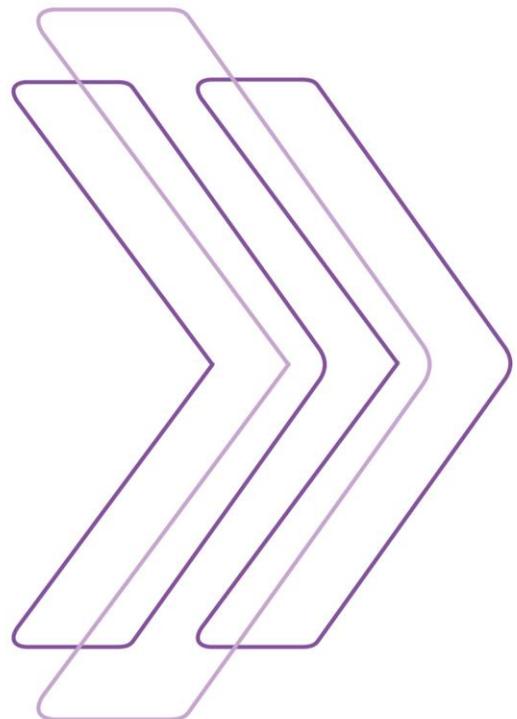


The Montefiore Health System in New York

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This independent report was commissioned by 3M. The King's Fund carried out interviews with Montefiore's staff and relied on information provided to compile this case study. It did not itself evaluate Montefiore's performance. The views in the report are those of the author and all conclusions are the author's own.

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Contents

1	Overview	5
	Origins	6
	A social mission	7
	A hospital without walls	7
	Civic leadership	9
	Taking risk	11
	Achieving scale	12
	Managed care	13
2	Building primary and community care	16
	Montefiore's owned primary and community care clinics	16
	Developing a multidisciplinary model	17
	Establishing a network of affiliated primary care clinics	18
	Further expansion of the primary care system	20
	Incentives for primary care practices in the network	20
	Bringing behavioural health into primary care	21
	Bringing primary care into schools	23
3	Managing patients with complex needs	25
	The care management organisation	25
	Identifying patients for active case management	25
	Enrolment and initial assessment	27
	The case management teams	27
	The case management processes	28
	Oversight of case managers and their patients	30
	Doing 'whatever it takes' for patients	30
	Work with primary care clinics	32
	Transitions of care	32
	Programmes for specific groups	33
	Moving out of case management	34

4 Supporting infrastructure	35
Early development of electronic health records	35
Implementing the EPIC electronic health record	36
Clinical looking glass	37
Shared analytical capability	38
Improvement collaboratives	41
5 Elements of a high-performing system	43
The vision	43
Principles to guide action	44
Funding arrangements	45
Structure of the system	46
Joint decision-making	46
Shared resources	47
Cultivating system-wide learning	47
Broader partnerships	47
Why these elements rather than others?	48
Implications for leaders and policy-makers	48
End note	50
References	52

1 Overview

Every day in New York, the number 4 train running from Brooklyn to the Bronx achieves an astonishing process of social segregation. Picking up the train in midtown Manhattan, you join a representative mix of the New York population: suited professionals, manual workers, children going to school. As the train crosses 85th Street, running parallel to Central Park, the residents of the Upper East Side above you have an average household income of \$180,000; smoking, obesity and chronic diseases are well below the national average; life expectancy stands at 85, better even than Japan.

By the time you cross 150th Street, the heart of the Bronx, almost all the white people and all the suited professionals have exited the train. Average household income has shrivelled from \$180,000 to just \$45,000; unemployment has doubled; in the South Bronx, 65 per cent of children are born into poverty. From 85th Street to 150th Street, life expectancy drops by a decade: 6 months for every minute on the subway; 3.2 years for every mile travelled. The residents of projects in Fordham Heights might glimpse Trump Tower in the distance but, like the view from Oldham to Manchester, or Tower Hamlets to the City of London, the wealth there may as well be on another planet (County Health Rankings 2018; Virginia Commonwealth University 2016).

Few health care organisations have been a match for such inequality. The social and environmental forces propelling poor people into sickness are too great; the tools of traditional health care – the pills and the operations – inadequate to the challenge. Yet the Montefiore Health System, a 'safety net' health system in the heart of the Bronx, has found ways of helping even the most deprived, while contributing to the recovery of a struggling community. It has done so, in large part, by stepping beyond the bounds of conventional health services.

Origins

None of this would have made much sense to Montefiore's founding fathers. On 4 February 1884, a group of prosperous German and Sephardic Jews met at Congregation Shearith Israel to discuss charitable works. Something needed to be done for the thousands of East European Jews crowding into tenements on the Lower East Side. And a cause was required to mark the 100th birthday of Sir Moses Montefiore, the most famous Jewish leader of the time. Some argued for a school, others for housing; the rabbis wanted to establish a reformatory for young Jewish criminals. In the politics of just deserts, health care prevailed over education, housing and rehabilitation, a precursor of things to come, and the Montefiore Home for Chronic Invalids was born.

Montefiore's first half century charts the evolution of western health care from superstition to science. The original Home for Chronic Invalids offered little more than housing and palliative care. In the last hours of the 19th century, it pursued a brief passion for hydrotherapy as a cure-all for, among other things, typhoid, pneumonia and gout. But by the start of the 20th century, nurses were attending classes on sterilisation and wound dressing, the hospital had a laboratory for blood tests and doctors were carrying out structured trials. In the 1950s, Jewish donors supported the creation of a new medical school, the Albert Einstein College of Medicine, which offered places to Jewish trainees excluded from other schools and quickly became a leader in the study of diabetes, liver disease and heart disease (Levenson 1984).

Over the same period, the population of the Bronx conducted its own revolution. The original Irish, Italian and Jewish settlers started to leave from the 1930s, escaping prohibition gangs for calmer suburbs. Hispanic and African Americans filled the vacuum from the 1930s to the 1960s, the Bronx's cheap housing preferable to grinding poverty in Puerto Rico or discrimination in the South. The remaining middle-class families fled in the 1970s when drug gangs and heroin took possession of the borough. On 12 October 1977, the cameras covering the world series at the Yankee stadium cut to helicopter shots of a huge blaze. As commentator Howard Cosell supposedly said, 'Ladies and gentlemen, the Bronx is burning' (Mahler 2005). From the 1970s, arsonist landlords torched their properties for the insurance. This was the period when city authorities warned tourists not to leave Manhattan.

As society changed, so did the diseases of poverty. By the 1960s, diabetes, hypertension, respiratory disease and heart disease had supplanted syphilis and tuberculosis. When opioid addiction took hold in the 1970s, prevalence of hepatitis C, HIV and AIDS skyrocketed. Researchers in the 1980s described a 'synergism of plagues': destruction of housing, homelessness, drug abuse, violence, economic decline and disease (Wallace 1998). That legacy is visible in the Bronx today: 13 per cent of Medicaid recipients in the Bronx have asthma, in comparison with around 8 per cent of American adults as a whole;

15 per cent of adults in Fordham and Bronx Park have diabetes, in comparison with around 9 per cent of American adults as a whole; 8 to 9 per cent of residents in the South Bronx report severe psychological distress, in comparison with around 3 to 4 per cent of American adults as a whole (New York State Comptroller 2014; New York City Department of Health and Mental Hygiene 2013; Centers for Disease Control and Prevention 2016; New York City Health Provider Partnership 2014). According to the County Health rankings the Bronx is the least healthy community of 62 counties in New York State and has been since the rankings began (County Health Rankings 2018).

A social mission

Founded on Jewish philanthropy, Montefiore adopted from the beginning a mission to support this disadvantaged population. Doctors and other staff didn't join Montefiore primarily for the prestige or the money – there were larger offices and better fees to be had in Manhattan – but from a sense of social responsibility and the opportunity to tackle pressing social challenges. From the 1960s onwards, Montefiore started experimenting with new models of community care for deprived areas, developing an early version of the patient-centred medical home. In the 1970s, it was one of the first hospitals in the United States to develop a residency programme in social medicine, training a new cadre of primary and community doctors to serve in tough urban communities, their purpose, explicitly, to use medicine as an instrument for social justice (Paccione 2013).

A hospital without walls

But even if the heart was willing, the infrastructure at Montefiore's disposal was disintegrating. When large numbers of middle-class families abandoned central Bronx neighbourhoods in the 1970s, so too did their primary care doctors. By the late 1980s, there were 34 primary care doctors for every 100,000 people in the Mott Haven / Hunts Point district of the Bronx, in comparison with 1,450 for every 100,000 in the Upper East Side of Manhattan (Jonsen and Stryker 1993) and 84 per 100,000 in the US as a whole (Salsberg and Forte 2002). Poor people without commercial insurance would queue at a grilled kiosk, a 'pill mill', and pay \$5 to talk to a doctor for a few seconds, before receiving a prescription for antibiotics or painkillers. Only a small proportion of the Bronx population had a dedicated general practitioner. Vaccination was sporadic. In the poorest neighbourhoods, preventive medicine was non-existent.

