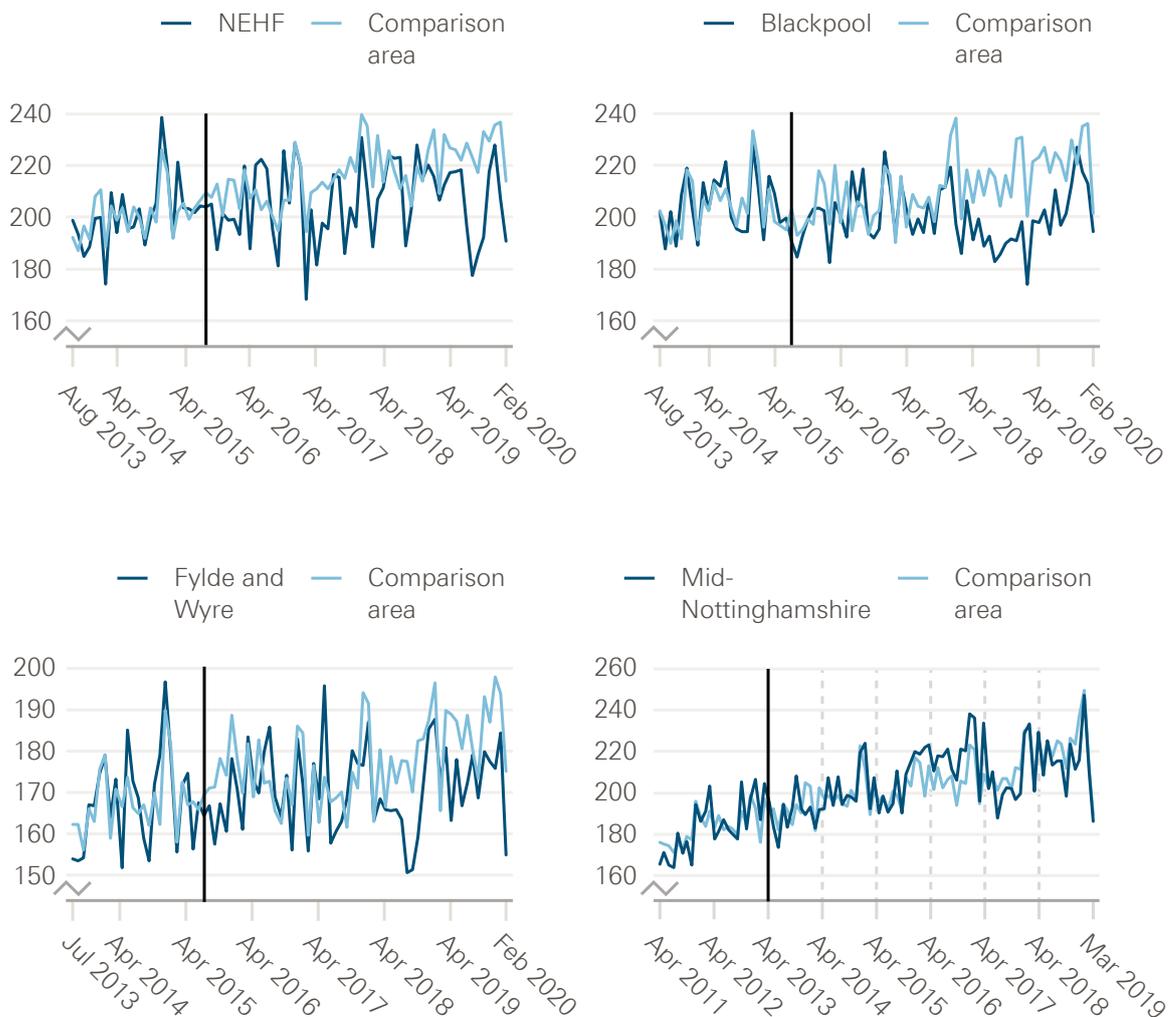
Looking at the population aged 65 years and older – which better reflects the MDT patient population – results were also inconsistent between studies, but some of the emergency hospital use metrics showed signs of improvement relative to the comparison area over a period of 3 to 5 years (Figure 2).²⁵

In NEHF we saw evidence of reductions in emergency admissions from year 3 relative to the comparison area and there were consistently fewer emergency admissions requiring an overnight stay in years 3–5. The average length of overnight stay, however, was higher from year 2. There was no significant difference in A&E attendances in NEHF apart from lower rates in year 1.