While many other US hospitals facing similar challenges sat on their hands, Montefiore's response was to build an entire primary care system from the bottom up. From the 1980s to the 1990s, it trained or recruited its own primary care doctors and established its own primary care clinics. By the end of the 1980s, it had established three health centres in its most underserved

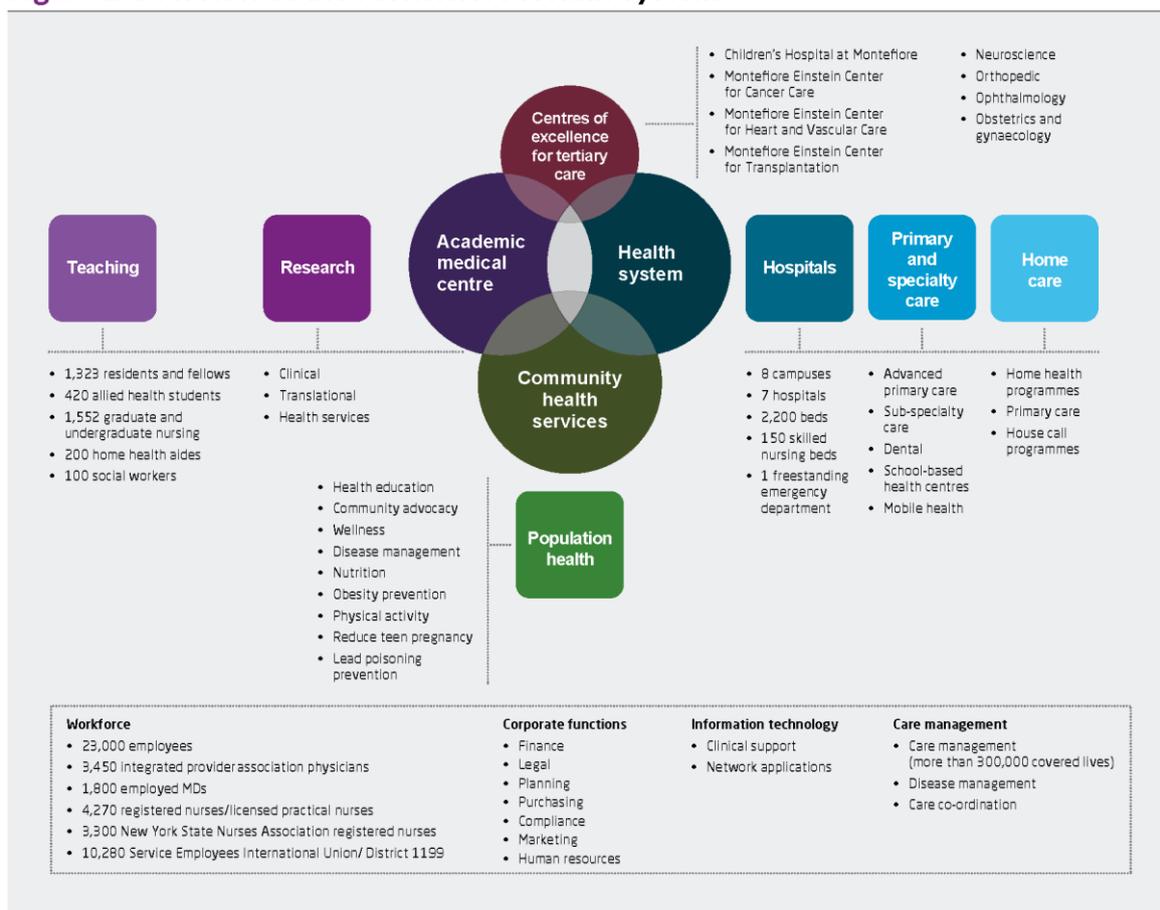
neighbourhoods. By the 2000s it had established one of the largest primary care systems in the country: more than 300 doctors employed at 21 primary care clinics providing close to 800,000 appointments per year (Foreman 2004).

This was the start of a tradition of reaching beyond the hospital's walls, and beyond the confines of hospital medicine, to support a struggling population. As Dr Spencer Foreman (Montefiore's chief executive from 1986 to 2007) argued, an academic medical centre is often the only organisation in a deprived US neighbourhood with the professional expertise, the managerial strength, the physical resources and the financial clout to improve the health of its community (Foreman 2004).

Over three decades, Montefiore used these managerial, clinical and financial resources to fill gaps in the out-of-hospital system, irrespective of its formal responsibilities or whom else might be to blame. It established behavioural health services to work with primary care and created its own methadone programme for drug users. It also developed its own domiciliary care and residential care services.

As Montefiore's doctors and nurses explained, if you wish to support the most deprived people in your population, you must go out and find them. There is little point in sending letters to people with profound physical health, behavioural health and social challenges inviting them to appointments in three months' time, even if you do happen to know who they are and where they live. Montefiore established mobile paediatric clinics in poor neighbourhoods, health services in homeless shelters and behavioural health services in primary care practices so that it connected with vulnerable people wherever they can be found. When Cambodian refugees were deposited in the Bronx in the 1980s, Montefiore hired Cambodian staff and developed new services for a community scarred by genocide and internment camps. By the early 2000s, Montefiore had established the United States' largest school health programme: school-based clinics providing primary care, counselling, optometry and dentistry to 40,000 children who might otherwise go without. Health care improved and so did attendance at school, participation in class, and educational outcomes.

Figure 1 Overview of the Montefiore Health System



Civic leadership

This was also the start of a tradition of civic leadership extending beyond health care to address the social crisis poisoning the Bronx. The Albert Einstein College of Medicine and the Montefiore Medical Centre were among the first to explore the social and environmental factors fuelling the epidemic in chronic diseases. From the 1970s, Dr John Rosen pioneered research on the link between lead poisoning and children's neuro-behavioural development, arthritis and other conditions. For poor children with an average IQ, Dr Rosen argued, lead paint was what stood between a lifetime flipping burgers and a meaningful career (Martin 2012). Since the early 1990s, Dr Philip Ozuah, President of the Montefiore Health System, has researched the link between environmental factors and asthma. Montefiore's recent research highlights the impact of poor housing, rodents and pests on chronic illness. As Sir Michael Marmot would put it, what was the point in handing out inhalers, only to return children to the damp, rat-infested housing causing their conditions (Marmot 2015)?

Montefiore's answer was to establish a not-for-profit subsidiary, the Mosholu Preservation Corporation, to act as a buyer of last resort for those ruined

blocks that had been gutted for the insurance. By the end of the 1980s, the corporation had ensured that nearly every apartment building in the Norwood neighbourhood surrounding the medical centre had been renovated (Foreman 2004). Montefiore successfully negotiated stricter environmental standards on lead poisoning, campaigned for active programmes to remove lead from residential buildings, and set up a lead-free safe house for families to live while lead paint was being stripped from their homes. These efforts to reshape the Bronx are continuing: Montefiore is working with local shops to improve the availability of fruit and vegetables, hosting a network of farmers' markets in hospital car parks, and supporting a business improvement district.

When doing so, Montefiore rarely acts as a sole crusader. As its leaders pointed out, the difficulty in improving the health of a deprived population lies in the range of contributing factors and the interconnections between them.

There are limits to what can be achieved by focusing on just one or two of these factors at a time, say increasing vaccination rates or improving bus timetables, valuable as those isolated actions might be. To move the dial on population health, let alone make progress towards the higher objectives of greater wellbeing and prosperity, requires action across the panoply of factors that determine whether a society is sick or healthy: support for young children, diet, education, job opportunities, transport, housing, public spaces, care for elders, access to health care among many others. No single organisation has the wingspan to touch more than a handful of these issues on its own. Working in consort within a broad coalition – collective action to achieve collective impact – is both an obligation and an immense challenge (Kania and Kramer 2011).

Wherever these broader social issues are being discussed, representatives of Montefiore are present at the table. Since the early 1980s, Montefiore has nurtured partnerships with the city government and its health, education and housing departments. When Mayor Bloomberg announced his ban on supersized soft drinks in 2012, he did so at the Medical Centre alongside Dr Steven Safyer, Montefiore's chief executive since 2008, and his medical staff. When the city authorities convened a taskforce to develop the Kingsbridge Armory, a large, vacant armory complex in the centre of the borough, Dr Safyer joined the board.

Montefiore is a founder or member of dozens of coalitions to improve the local community, whether focusing on health, education, housing, homelessness, justice, the environment or economic development. When Montefiore sees an opportunity to further its partners' agendas, whether it's keeping children in school or supporting the homeless, it does so. When a safety net hospital in the Bronx falls over, the city's health department looks to Montefiore to turn it around. In turn, when Steven Safyer or Montefiore's other leaders focus on a

new challenge, whether it's improving children's health or getting the homeless out of hospital, there is a willing coalition to support them.

Taking risk

British readers might wonder what riches Montefiore has at its disposal to play such a role in its community. The truth is that by the early 1990s it was close to bankruptcy. Most hospitals in the United States rely on patients with commercial insurance, whose income helps to subsidise a smaller proportion of patients who have the government's lower paying, Medicare or Medicaid insurance or who lack insurance entirely. More than 80 per cent of Montefiore's insured patients had, and continue to have, Medicare and Medicaid insurance and a large proportion of the remainder have other public sector or union insurance with relatively low reimbursement rates. Before Obamacare, a quarter of the adult population of the Bronx had no insurance at all.

Under these circumstances, Montefiore's leaders recognised that they were unlikely to achieve financial sustainability, let alone deliver the type of care they wanted for the community, by chasing revenues for individual hospital procedures. In many cases, the reimbursement would fail to cover the costs of services. Instead, they needed to take overall responsibility for the available health care funding for their population and achieve quality improvement, savings and financial stability through managing resources more efficiently across the continuum of care.

Montefiore's preference was to start offering integrated packages of both insurance and health services, like Kaiser Permanente and other health maintenance organisations on the west coast, but it lacked the capital to assume full liability for patients' insurance. Instead, it decided to pursue risk-based contracts with insurers, taking a proportion of the financial risk of managing groups of patients in exchange for a proportion of the savings if it managed to improve the quality of care while bringing costs down. What is now a defined path was at that time a leap in the dark. As Dr Safyer explained: 'They were throwing things at us. They thought we were completely insane.'

Montefiore took on its first risk-based contract with US Health Care (now Aetna) in 1996, initially for a few tens of thousands of commercially insured patients. In 2011, it was selected as one of 32 Pioneer accountable care organisations and took on a shared-savings contract for around 23,000 Medicare beneficiaries. By 2017, it held risk-based contracts with the government and commercial insurers for around 400,000 patients, around 11 per cent of its current service population in the Bronx and neighbouring counties. These include 55,000 Medicare beneficiaries in the government's next generation accountable care organisation programme that succeeded the Pioneer programme.

Around 55 per cent of these 400,000 patients are on capitation: Montefiore receives a proportion of each person's annual membership fees (or 'premiums') to their insurer, benefits if it delivers the agreed services and meets agreed quality standards for less than the total budget and assumes all the losses if costs are higher. The remaining 45 per cent are on shared-savings arrangements where Montefiore and its network continue to receive a fee for service payments but receive a share of the savings if they meet agreed targets for quality and avoid unnecessary treatment such as avoidable hospital admissions.

Achieving scale

In the United States, if not necessarily in the UK, any health care organisation that wishes to take on risk-based contracts needs to do so at significant scale, capturing enough of the patients holding particular insurance packages, of which there are many, to manage the risk that some will present unexpectedly higher costs than others. It also needs to capture a sufficient number of patients within particular localities to achieve economies of scale in service delivery, for example to be able to put in place the necessary infrastructure to manage the health of a population.