In both Blackpool and Fylde and Wyre, there was an indication that rates in emergency admissions relative to the comparison areas were decreasing over time, though this was not statistically significant. Both vanguards showed signs of a trend towards lower A&E attendances over time, although this was only significant in Blackpool in year 4.

In Mid-Nottinghamshire, emergency admissions were higher in year 4 but there was a trend towards lower rates in years 5 and 6 relative to the comparison area. Rates of A&E attendances were no longer significantly higher relative to the comparison area in years 5 and 6.*

Figure 2: Trends in emergency admissions in the population aged 65 years and older in vanguard areas and their comparison areas (rates per 10,000 people per month)



Note: The vertical line denotes the start of the integrated care programme.

* In the population aged 18 years and older, there were significantly fewer A&E attendances and emergency admissions by years 6 and 5, respectively.

Wider evidence of MDT impacts

Overall, broader evidence of the impact of MDTs was limited and mixed (see Appendix, Table 2 for further details). Studies assessing the impact of MDTs on health outcomes, such as mortality or quality of life, typically found no, limited or mixed evidence of impact.^{35,36,38,40} A review of MDTs on quality of life for patients with chronic conditions, for instance, found most studies reported mixed outcomes.⁴⁰ A review of ‘intensive’ primary care interventions involving MDTs found most studies showed no significant impact on mortality.³⁶

Evidence on quality and use of services was also mixed.^{23,34,35,36,37,38,39} Meta-analysis of nurse-led integrated care models involving MDTs, for instance, found no effect on hospital admissions, emergency department visits or nursing home admissions.³⁸ Meta-analysis of case management interventions for ‘at risk’ patients in primary care also found no effect on primary and secondary care use, whether case management was delivered by an MDT or not.³⁷ A review of integration between primary care professionals and care homes looked at a mix of measures on the effectiveness of interventions, such as prescribing and health outcomes, and found mixed or no effect.³⁵

Some reviews found more positive impacts for some types of MDTs. One focused on a wide variety of integrated care interventions and overall found that these models may increase access to care and improve patient experience.^{23,34} Evidence was mixed for the MDT interventions overall within this review, though results of UK studies of MDTs implemented alongside other interventions – described by the authors as more ‘complex’ MDT interventions – were generally positive, including perceived improvements in quality and access and some reductions in hospital use.

Another review explored the impact of MDTs on hospital use for patients with chronic conditions.³⁹ It found that MDTs focused on general chronic disease management reported mixed or no effect, while MDTs focused on single conditions (typically heart failure) reported some reductions in hospital use. Across the mix of studies we reviewed, robust evidence on the impacts of MDTs on care costs was limited.^{33,35,37,39}

Implications for MDTs

MDTs are a core part of efforts to provide more integrated care for people in the UK and other countries.^{4,23} MDTs are not new and are widely thought to be needed to deliver high-quality care for people with chronic conditions.^{41,42,43} They also appear to be here to stay: the ambition for ICSs and PCNs in England involves developing MDTs to join up health and care services in the community. Expanded team-based working in primary care – with GPs working alongside physiotherapists, pharmacists, social workers and others – is also seen as one way to help mitigate growing shortages of GPs in England.^{44,45}

What we found

Despite widespread policy support, evidence on the impact of community-based MDTs is mixed. Our evaluations of three MDTs involved in new care model vanguard programmes found that MDTs did not reduce emergency hospital use – and may even

have led to increases – at least in the short term. Our longer term evaluations of the broader programmes in which these MDTs were implemented found some evidence of reductions in emergency hospital use. However, this took between 3 and 6 years – and we could not assess the contribution of MDTs to these reductions. The broader evidence was often of poor quality and paints a mixed picture – though some studies suggest that broader integrated care interventions involving MDTs can improve patient satisfaction, perceived quality of care and access. Other more recent studies of MDTs in England also show mixed effects on health care usage.^{46,47}

The evidence summarised in this briefing pre-dates the pandemic. The IAU evaluations of MDTs covered periods up to 2018, while the wider evidence refers to studies predominately pre-dating 2018 and the IAU evaluations of the wider integrated care programmes covered periods to March 2019 or February 2020. Since then, pressures on services have grown and staff shortages have widened. Nonetheless, the MDTs we evaluated are likely to share similarities with community-based MDTs currently being implemented in England.²⁸

What the findings mean

A lack of clear evidence on impact does not necessarily mean that community-based MDTs ‘don’t work’. There may be several explanations for limited or mixed evidence – from the assumptions about how MDTs function to the way MDTs are set up, their wider context and how they are evaluated. These explanations have implications for policymakers and local leaders seeking to support new care models.