From the mid-1990s, then, Montefiore pursued expansion. In 1995, it established an 'independent provider association,' bringing together all its employed doctors and other independent primary and community doctors to hold these new risk-based contracts. Over the next 20 years, it encouraged increasing numbers of independent primary care practices to join the network. Progress was neither quick nor easy. Independent primary care doctors were deeply suspicious of 'takeover' by a large hospital group. But, by 2017, Montefiore had succeeded in bringing together more than 3,500 employed doctors and more than 1,300 independent doctors in the Bronx, the neighbouring county of Westchester and the Hudson Valley.

Montefiore also pursued expansion of its hospital network. By the 2000s, the Montefiore system included the Albert Einstein College of Medicine (initially affiliated to, and only later owned by Montefiore), the flagship Moses campus, which provides many of Montefiore's tertiary services, and two other major hospitals in the Bronx. In 2001, Montefiore established a specialist children's hospital to complement its network of community-based paediatric clinics. By 2018, it had purchased or partnered with eight additional hospitals in the Bronx, Westchester and the Hudson Valley. Over the same period, it built centres of excellence on a small number of sites to deliver cancer care, heart and vascular care, transplantations and neurosurgery. The system today also includes 16 mental health and substance abuse clinics, 73 specialty care clinics for paediatrics, women's health and other services, and a separate rehabilitation hospital.

Managed care

Other case studies will need to be written about the strengths of Montefiore's specialist services. For NHS leaders grappling with integrating care, the jewel in Montefiore's crown is its Care Management Organisation, a management company that brings together 1000 staff to help Montefiore manage its risk-based contracts. Established in 1996, the Care Management Organisation manages relationships with insurers and handles the billing, reporting and compliance that comes with risk-sharing. It crunches the numbers to identify opportunities to improve quality and bring down costs. It also takes charge of patients with particularly complex needs to improve their care, and brings disparate primary care, hospital, social care and voluntary services together to work as a coherent team.

Every month, the analytics staff in the Care Management Organisation search their claims and clinical databases to identify those patients whose medical history and use of health services suggest the need for more active and co-ordinated care. An 'initial assessment team' runs 90-minute telephone interviews to understand these patient's challenges and life goals. A team of 200 nurse case managers and social workers works with enrolled patients to surface the underlying problems that are contributing to their ill health, identify the changes that will make a difference, and pull together the medical, social and voluntary services needed to turn their lives around. Geriatricians, psychiatrists, pharmacists and other specialists give advice where needed. The nurse case managers draw in specialist teams to help with specific problems such as access to food or housing.

Nobody is simply going through the motions – ticking boxes to count the numbers of patients who got a call or received a care plan. Staff will search for a patient when they arrive in accident and emergency or are admitted into a hospital ward if that's what's needed to enrol them into care management. When the case managers identify housing as a critical issue, they don't simply 'signpost' patients to housing services or hand over a telephone number. They prepare the housing application, hound the housing department to do something, or sit with people in their interviews with housing associations if required.

One senior nurse described a 65-year-old patient with diabetes, heart disease, learning disabilities, anxiety and depression. Over the previous 18 months she had crashed in and out of hospitals and nursing homes 20 times, inadequate health care costing \$500,000 per year. Montefiore's staff tracked her down in the hospital to bring her into the programme. The nurse case manager was working with her to improve her diet and ensure that she took her most important medications. They were looking for a chaperone to ensure she attended the visits they had set up with her primary care doctor and a psychiatrist. They were working with housing services to remove the dead rats, bugs and spiders that had stopped domiciliary care workers from

visiting. They were asking social services to investigate the possibility that she was suffering abuse in her home, another possible contributor to her regular emergency department visits. Nothing was off limits. Whatever the problem, they were searching for a solution.

Underpinning these efforts is a hard-nosed focus on continuous improvement and achieving measurable results. Montefiore's improvement staff work with new primary care practices in the network to benchmark performance, redesign workflows, and put in place preventive services. Primary care and hospital doctors meet quarterly in learning collaboratives to compare performance and share the results of improvement projects. Using 3M's population health analytics, Montefiore can pinpoint with ever-increasing accuracy the combinations of physical health, behavioural health and social challenges that signal a high-risk patient, the patients and diseases that present greatest opportunities for improvements in care, and whether interventions to improve quality and reduce costs had the desired impact.

Performance

None of our interviewees claimed that Montefiore was a perfect health system. This is now an extremely large system serving a population of more than 3 million. There is ongoing work to bring different parts of it together, such as incorporating the new hospitals into the group and linking some hospital specialists more closely with primary and community services. Although it now has 400,000 patients under risk-based contracts, Montefiore still serves many patients under fee-for-service arrangements. If more people were under capitation, Montefiore might go even further to reduce the need for hospital treatment and move care into the community. In 2015, Montefiore suffered a significant shortfall in one of its risk-based contracts, the result of higher than expected costs for a small number of patients. This led to redoubled efforts to manage these patients' care more efficiently.

Our interviewees were, however, proud of Montefiore's results. Montefiore became the poster-child for the Pioneer accountable care organisations programme when it announced the best performance scores of the 32 pioneers in their first two years. By the fifth year of the programme, Montefiore's quality scores had risen from an initial 67.1 per cent to 95.16 per cent for 33 metrics covering preventive health, treatment for high-risk groups, care co-ordination, patient safety and patient satisfaction. Over the course of the programme, Montefiore had a mean performance score higher than all other Pioneer accountable care organisations for 22 of the 33 performance measures. While improving quality of care, it also reduced the costs of care for its enrolled Medicare patients by a total of approximately \$74 million over the five years of the programme.

Montefiore's quality scores on most measures of population health management, including cancer screening, diabetes care and paediatric

preventive care, are equal to or better than national rates calculated by the National Commission on Quality Assurance. Montefiore has achieved these levels of quality while serving an extremely deprived population: 28 per cent of Montefiore's patients are 'dual eligibles,' patients with particularly complex health needs eligible for both Medicare and Medicaid support.

These improvements are ongoing. Staff described an improvement programme for a group of patients with end-stage renal disease projected to deliver \$10 million in savings within a year. A collaboration with a group of skilled nursing facilities to improve care for patients discharged from hospital has delivered a 40 per cent reduction in readmissions over 12 months. Montefiore's school health programme reports a 50 per cent reduction in positive pregnancy tests for teenage girls and a 40 per cent reduction in the number of children sent home from school each year because of ill health (Montefiore School Health Programme 2014).

2 Building primary and community care

Montefiore's success in managing patients under capitation depends on its ability to provide effective preventative services and to manage patients with chronic conditions in the community. This section describes the primary care system in more detail, including Montefiore's approach to developing its own clinics and to raising quality standards in its primary care network.

Montefiore's owned primary and community care clinics

At present, Montefiore has 21 primary care clinics across the Bronx delivering a combination of paediatric and adult primary care services and behavioural health services. These sites vary considerably in size, the smallest bringing together six doctors and managing 4000 visits per year, and largest bringing together 100 salaried doctors and managing 80,000 visits per year.

In addition, it has a large number of more specialist primary and community care centres including three multi-specialty clinics, four specialist paediatric clinics, twelve women's health centres and sixteen mental health and substance abuse treatment clinics. There are ten dental centres and five imaging centres.

Interviewees explained that one of the benefits of running such a large owned primary care group is the ability to offer substantial clinical oversight and support for the clinics. A senior paediatrician, Dr Andrew Racine, acts as the Chief Medical Officer for all 21 primary care clinics, working with two regional medical directors. There are also medical directors responsible for paediatrics, behavioural health and social work on the primary care sites. In addition, there are management teams responsible for leadership and operations at individual site primary care sites, including nurse managers and patient experience managers at some of the larger sites.

It is also possible to bring together substantial support functions. A central team of 100 staff is responsible for overseeing and supporting operations on all the sites including staffing, finances and other back office services. There

are separate teams to manage registration of new patients and referrals to specialist services. There is a medical director who oversees improvement and a team of coaches and data analysts who work with the clinics on improvement projects

Developing a multidisciplinary model

Since the late 2000s, Montefiore has been developing a primary care medical home model for its own primary care clinics, where general practitioners, nurses, health care assistants and other staff work together in multi-disciplinary teams. It has also actively supported development of the model within its network of affiliated primary care practices as discussed below.

In Montefiore's owned clinics, doctors work with teams of critical care registered nurses (CCRN) who provide some health care services and active case management for patients with complex needs, and licenced practical nurses (LPNs) who support doctors in some examinations and carry out tests and vaccinations. The core teams of primary care and other staff work have huddles every morning to discuss the patients they will see and plan the day. As discussed below, psychiatrists, behavioural health staff, social workers, pharmacists, diabetic educators and others are either collocated with or circulate among the clinics.

The central team sends out data on a weekly basis on patient experience, no show rates and access to appointments. It sends data quarterly on how sites are performing against Healthcare Effectiveness Data and Information Set (HEDIS) measures such as screenings and immunisations. The team is currently focusing on improving proactive screening for the population for behavioural health challenges such as anxiety and depression.

Dr Racine highlighted the need for a multi-disciplinary team model to deliver population health management effectively: 'Sole practitioners can do wonderful work and have great relationships with their patients. But they can't do population health the way we do it here. Part of the issue is that they don't know what they don't know. And the infrastructure needed to identify and engage effectively with groups of the population is substantial. You need a team of people who know the gaps in care for the group of patients they are following, find ways to reach out to them and get them into the clinic, efficient ways of completing tests and screening. That's not the work of a single individual. You need doctors, nurses, administrative people and IT.'

Establishing a network of affiliated primary care clinics

Since the mid-1990s, Montefiore has developed a network including 1500 independent doctors in primary and community clinics in the Bronx, Westchester and the Hudson Valley. These doctors are self-employed or work in independent clinics but participate with Montefiore in managing patients under risk-based contracts. Montefiore partners with these providers for one or two years before deciding whether they should become full members of the network and assume a share of the risks and rewards for patients under capitation.

As interviewees explained, Montefiore follows a structured process to support these practices to improve their systems and service standards before they become full members of the network. When practices enter the programme, a quality team from the care management organisation carries out a readiness assessment to gauge its ability to take on risk-based contracts. As part of this, it looks at 26 indicators covering staff to patient ratios, staff mix, access and availability of services in the practice, their use of data, electronic health records, their historical data on service quality, and their approach to quality improvement.

Based on the assessment, the quality team develops with the practice an improvement plan so that it can become a full member of the network. Vanessa Guzman, the associate vice president responsible quality improvement across the network, explained that the biggest gaps were typically having the necessary combination of staff, having appropriate workflows for managing patients' visits, using the practice's electronic health records effectively, building population health registries of people needing particular screening or preventive health care, standard processes for engaging patients at risk of or with particular diseases such as cancer and diabetes, processes for carrying out annual wellness checks for patients, and processes for monitoring and reviewing performance.

During the improvement phase, quality specialists and health system engineers in the quality team work with the practice to improve how it manages its patients. They focus on ensuring that the practice has appropriate staff such as nurses and assistants and is using them effectively, for example convincing the doctors that they do not need to carry out every task and using the nurses to see certain patients. They also focus on re-engineering the flow of work associated with patient visits. For example, opportunities often exist to improve planning of patient visits to get more of

the work associated with the visit done before the patient arrives. Montefiore works with the practices to ensure that patients complete necessary questionnaires and identify or complete any preventive screening, tests or vaccinations before the visit. It helps sites to set up registries on its electronic health record to identify groups of patients requiring preventive care, and effective processes for completing screening and vaccinations.

Many independent practices were initially wary of joining Montefiore's network. As Dr Philip Ozuah noted, 'People are concerned about being taken over by a hospital system. They worry that their closeness to their population, and the value of their community-based services will be lost. We needed to listen and understand what the primary care doctors were concerned about, prove that their fears were baseless, or explain why we were taking a particular course.'

Montefiore established shared governance arrangements that ensure that independent doctors in the network have a voice in decisions such as how it measures quality, the agreed standards for access and service quality, and annual priorities for improving services. It has also appointed senior doctors as influencers to engage with new practices before they start work with the quality team. The quality team aims to work in collaboration with practices, agreeing shared objectives for improvement and spending time explaining the benefits of particular approaches. For example, they spend time explaining why taking on additional staff will improve efficiency, why spending more time on administration will increase income or reduce penalties, and why particular preventive activities, such as depression screening will improve their patients' health.

Interviewees believed that Montefiore had gradually encouraged the doctors in its network to be more concerned about quality. The data on each practice's performance is publicly available and no doctors want to be seen as underperforming in relation to their peers. However, Vanessa Guzman explained that neither providing data nor introducing financial incentives was enough on its own. Small practices may not have the skills or time to interpret the data and develop actionable improvement plans. They need a combination of data and hands-on support. The practices in the network do not pay directly for support from Montefiore's quality team. Instead, the costs are recouped through improving quality and reducing the total cost of care for patients.

Many of the independent practices in the network are small clinics with one or two doctors and a small number of nurses and support staff. Montefiore is not actively encouraging these practices to merge into larger groups. Instead, it is encouraging practices to use a group of shared services. For example, it allows the practices to use an automated system for making telephone calls to patients. This prevents staff spending large amounts of time on the phone scheduling visits or communicating with patients after visits. Montefiore also rotates its own pharmacists and nutritionists into smaller practices so that they can offer similar services to larger clinics.

Medicare regulations that require extensive data reporting have also encouraged independent practices to join networks. If practices join an accountable care organisation's network, it is easier to meet these standards.

Further expansion of the primary care system

Montefiore is currently establishing partnerships with City MD and other medical clinics offering walk-in urgent care services in high streets and other convenient locations. The aim is to provide patients a broader set of options for accessing services. As Stephen Rosenthal put it: 'These new companies offering alternative routes into services can disrupt existing services. But they can also be an asset to establish health systems if they are prepared to use them the right way.'

Stephen Rosenthal disagreed with the view, held by some health care experts, that patients should ideally receive all their primary care services through a single, dedicated primary care team who know their history and are able to offer continuity of care. 'Patients need to be able to see doctors conveniently and that means being able to see them in different settings. As for continuity of care, we can use information systems to achieve this by ensuring data on patients' visits to different clinics are shared with their primary care doctors and kept on their health record.'

Incentives for primary care practices in the network

Interviewees explained that Montefiore does not ask independent practices in the network to share the full risk that comes with its capitated or risk-sharing contracts with insurers. Primary care practices often do not have strong enough balance sheets to be able to suffer significant losses in a bad year.

Montefiore therefore works on the basis that it will share savings with primary care if the system manages to improve quality and reduce the total cost of

care. If there are losses, it is likely that Montefiore will need to shoulder them in the short term. In 2015, it assumed losses because of higher than expected expenditure on a group of complex patients. It recouped a proportion of the losses by negotiating lower fees for some services in following years.

When it achieves savings, Montefiore shares a proportion with primary care practices to be distributed as profit. The amount that each practice receives depends on its contribution to meeting agreed quality standards and achieving cost savings. Montefiore holds annual town hall meetings or dinners during which it hands out the cheques and celebrates successes for the year. Montefiore also uses savings to support quality improvement, for example covering the costs of its quality team's work with practices and in developing the primary care home model.

Montefiore reserves the right to remove primary care practices from the network if they fail to put in place appropriate processes or meet agreed service standards. Interviewees explained that this was extremely rare. They were discussing whether to remove a single practice at present. In 2015, however, Montefiore gave practices who had not yet established an appropriate electronic medical record a year to do so before they were required to leave the system.

Bringing behavioural health into primary care

Montefiore decided in the early 2000s to co-locate behavioural health practitioners in its primary care clinics to improve access to services for a population with significant behavioural health needs. In general, it places clinical psychologists in its paediatrics practices and psychiatric social workers in its adult primary care clinics. Psychiatrists are also available, who can offer specialist support where needed. Some clinics also employ community health workers, people without extensive clinical training, who can help patients outside their clinic appointments.

As Dr Racine explained, huge benefits accrue when primary care staff are able to hand patients over to the behavioural health teams in person, rather than scheduling separate appointments and sending patients to facilities they are not used to. "If I am seeing a child who I think might benefit from counselling, I'll raise this straight away and ask if I can introduce them to the behavioural health staff. I'll walk down the hall with them and introduce them to Mrs Jones. When we first introduced these arrangements, the primary care

doctors thought they had died and gone to heaven. At last, there was something immediate they could do to help patients with behavioural needs.'

Matthew McDonough, the vice president responsible for Montefiore's owned primary care clinics, explained that for this system to work effectively the clinics needed to have staff on site with open appointments to see patients when needed. But the costs were outweighed by the benefits of ensuring that patients who needed behavioural health services actually got them. "You are paying for ready and waiting time, but you see a huge uptick in patients brought into treatment.' Before Montefiore introduced these arrangements, as many as 30 per cent of patients referred from primary care practices to behavioural services would not attend their appointments.

Dr Henry Chung, a senior psychiatrist in the care management organisation, explained how Montefiore was now developing closer joint working between the behavioural health and primary care staff. Over the last three years, it had used a federal grant to develop a gold standard, collaborative care model for joint working between the behavioural health and primary care teams. Some emerging principles were to treat patients where they are, rather than referring them to services away from the settings they were used to, and to combine primary care and behavioural health services as quickly as possible. "So much of the management of chronic conditions is really about dealing with people's behavioural issues, anxiety or depression. Many people with behavioural health problems also need a combination of medicines, psychotherapy and social support.' The challenge is to combine these interventions quickly to have the greatest impact.

Another emerging principle was the need for primary care and behavioural health services to follow patients and engage more actively in their care between clinic visits. Under traditional arrangements, primary care doctors put patients on medication for anxiety or depression and then might not see them again for 30 or 45 days. Under the new arrangements, nurse care managers follow up with patients to check their scores on questionnaires on anxiety and depression. If necessary, they can liaise with a psychiatrist to discuss an increase or change in medication before emailing the primary care doctor to send an electronic prescription or facilitating a referral to a specialist if the patient isn't improving.

Under the new arrangements, psychiatrists are providing direct support to primary care doctors and their nurse care managers on the phone and through the electronic medical record. As well as speeding up service

provision, this is helping the doctors to improve their skillsets as they get more experience of discussing screening scales and using changing medications. Montefiore is also now starting to use the technology platform, Valera, so that it can offer face to face telemedicine therapy sessions in a wider range of clinics for people with behavioural health needs.

Bringing primary care into schools

Since the 1990s, Montefiore has developed a network of primary care clinics in schools to increase access to health care for children in deprived neighbourhoods. Montefiore now has the largest school health programme in the United States, with 24 school-based clinics serving 30,000 children. There are plans to double the number of school-based clinics by the end of 2019.

The school-based clinics work within a much larger Child Health Network which includes Montefiore's specialist children's hospital, its paediatric primary care clinics, mobile clinics for children in homeless families, a child protection centre, health education services, a lead poisoning treatment programme, and temporary living quarters for children from unsafe housing.

Each of the school clinics has a doctor, a licenced practical nurse (LPN) and administrative staff. The clinics provide immunisations, physical health, sexual health, and behavioural health, dentistry and optometry services. Montefiore is currently considering how it can use telemedicine to make better use of staff across the sites, for example using doctors on one site to offer telemedicine consultations on other sites when there are staff absences.

One of the objectives of placing the clinics within schools is to improve the likelihood that deprived children receive treatment. As Michael McDonough explained, 'If you don't have to rely on parents to take time out to take their children to separate health clinics, you increase the likelihood that deprived children get appropriate treatment.'

Another objective is to reduce the amount of time children spend out of school. As Michael McDonough explained, deprived children with chronic conditions can miss large amounts of school time at accident and emergency or in other health care clinics. The aim is to ensure that they can spend as much time at school as possible and as little time as possible in less safe environments, and to address the physical or behavioural issues that might prevent them engaging in school effectively.

The Montefiore Health System in New York

Montefiore reports that girls who are seen in its school clinics have a 50 per cent reduction in positive pregnancy tests, while 40 per cent fewer children are sent home sick by teachers (Montefiore School Health Programme 2014). It also reports significant reductions in the number of days children spend away from school to receive health care services. One study found that school children with asthma who attended schools with a Montefiore clinic had a 50 per cent reduction in hospitalisations and ED visits and a three day per year improvement in attendance in comparison with children in schools without a clinic (Chase 2010).