Unrealistic assumptions about MDTs

One explanation may be that the rationale for some MDTs is underdeveloped or flawed, contributing to unrealistic assumptions about what MDTs can deliver.^{48,49} For example, there is often an assumption that by providing more coordinated care in the community, MDTs will lead to patients needing less emergency hospital care. But MDTs often target patients at highest risk of hospital admission and with the greatest health and care needs. Although these patients will likely benefit from additional support, it may not be possible to prevent a hospital admission.^{50,51,52,53} MDTs may also affect the behaviour of patients or staff in unanticipated ways⁵⁰ – for example, if MDT staff are more risk averse because they do not know the patient’s medical history.⁵⁴

There may also be unrealistic assumptions about how quickly MDTs can achieve their aims. New models of integrated care are complex to develop and take time to implement – often over several years.³⁰ Even then, it can take time for a patient’s health to improve as a result of an intervention. And although MDTs could lead to better health in the long run, they may identify unmet need that could increase the need for emergency care at least in the short term.^{26,46}

MDTs might not be implemented as intended

Another potential explanation is that MDTs are not implemented as intended, or in line with the underlying theory of change. For example, MDTs may receive fewer referrals than expected,⁵⁵ or referred patients may be more severely ill than planned, eg due to a shift in referral pathways, limiting the MDT’s ability to proactively address care needs as intended.³¹

Implementation of MDTs could also fall short. A combination of factors shapes how well MDTs work – from how teams are organised and managed, to the wider policy context in which they are developed. At a team level, a mix of studies identifies factors that can support effective MDT working, such as strong relationships, staff resources, clarity on staff roles and responsibilities and lines of accountability, strength of management, and access to shared data.^{56,57,58,59} Broader evaluations of integrated care initiatives in England also point to wider factors shaping the success of local integration efforts, such as the history of joint working between organisations, relationships between local leaders, staff engagement in the changes (especially of GPs) and conflicting changes in national policy.¹⁷ Patient voice in MDTs and broader initiatives is also often lacking,¹³ yet can provide meaningful input into their development and improvement.⁶⁰ Table 1 in the Annex lists some of the factors that shape team working.

Wider contextual factors shape the impact of MDTs

MDTs are just one component in a complex system of interventions that interact to shape how care is delivered. In the new care models vanguard programmes, community-based MDTs were implemented alongside a mix of other interventions to coordinate services for high-risk patients, as well as changes in health and care governance and decision making and additional funding.

The broader context can shape the impact of MDTs in both directions. For example, a recent review of evidence on the impact of integrated care models found that while evidence on the impact of MDTs was mixed, UK studies of MDTs implemented alongside other interventions generally reported more positive results. This included perceived improvements in quality and access and some reductions in hospital use.^{23,34}

On the flip side, analysis of MDTs introduced in the integrated care pioneer programme identified lack of services in the community as a common barrier to success.⁶¹ Local authority budgets have been cut substantially over recent years – public health budgets, for instance, fell by a quarter per person between 2015 and 2020 – with funding falling furthest in more deprived areas.^{62,63,64} Diminishing community resources are likely to affect the potential impact of MDTs, as well as adding to the pressure on unpaid carers, who play a crucial role in bridging gaps in community support.^{53,65}

Evaluations may not be able to detect an effect

A final explanation is that evaluations of MDTs may be of insufficient quality to reliably assess their impact. MDTs are complex interventions – and evaluations need to be carefully designed to understand whether the intervention is having an effect and for whom. Yet evaluations of new models of care are often short term, small scale and lack robust methods – frequently due to lack of easily available data. Evaluations may also fail to capture important activities or outcomes, such as those that matter to patients, carers or staff. This could be due to an underdeveloped theory of change or lack of data.