3 Managing patients with complex needs

Montefiore's care management organisation plays a central role in overseeing its capitated or risk-sharing contracts with insurers and managing patients with the most complex needs. This section describes the care management organisation in greater detail, including its leadership, its approach to managing patients with complex needs, and how it supports coordination between services.

The care management organisation

The care management organisation brings together 1000 staff including senior managers, specialist doctors, data, analytics and research staff, and nurses and social workers to support patients with complex needs. A group of medical directors including psychiatrists, geriatricians, and specialists in chronic conditions oversees the support for these patients.

Separate teams of analysts and other staff are responsible for identifying, enrolling and assessing patients requiring active case management. A highly experienced senior nurse oversees all the nurses and social workers responsible for case management. There are also separate teams that provide specialist services for patients when required.

In an average week, the care management organisation is in the process of enrolling 100 new patients in case management, completing the initial assessments for 100 patients, starting active case management for 100 patients, and moving 100 patients out of case management. The 200 nurses and social workers responsible for case management oversee 4,200 cases, around 1 per cent of the 400,000 patients on capitation or risk-based contracts, at any one time.

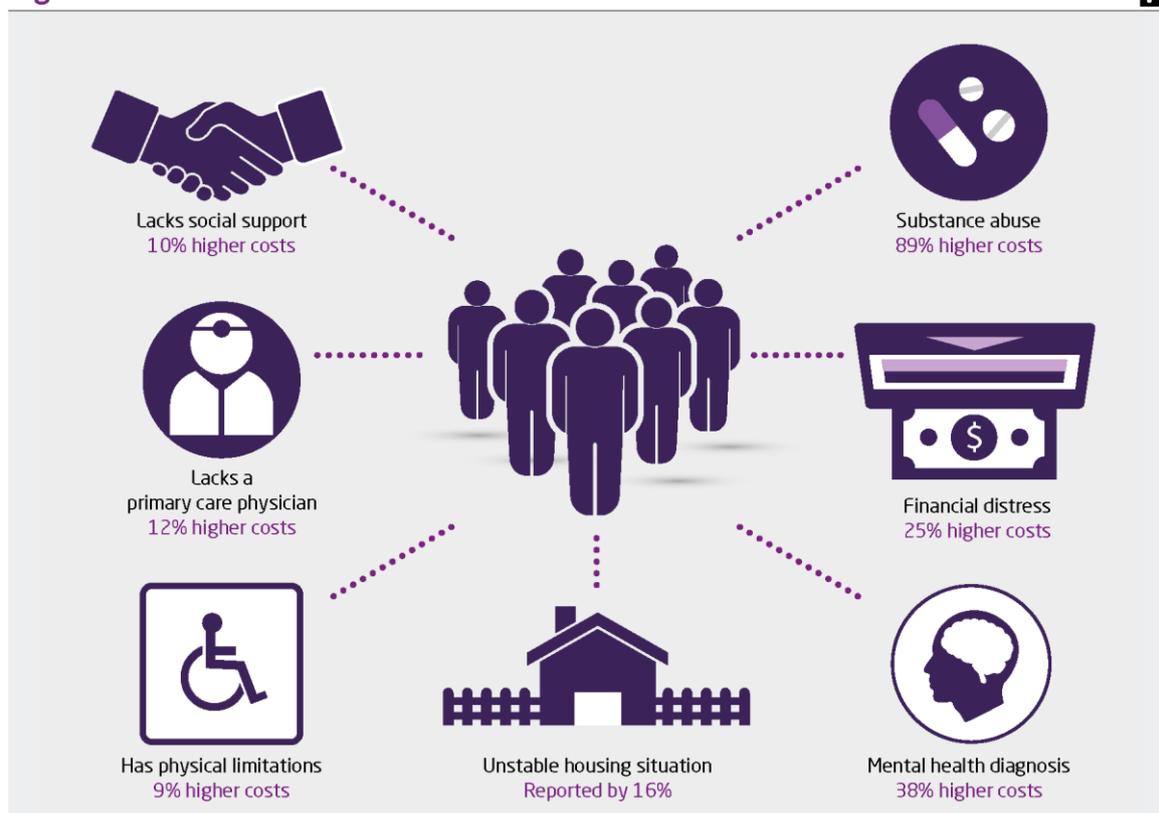
Identifying patients for active case management

According to Montefiore's analysis, approximately 20 to 30 per cent of its patients in capitated or risk sharing contracts contribute to 80 per cent of this population's health care costs. It needs to focus intensely on improving the quality of care and reducing avoidable health care costs for these patients

with complex needs to reduce the total cost of care. However, it also needs to improve the quality of services for all patients, in particular their access to high quality preventive services and proactive primary and community services, to meet the quality targets it has agreed with insurers.

On a weekly basis, a team of data analysts mines their claims data and clinical records to identify patients with high needs and opportunities to improve care. The care management organisation's finance team also has a team of analytical staff who identify patients or groups of patients who are generating high costs, which it discusses with the case management staff on a monthly basis.

Figure 2 Social determinants of health care costs



As staff explained, the purpose is not simply to target those patients who are consuming the most services and represent the greatest expenditure. Instead, the focus is on identifying those high-cost patients whose care could be improved and where costs could be avoided through active care management, for example patients with diabetes where active engagement could prevent blindness or amputations, or dialysis patients where active

management could reduce accident and emergency attendance and earlier transplants could reduce dialysis costs.

Enrolment and initial assessment

Once patients have been identified, an enrolment team calls the patients to discuss their challenges and invite them to join the programme. As staff explained, it is particularly difficult to contact certain high cost patients such as those who are homeless or 'couch surfing' in different homes. It can also be hard to communicate effectively on the phone with people facing severe behavioural health or emotional challenges. Staff monitor patients' electronic health records to find out when they have entered hospital and go to find them in clinics or hospital wards if required.

Once patients are enrolled, a team of five registered nurses carries out an initial assessment process to identify a 'driving diagnosis' - the most important problems causing the patient's regular hospital visits or other problems. As Kathleen Byrne, the senior nurse who oversees Montefiore's case managers, explained, the assessment nurses and the case managers need to be 'detectives', asking the right questions, challenging the information they receive, identifying the particular problems that caused the recent hospital visit, for example poor diet, forgotten medications, or high blood pressures, and finding the one or two things that are going to change the direction of the case.

The case management teams

The staff responsible for case management are organised within pods, care teams and case management units. There are four pods, each overseen by a clinical director, each responsible for overseeing around 1,600 patients. Each of these pods has two clinical managers, each of whom oversees a care team of around 12 registered nurses, licensed practical nurses (LPNs) and social workers responsible for a total of around 800 patients. Within the care teams, the nurses and social workers are organised into units of three: a registered nurse working with two licensed practical nurses, or a licensed practical nurse and a social worker, with each unit in charge of around 200 patients.

Since 2017, the case management staff have been organised in teams focusing on patients with specific combinations of health conditions and social challenges, on the basis that it requires similar skillsets to help these groups. One group of case managers focuses on patients whose most important health condition is asthma, chronic obstructive pulmonary disease or heart

failure; another team serves patients with chronic kidney disease and end stage renal disease; one team focuses on patients with cancer and those requiring palliative care; and one team supports people with significant behavioural health challenges, drug or alcohol addiction, chronic kidney disease or end stage renal disease. Although these changes were made relatively recently, staff believed they allowed case managers to deal with much higher volumes of patients effectively.

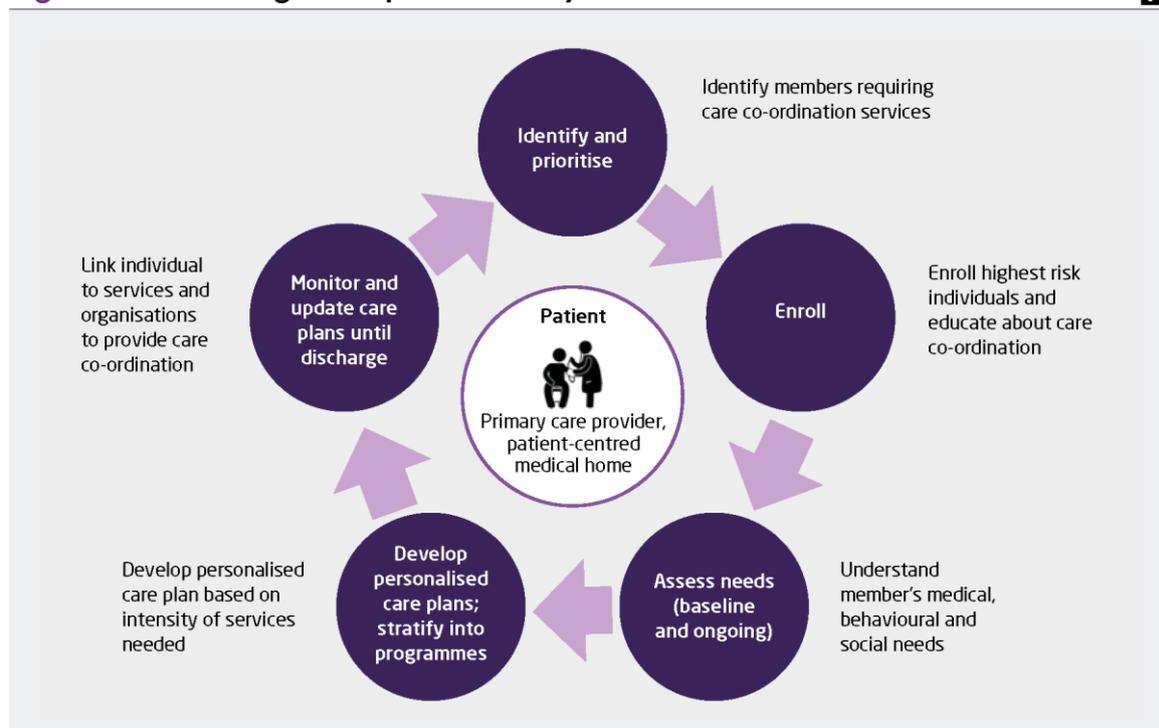
The case management processes

The nurses who carry out the initial assessment and case managers follow structured interviews to identify patients' motivations and what will help them make changes to improve their health. They work with patients to identify tangible life goals, for example being able to attend church, play cards again or get to their granddaughter's graduation. They then identify the most important things – the changes to diet or adherence to key medications – that will help the patient achieve this.

The nurse case managers also follow a structured process to reveal the range of the health care, social and environmental factors preventing patients' maintaining better health. As interviewees explained, there is limited value in setting up clinic appointments without ensuring that patients can access transport, providing advice on diet without ensuring that patients can afford or access healthy food, or providing asthma treatment without helping patients escape damp housing or apartments with smokers.

The case managers are trained to determine the most important of these issues, and then to find targeted interventions to address them. Each patient's care plan includes identified problems and the proposed solutions to these problems. The teams use a monthly dashboard to track how many of the patients have identified needs, how many of these needs currently have an identified solution, and how many of their goals for returning to better health have currently been met.

Figure 3 Care management process life cycle



John Williford, the Chief Operating Officer for the care management organisation, explained that the care managers become 'life managers' for their patients. 'They connect the dots and take charge of people's lives where needed.' In the initial phase, the case managers are often in touch with the patient or engaging with the other teams supporting the patient every one or two days to check that the interventions are working. Case managers often need to play a very active role in setting up their appointments, arranging transport and ensuring that they attend.

Once the patient has a complete care plan and is more stable, the care managers start to play a less intensive monitoring role. They continue to stay in touch with the patient, track that they are attending appointments with their primary care and other health services, and check that other organisations are delivering the services they promised.

As Kathleen Byrne explained, 'If we can extend the time patients are stable between hospitalisations from a couple of weeks to two or three months, that's a success. If we can then manage to extend the time between hospitalisations to six months or a year, that's another great success.'

One of the advantages of case management at scale is the ability to invest in effective training and processes. All the case managers participate in training in motivational interviewing. They also take classes in critical thinking and problem solving to address their patients' needs. Staff are encouraged to pursue career ladders, for example, from licensed practical nurse to registered nurse, and they also have other opportunities for development such as specialisation in specific conditions.

Oversight of case managers and their patients

Dr Alison Stark, the Chief Medical Officer for the care management organisation, explained the role that her team of medical directors played in supporting the case managers and their patients. Dr Stark brings specialist expertise in geriatric medicine and palliative care; the team also includes a medical director with particular expertise in chronic conditions, and two psychiatrists.

These senior doctors carry out 'high risk rounds' with the case managers for patients with particularly complex needs. They look for opportunities to manage these patients more effectively, for example if they are still visiting accident and emergency regularly, such as providing more intensive behavioural health services or additional home care.

The medical directors review cases to identify whether resources are being used effectively, carry out medical necessity assessments and provide authorisations for some treatments. They support the nurse case managers where needed in discussions with hospital doctors, for example on the hospital treatments needed for particular patients, for example when to organise a palliative care consultation, and when to discharge them from hospital.

Finally, the medical directors play a leading role in assessing the overall effectiveness of the organisation's care management services, making changes to pathways for particular groups of patients, and supporting the teams in quality improvement activities.

Doing 'whatever it takes' for patients

John Williford explained that staff were encouraged to 'do whatever it takes' to address their patients' needs. It is very easy for staff to conclude that they can't address a particular problem before moving onto the next case. It was

the case management organisation's role to create a group of problem solvers and a culture in which staff keep trying until they find a solution.

The registered nurses act as 'traffic controllers' coordinating the work both of their teams of nurses and social workers and staff offering specialist support. Alongside the case management teams, pharmacists review patients' medications, nutritionists advise on diet, diabetes educators help people in case management. And primary care clinics have groups of staff who work with housing authorities and charities to secure housing for patients, as well as separate teams that help people in financial distress get food stamps or other support to meet basic needs.

Although the nurse case managers attempt to focus on the most important problems, they often need to address a complex mix of health and social challenges. Interviewees described a 39-year-old patient with sickle cell disease, heart failure, hepatitis and end stage renal disease. He had lost his job when he started to require regular dialysis and was at risk of being evicted from his apartment. Staff were ensuring that he received care from a haematologist, cardiologist and nephrologist. They were helping him to access food stamps, Medicare benefits and support paying the rent. They were also working with the city housing authorities to secure longer term housing support.

Given that Montefiore is responsible for the total cost of patients' care, it is able to act flexibly to address the underlying needs causing regular accident and emergency visits and hospital stays. If a patient is admitted to hospital unnecessarily, each visit can mean \$20,000 or more in avoidable health care costs. It is in Montefiore's financial interests, as well as the patient's interests, to spend money on a range of health or social services to avoid them attending hospital unnecessarily. If a dialysis patient is attending A&E because he misses his dialysis appointments, the case managers can simply pay for taxis to get him to his clinic appointments. If the homeless shelter refuses to accept a person because he has a PICC line for intravenous antibiotics, Montefiore will pay for temporary housing facilities. The costs will be much lower than an unnecessary stay in a hospital bed.

In many cases, the costs of patients' primary, community, behavioural health services and other services can go up significantly in the first year. As Urvashi Patel, Chief Data Scientist at the care management organisation explained, 'This is exactly what we want to see. We want to ensure that people are visiting their primary and behavioural health providers.'

Work with primary care clinics

The nurse case managers work to ensure that patients in care management have a close relationship with a designated primary care doctor and clinic, given evidence that this reduces the likelihood of accident and emergency attendance and unplanned hospital admissions. They schedule appointments, ensure that their patients attend their primary care clinic regularly, contact the primary care doctors through the electronic health record when they think patients need particular primary care services and inform them of changes to the other services patients are receiving.

While they work closely with primary care, interviewees were not convinced that there were substantial benefits in integrating the case management for patients with the highest needs fully with primary care. As Stephen Rosenthal explained, 'The primary care teams are often struggling to manage the pressures of the day. With centralisation, we can dedicate staff to supporting high-risk patients who might be diverted to other issues in a primary care clinic. We can also develop the oversight, processes, training and analytics to deliver case management effectively.'

Transitions of care

Since the 1990s, the care management organisation has focused on overseeing patients' transitions between primary, community and hospital care to ensure they receive coordinated care and avoid unnecessary or inappropriate use of services.

If patients with complex needs attend accident and emergency, the care management organisation's navigators with the emergency department receive an alert on their mobile phones. They find the patient and work with the emergency department doctors to put in place a diversion strategy if possible. They ask five questions to understand the reasons for the patient's emergency department visits and test whether patients could seek services elsewhere, for example if they could directly schedule a clinic appointment for the next day. If so, they transfer information to a transition team, which is responsible for scheduling an appointment the patient can get to.

The case management organisation also sends automatic alerts to these patients' doctors when they arrive at accident and emergency or are admitted to hospital. In some cases, the primary care doctor can help trouble shoot an issue with the emergency department doctors or send a text to confirm that they can see the patient the next day as an alternative to being admitted. In

any event, primary care doctors are expected to see patients who attend accident and emergency within the next seven days. As interviewees explained, patients with respiratory, gastroenterological chest pain were most likely to get admitted to hospital where they could be treated in primary or community care.

The care management organisation's care transition team contact patients who have been admitted to hospital wards and work with the hospitals' central discharge planning teams to start identifying as early as possible potential barriers to discharge. If an elderly patient is admitted to hospital with a broken hip after a fall, the case managers start planning for the series of rapid interventions he might need. For example, they would start identifying what social support and care options he has available. They might start finding a suitable care home for a short stay focused on rehabilitation and start organising the services and equipment that he would need to be able to return home.

When patients leave hospital, the nurse case managers call where needed to check that they have received and understand their medications, have the equipment and support they need, have follow-up appointments scheduled and are able to attend them. They are taught to ask open questions rather than providing information for the patient. They should ask what pills the patient is taking, when their next appointment is, and then do a teach-back at the end of the call. In other cases, patients receive an automated phone call or text to remind them of upcoming appointments, ask them to complete a survey on their wellbeing, and trigger action if there is a risk of readmission.

Programmes for specific groups

Interviewees emphasised the importance of taking care of the whole person, rather than individual health conditions. In the early years of the care management organisation, they had developed individual programmes for asthma, diabetes and other chronic conditions. They had found that this created significant duplication and high management costs. Staff still develop specific interventions for particular diseases where they raise particular problems, but they integrate them within care management for the population with complex needs rather than creating separate programmes. The nurse case managers overseeing patients with complex needs can bring these services into the package of support for their patients where required.

Staff described an initiative to improve continuity and coordination of care for patients with end stage renal disease. The care management organisation has ensured that these patients can gain access 24 hours per day to a nephrologist or specialist nurse. It has also arranged for community clinics to hold back appointment slots for unscheduled appointments. The aim is to allow patients to gain rapid treatment if there is a change in their condition, reducing the number of patients attending accident and emergency for emergency dialysis. It is also providing transport where needed to help these patients attend their community clinic appointments.

Where patients do attend accident and emergency for dialysis, the care management organisation had set up automatic alerts for the patient's nephrologist or an attending nephrologist to visit them in the emergency department and, where possible, take charge of their care. In many cases, the nephrologists can discharge the patients, possibly following a short period of dialysis and set up appointments for dialysis in the patient's community clinic the following day. Based on initial results, interviewees believed that it could deliver \$11 million in savings within the year.

Moving out of case management

As Dr Stark explained, the care management organisation does not have the resources to act as life coaches for patients with high needs forever. Instead it aims to track patients and move them efficiently through the care management cycle. The case managers aim to identify the important people in patients' lives who can help them keep on track, and establish the networks of support from health services, social services and the voluntary sector that they need to remain stable.

When patients move out of active case management, the care managers use automated telephone calls to check that they are stable and identify any exacerbations in their conditions. Patients respond to a series of automated questions on their phones on the state of their physical, mental and emotional health and their living conditions. If their answers raise concerns, a nurse case manager calls them back for a discussion and they are brought back into case management if needed. The primary care doctors or the patients themselves can also refer themselves back into case management if their conditions deteriorate. The case managers also receive a automatic alert and reengage with patients if they re-start attending accident and emergency or are readmitted to hospital unexpectedly.

4 Supporting infrastructure

Since the mid-1990s, Montefiore has invested heavily in its in-house IT capability and electronic records so that it can capture information about patients and coordinate across an integrated primary, community and hospital system. It has also invested heavily in the data and analytics needed to assess whether programmes are working and manage the total cost of care. There are also established mechanisms to bring staff together to work on improvement.