Broad evaluations of MDTs providing care to patients with a range of conditions and needs may mask differing effects within subgroups of patients. For example, studies by the IAU on enhanced support in care homes found that while the overall effect of the programme

was broadly positive, an analysis of the effect separately in nursing and residential care homes revealed large reductions in emergency hospital admissions in residential care homes but none in nursing homes.^{66,67}

The role of monitoring and evaluation

While there is guidance on MDTs and evidence on enablers and barriers to effective team working,^{34,56,57,58,59,68} there is no single blueprint for MDTs that would guarantee better health outcomes, reduced emergency hospital use or improved patient experience. In some contexts, MDTs and integrated care initiatives have been shown to have a positive impact on patients and the wider system, but this is not always the case. Given the diversity of MDTs and the contexts in which they operate, this is perhaps not surprising. The effect of MDTs depends on many factors, including team resources and skills, staff engagement, IT resources, access to data, population characteristics, and broader context such as local community services and overall levels of investment.

Therefore, to realise the benefit these initiatives can have, implementation needs to be carefully planned and supported by ongoing monitoring and evaluation. Applying learning health system* approaches and providing rapid feedback on whether MDTs are being implemented as planned and achieving the results expected will allow for ongoing learning and improvement.⁶⁹

Recommendations

In designing an approach to monitoring and evaluation we make four recommendations:

1. Develop a clear, evidence-based 'logic model'

A clear, evidence-informed logic model (or theory of change)[†] for how service changes are expected to lead to improvements in care – along with the resources needed and factors that will shape progress – can help identify the support needed to make MDTs work and set meaningful goals.

This requires thinking through the planned service changes in detail and identifying underlying assumptions, such as referral routes, target population and access to services in the community. While existing evidence should be used to develop the logic model, the model should also be rooted in the local context and used as an opportunity to challenge thinking on how the model is expected to work. It is useful to put expected or target numbers against aspects of the logic model, (eg the required number of staff hours, the number of patients enrolled each month and the period of time for support), as well as the timeframe and magnitude of change expected in outcomes. These can form a basis for planning as well as assessing actual implementation.

* A learning health system is a team, provider or group of providers that has developed the ability to learn from the routine care it delivers and improve as a result – crucially, doing so as part of business as usual.

† Both logic models and theories of change are tools to help design and evaluate interventions. Logic models articulate the underlying theory of change that shapes the intervention and help build an understanding of goals, activities and expectations, by documenting the expected inputs, outputs and outcomes in a simple and logical sequence of steps. A theory of change typically considers the intervention within the larger system, including external factors and how they interact with the intervention.

A useful step-by-step guide to developing a logic model is available from the Strategy Unit.⁷⁰ A logic model should be designed with input from staff and patients, and the public.⁵⁷

2. Ensure data collection is part of implementation

Collecting data on key aspects of the logic model, including resource inputs, activities and outcomes should be part of the implementation of MDTs. Access to timely data is crucial to allow local teams to monitor the implementation and impact of interventions, test assumptions and identify opportunities for improvement.

Where possible, data should be recorded routinely in a way that facilitates easy extraction and analysis for monitoring and evaluation purposes. Some data will be available from existing systems such as patient records. Where relevant information is collected in several datasets, data may need to be linked. Or new data collections may be needed, for example to capture data on broader outcomes beyond hospital use to provide a fuller picture of the outcomes that matter to patients and their families, such as experience of services or quality of life. However, manual data collections can be resource intensive.

Local linkages of data sources (eg hospital, primary care and social care or ambulance data) have provided new insights and there are instances where new data collections are being developed.^{71,72,73,74,75,76,77} To be most effective, there needs to be a systematic, national approach to collect a wide range of outputs and outcome metrics for all patients, not just those receiving a new service. Good-quality data on both patients receiving an intervention and those who are not will allow for more robust evaluation.

Collecting data on costs associated with setting up and running MDTs will allow for assessments of value for money. These should ideally include not only staff and infrastructure costs but also data on opportunity costs, such as diverting staff from other services.

3. Monitor inputs, activities and short- and medium-term outputs

Regularly monitoring activities, for example the number of referrals, referral routes and characteristics of patients referred, can provide early indications of whether the MDT is working as intended and opportunities to learn and course-correct. As such, done well, monitoring is a vital part of evaluation, providing rapid, actionable insights. Combining monitoring with qualitative insights can help understand patient and staff perspectives on the service changes being introduced and the underlying mechanisms. For example, if lower than expected numbers of referrals are due to a lack of clarity on referral criteria,⁵⁵ communication to potential referrers on referral criteria can be adapted.