Early development of electronic health records

As Montefiore developed its network of hospital, primary and community services in the early 1990s, it became clear earlier than for other healthcare organisations that it needed an IT infrastructure that could keep track of patients wherever they were within the health system. A group of former doctors from Montefiore had participated in developing the Mayo Clinic's LastWord interface, which provided access to admission information, lab tests, medications records and allowed staff to request tests, prescribe medications and order other services automatically.

Montefiore implemented LastWord in 1995, becoming one of the earliest hospital systems in the United States to have a comprehensive electronic medical record. In 1997, it became the second hospital in the country to introduce direct physician order entry through the IT system for all tests, medications and procedures and to start using decision-support tools.

However, as Jack Wolf, the Chief Information Officer for the Montefiore Health System explained, they found that a dollar of capital investment in information technology created a 25-cent annual recurrent cost to use the system effectively and maintain it. From the late 1990s, Montefiore recouped some of these costs by starting to sell support services to other hospitals in New York State, for example providing training and helping them to redesign workflows as they were implementing their own health records and managing ongoing maintenance of their systems.

One consequence is that Montefiore now brings together an unusual range of skills and expertise in the use and development of health IT systems. There are almost 750 staff in the IT department, which is responsible for managing IT services and offering support 24 hours a day, seven days a week, for the 11 hospital and 100 ambulatory care sites and two other large hospital systems.

One striking feature was how closely the IT department works with individual services within the Montefiore system. People from the IT department spend time with doctors so that they can see how their systems are working in the emergency department, paediatrics or other clinics. As Jack Wolf explained, 'There is only one relationship that matters in healthcare: the relationship between the clinician and the patient. When we think about our IT systems, we have to focus on that relationship. If what we do isn't helping doctors to connect with patients, and patients with doctors, we aren't working on the right things.'

Implementing the EPIC electronic health record

Since 2015, Montefiore has been implementing EPIC's electronic health record. EPIC brings a range of new capabilities such as greater ability for healthcare staff to communicate with each other, scope to standardise and avoid duplication in care, and easier interoperability with other health IT systems. With the My Chart patient portal, it also allows patients to write their own personal health records and communicate securely with their doctors and other healthcare staff. Montefiore is also starting to use EPIC's healthy planet software package for population health management, which provides additional tools to coordinate care from different services for patients and monitor quality and costs.

Even with its IT expertise, Jack Wolf described the challenges Montefiore faced when it introduced EPIC. Montefiore established an implementation team of 200 people, comprising roughly equally staff from the IT department and EPIC's implementation team, staff from Montefiore's clinical services and ancillary operations, and external consultants.

Montefiore decided that its clinical services should lead the implementation of EPIC, with support from the IT department, rather than the other way around. This was to ensure that the focus was on close alignment of clinical services with the new IT system. As Jack Wolf explained, EPIC and other health IT software impose relatively rigid workflows on health services. They needed to

spend a lot of time identifying the nuances of the new system and adapting workflows to fit with it. The implementation team took staff from clinical services on site visits to see EPIC in operation in other emergency departments or ophthalmology suites so they felt comfortable with the changes.

There were still substantial implementation challenges. They hadn't anticipated some of the challenges of registering patients and transferring information correctly from ancillary systems into the EPIC system. In oncology services, there were laboratory services run by third parties that were unable to transfer lab test results to the EPIC system. The team needed to bring staff together quickly, in a large room, set out the problem and work rapidly to find a solution. Montefiore has now completed implementation of EPIC in its core group of hospital and primary care clinics in the Bronx and is in the process of implementing EPIC on its other hospital sites.

Clinical looking glass

As it developed its early electronic record in the 1990s, Dr Racine oversaw the development of Montefiore's own data repository, which brings together information on patients across the system. Montefiore also built a 'data tunnel' into the college of medicine's data system, allowing staff to access patient data, identifiable or non-identifiable as required, for their research. A person working on a cancer study in the hospital can access research data from the college, learn what trials are going on in the college, and start mapping their patients' outcomes to the clinical trials.

Again, Jack Wolf highlighted the need for continued investment to make these systems work: 'It is constantly evolving. We get it right, and then we change the data and need to reconfigure it again.'

Montefiore created its own software, Clinical Looking Glass, coded and developed by the IT department, to examine this data and evaluate the effectiveness of interventions. Using Clinical Looking Glass, Montefiore can carry out searches of aggregated data and provide reports on clinical performance. Doctors can assess, for example, how many patients with heart attacks received beta blockers or how many diabetic patients have their blood sugar controlled successfully.

Montefiore is now in the process of migrating the data in its clinical and research database into a new 'shared data lake', a way of storing many

different types of data in their raw form in one central location. This creates a single pool of information about patients where different datasets are linked up to give a fuller picture of the care they are receiving. It also allows for the data to be used easily for different types of research. Staff are starting to use the data lake to carry out different types of analysis, such as predicting when a patient with an intravenous line is at risk of an infection.

Shared analytical capability

Interviewees described the in-house capability required to maintain and analyse data to improve how services are delivered. Urvashi Patel, the Chief Data Scientist in the care management organisation, leads a team of 30 staff including database managers, analysts and programmers. The team includes bio-medical engineers, bio-medical statisticians and a pharmacist.

Six of the team members are solely responsible for sorting and preparing data so that it can provide meaningful insights into how to manage services. A small team is responsible for identifying patients with complex needs who might benefit from being contacted or brought into case management. Other staff are responsible for preparing dashboards and reports on operational performance.

As Urvashi Patel explained, 'A big challenge is to find the right population that you can have an impact on. It's a constant battle to refine our thinking on this. It's not as simple as identifying the people who use services the most. Not every hospital admission is avoidable. An admission following a car accident is very different to an admission for diabetes.'

The analytics team supports the case management organisation's other staff in evaluating new interventions. For example, it recently assessed a small peer support programme where mentors from the community with diabetes contacted other diabetes patients to discuss how they were managing their condition. Patients in the programme saw a substantial improvement in management of their Haemoglobin A1C levels in comparison with other patients. Montefiore is now preparing similar programmes for people with hypertension and parents of children with asthma.

The team also supports longer term evaluations of the effectiveness of the care management organisation's case management services and other interventions. For example, it has helped to identify patients who are less amenable to telephone-based case management, for example people in skilled

nursing facilities or on ventilation, and who need different types of support. It reviews in detail the actual impact of different strands of its care co-ordination services, for example how many patients helped by the housing team actually secured temporary or permanent housing. The team is currently focusing on improving the metrics and evaluation of its behavioural health interventions.

The team uses 3M’s clinical risk grouping software in conjunction with their own algorithms to identify patients who would benefit from case management. For example, 3M’s software uses the diagnosis related group codes for the services patients receive to identify the severity of their needs and the intensity of support they might require.

The team also uses 3M’s software to identify when patients make potentially preventable visits to the emergency department or when there are potentially preventable admissions or readmissions to hospital. As Urvashi Patel explained, the 3M software can break down data by disease state to identify what’s working or where there are opportunities for improvement for groups such as people with diabetes or heart failure.

Figure 4 Actual versus expected potentially preventable emergency department attendance by disease, 2015 **K**

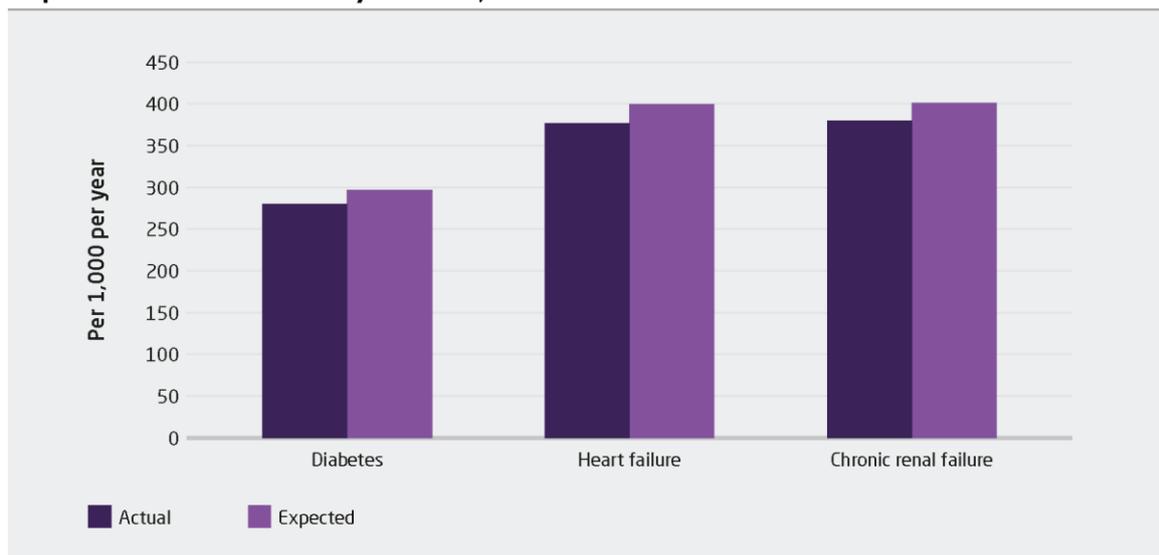
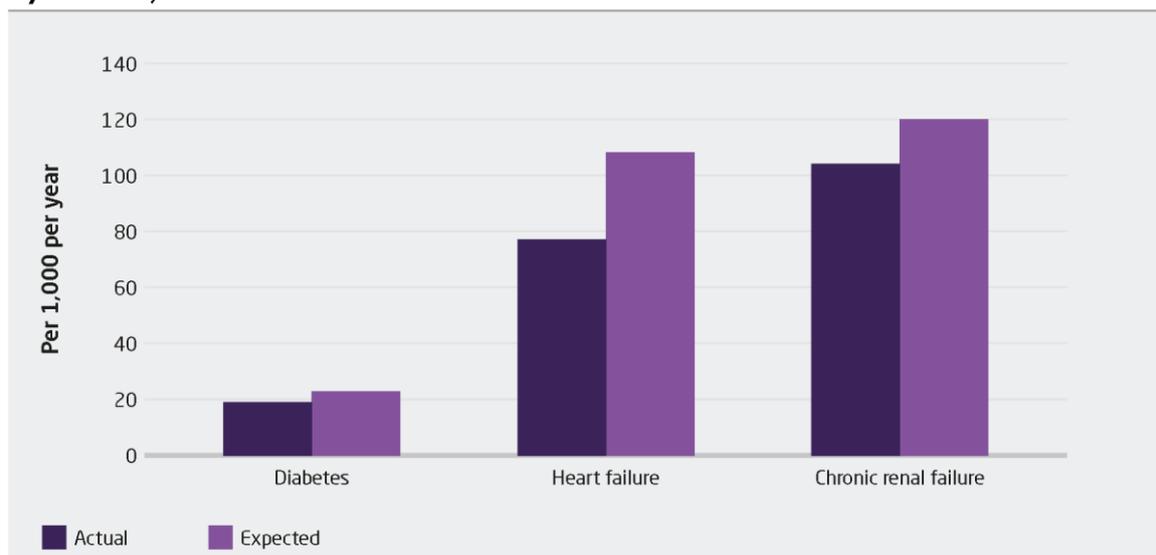


Figure 5 Actual versus expected potentially preventable readmissions by disease, 2015



Source: 3M, 2016. Data for Montefiore’s Medicare patients within the Pioneer Accountable Care Organisation programme.