4. Undertake robust evaluation of outcomes

As MDTs ultimately aim to improve outcomes – whether these are patient outcomes or health service efficiencies – it is important to assess if this has been achieved, though it can be difficult to do this well. Outcomes can be slow to emerge – requiring longer term studies – or are not always well defined or routinely recorded (particularly for those patients who might form a comparison group). It is also not always straightforward to establish whether an observed change in outcomes is due to a particular intervention.

Robust evaluation requires careful design and reliable data on all patients in the analysis (including the comparison group) and their interactions with services. A good logic model will help inform a robust evaluation, for example on data collection, study population and potential subgroups, outcomes and, length of patient follow-up, and help identify potential biases.

Evaluations often compare patient outcomes before and after the intervention has been introduced ('pre-post' studies). But this approach risks identifying changes that would have happened anyway without the intervention – a phenomenon known as regression to the mean.^{50,78} A more robust method than pre-post studies, used by the IAU in its studies of MDTs, is to compare outcomes of MDT patients with the outcomes of a similar group of patients who were not cared for by an MDT. Hospital and primary care data, if available, can be used to identify a group with similar characteristics, such as age and long-term conditions. But this method can also have limitations: routinely collected data may not adequately record severity of disease or social isolation or other social factors that affect emergency hospital use,^{79,80} and details on comorbidities are often incomplete in hospital data.⁷⁹

Robust evaluation requires resources and skills. There are a growing number of evaluation teams that specialise in service evaluation.^{81,82,83,84,85} However, for a true learning health system, these skills and methods need also be embedded within local teams.⁶⁹ There are established local collaborations, including universities and health or social care organisations, such as Applied Research Collaborations and numerous local teams doing insightful analyses – as well as a growing acknowledgement in the NHS of the importance of data and analysis to inform decision making.^{71,86,87,88,89,90} There are also opportunities for better networking and peer support,^{91,92,93} knowledge sharing,⁹⁴ available written resources and open access code,^{95,96,97} as well as training.^{98,99,100} But more needs to be done. As well as having the resources to develop analytical roles and embed monitoring and evaluation, local and national decision makers throughout the system need to understand and recognise the value of analysis to derive insights, if analysis is to inform decision making.¹⁰¹

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Annex: The factors shaping successful team working

Table 1: Examples of team-based factors that can support MDT working^{34,56,57,58,59}

Domain	Example enablers
Planning and design	<ul style="list-style-type: none"> Emphasis on workforce and workflow planning Carefully designed skill mix mapped to patient needs Engagement and inclusion of patients and the public in design and implementation of teams. Ongoing co-production Clear governance arrangements Treating MDTs as core, rather than just a 'bolt-on' to existing services Track implementation progress and iterate as needed
Learning and development	<ul style="list-style-type: none"> Access to good clinical supervision Appraisals incorporating team goals and involving feedback from MDT members Emphasis on cross-professional and cross-organisational training Willingness to learn from and with each other Training for skills to both support the staff member's role in the MDT and for making the most of MDT working itself Gaining buy-in from team members for changes in ways of working
Culture and leadership	<ul style="list-style-type: none"> Shared commitment to the delivery of high-quality, coordinated care High levels of respect and trust Appreciation of the importance of relationships and creating time and willingness to build them Commitment to creating a shared system of beliefs, values and common philosophy within the team Embracing collective leadership
Working across boundaries	<ul style="list-style-type: none"> Clarity on roles, responsibilities and lines of accountability (especially for roles shared or spread across different organisations) Willingness to identify, name and work through cultural differences between staff from different organisations and professions Inclusion of bridging roles such as care coordinators within teams
Communication	<ul style="list-style-type: none"> Prioritising, valuing and constantly improving communication within the team Promotion of psychological safety (staff feeling able to speak up or make mistakes without retribution) Use of huddles and other forms of short, frequent check-ins between team members Access to digital communication tools and agreement on preferences and expectations for their use Adoption of MDT regular meetings that follow best practice Communication with patients about what the MDT is and does, what it can mean for their care and what patients want it to mean for them
Technology and estates	<ul style="list-style-type: none"> Shared IT systems and access to patient records Redesign of physical spaces to promote collaboration Co-location of team members (where appropriate)

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