Interviewees consistently highlighted the skills and effort required to correctly analyse data and derive useful insights for improvement. Dr Racine discussed the challenges of interpreting data on patient satisfaction. A new mother was likely to respond very differently to a patient with end-stage cancer to a patient satisfaction questionnaire. Demographic groups differed substantially in scores. Patients who received calls after they had returned home from hospital recorded higher satisfaction with the services they had received than those who didn’t receive a call. Even more intriguingly, they were also more likely to say that their pain was well managed in the hospital if they received a call after the event.

As Dr Racine explained, ‘If you want to improve performance on a metric, you need to understand the underlying issues that it is capturing. This is sometimes far from clear. So you need to have a rigorous academic approach.’ Montefiore had found that one of the most important predictors of high patient satisfaction was the degree of team-working within clinical services. It was showcasing the data on patient satisfaction and the sorts of leadership and team behaviours that appeared to be linked to high satisfaction, so that these behaviours spread across the system.

Shared managerial resource

Interviewees highlighted the importance of shared managerial resource to bring together a large, complex health system. In the care management organisation, the senior leadership, finance team, analytics and case management teams meet every two weeks to discuss financial performance. As Stephen Rosenthal put it: 'If everything is being done in silos, it is difficult to identify and pursue the big opportunities for improvement across different services. By creating some centralised services, you establish a group of people who are looking around for opportunities for improvement across a large system and looking at the total cost of care. You need to monitor constantly for trends and changes. The sooner you identify the problems the more manageable they are and the less damage is done. When we suffered losses in 2015, we identified around ten reasons for higher costs and then drilled down into each of them. For example, we identified patients who were leaving our system for services, and a whole group of patients costing \$400,000 or \$500,000 per year who could be managed better. You can do a whole bunch of different things once you understand what your problems are.'

Improvement collaboratives

In 2010, Montefiore established a learning collaborative bringing together paediatricians from its specialist and primary care clinics to improve screening and vaccinations for children. The collaborative agreed a set of goals and established joint teams of doctors, nurses, social workers and administrative staff at local clinics who would be responsible for improving outcomes.

Dr Racine explained that putting in place multi-disciplinary teams to work on these issues was a crucial step. The doctors in the community and primary care clinics were not able to increase immunisations on their own. They needed support from nurses, administrators and IT staff. However, it also became clear that just bringing the right people together wasn't enough. The staff also needed technical skills to change processes and deliver improvements.

Montefiore recruited improvement coaches to support the teams and teach them how to develop driver diagrams, draw Pareto charts and run plan-do-study-act cycles. It also brought all the teams together regularly to compare performance and share learning.

This project has now become the model for ongoing improvement across the employed and affiliated primary care clinics, as well as the hospital network. On an annual basis, Montefiore and the members of the network agree a set of targets for improvement and a set of metrics that make sense clinically and operationally. Montefiore provides coaches to work with dedicated teams at the clinics on improvement initiatives.

Doctors and other staff from the sites meet quarterly for large learning collaboratives of 200 or more people. Staff from Montefiore's institute for performance improvement teach practical skills for improvement. The teams share progress from current improvement projects. They also use the meetings to agree new improvement projects. Dr Racine explained that one of the most dramatic changes was the diffusion of improvement methods across a large system in a short amount of time. When he visits individual clinics, he finds that staff have smart aim statements and have developed driver diagrams, fishbone diagrams and Pareto charts.

Interviewees highlighted a number of joint projects with specialists within the hospital network. For example, endocrinologists and cardiologists in the hospitals are running webinars to connect with primary care doctors and help them treat a greater proportion of diabetes and congestive heart disease patients in primary care. This is helping the primary care doctors to understand better what tests to order and what combinations of new medicines they should use. The hospital specialists do a few cases with the primary care doctors and are then available to give ongoing advice.

Dr Racine also emphasised the importance of not paying too much attention to the high-level performance metrics on a day-to-day basis: "If you want to reduce the number of falls in your elderly population, reduce hospital readmissions or increase patient satisfaction, you need to focus on the method not the metrics on falls or readmissions. If you apply improvement methods with fidelity and stick to them, you will get where you need to go. Don't worry about the score.'

5 Elements of a high-performing system

Leaders of local NHS organisations will want to know which specific features of the Montefiore health system made the greatest contribution to its high performance. Which of the financial, governance, contractual, organisational or clinical elements of the Montefiore system should we seek to incorporate in our own nascent integrated systems to increase their likelihood of success?

Providing a convincing answer is far from straightforward. Which of a laundry list of competencies or characteristics really sets a system on a path to greatness, as opposed to being consequences rather than enablers, or even brakes rather than accelerators of performance, features that work in one context but won't transfer to others, or just extraneous details?

Montefiore appears to have responded effectively to the incentives within the pioneer accountable care contract to improve quality and reduce costs. But most pioneer accountable care organisations, working under the same arrangements, delivered unspectacular results. Montefiore brought primary care and hospital services together in a single organisation. Other high-performing health systems across the world have achieved high performance with different organisational models.

One way of cutting through these complexities is to compare Montefiore with some of these other high-performing health systems. The following section compares Montefiore with the public health and care system in Canterbury New Zealand, the state-funded health system for Alaskan Natives in the Southcentral region of Alaska and the public health and care system in the Jönköping region of Sweden. Amid a sea of differences, there are a small number of common features or similarities of approach between Montefiore and these other three systems that may help to explain their success.

The vision

Almost all health care organisations have corporate documents enumerating their vision, goals and lists of priorities for improving services. What sets Montefiore and these other high-performing health systems apart is not so much the existence of a clear vision (Mintzberg and Waters 1985) but its boldness and its breadth. For Montefiore, the ambition is social justice for a deprived population. For Southcentral Foundation, it is to rebuild a native community torn apart by European colonisation. For Jönköping, it is to create a place where fulfilling lives can be lived.

These are exhilarating visions that raise aspirations, provide focus and energy for improvement and encourage creativity and risk-taking (Senge 1990). They are visions that direct attention to long-term objectives rather than just balancing the books for the year. Staff in Montefiore's IT department talked about building a system for their grandchildren. They are intrinsic visions, generated from within the system, often rooted in local place and community, rather than copied or imposed.

While most visions rest in the corporate plan, these are visions that exist primarily in the heads and hearts of people who work in the system. When assessors for the Baldrige National Quality Award visited Southcentral, they reported that hundreds of staff – not just a handful in the top team – talked passionately about their vision and purpose. They are visions that bring together large numbers of people across tribal boundaries to deliver shared goals.

Principles to guide action

Another common feature of these health systems is the existence of specific principles to guide how staff work together. For Montefiore, one key principle is to address the underlying causes of patients' ill health whatever they may be. Jönköping has a particular focus on listening to the community and delivering what they want from health services. Canterbury has a commitment to eliminating waiting and delay as inexcusable forms of waste.

Again, what seems important is not the existence of these guiding principles, but how explicitly they have been articulated and how different they are to those at play in other systems. Intentionally or not, they challenge deeply rooted conventional thinking in health care (the 'it's not our job' mindset, the belief that professionals know best, the presumption that patients' time doesn't really matter), while steering staff to more creative and productive approaches to their work.

While they all have central teams responsible for planning and prioritising, none of these successful health systems seeks to control innovation from the centre. Instead, staff are encouraged to pursue diverse, widespread innovation within the parameters of these rules. When asked what they liked about the system, staff across Montefiore talked about their freedom to innovate. The Chief Executive of the Canterbury Health Board handed signed cards to participants at improvement events giving them 'permission to change the system'.

Guiding principles facilitate local innovation by offering permission, pointers on where to focus efforts and a small number of prohibitions (Institute of Medicine 2001). At Southcentral, one principle is to protect patients' relationship with a core team of caregivers. Staff know they can pursue

innovations that strengthen this relationship. Proposals that undermine it, for example a plan to create new specialist primary care services, don't get off the starting blocks.

Funding arrangements

Each of these systems has, in one way or another, brought together the funds for a range of different preventive, health care and social services, making it much easier to reallocate resources to best meet people's needs.

Montefiore holds capitated budgets for patients under its risk-based contracts and has more discretion than under fee-for-service arrangements to decide how to use these funds to meet patients' needs. For example, it is able to provide temporary housing or social support alongside health care (although there are still unhelpful restrictions that prevent Medicare and Medicaid funds being used to deliver social support rather than health services).

In Canterbury New Zealand, the Health Board holds the public budgets for preventive, primary care, hospital and social services, and has been able to move funding into primary and community care. In Alaska, the two main health care providers receive block grants rather than fee-for-service payments. They also pool surpluses at the end of year and divide them between primary care and the hospital according to an agreed formula, with the effect that funds are gradually moved from the hospital into primary care.

These successful systems may also have budgeting arrangements that make it slightly easier to pursue long-term improvement. Montefiore's risk-based contracts are for periods of five to ten years. Southcentral receives the same block grant every year, with an uplift for inflation. Under these types of arrangements, it no longer seems quite so difficult to make far-sighted investments in health and wellbeing that will deliver benefits years or decades in the future.

Of course, Montefiore holds capitated budgets only for the minority of its patients under risk-based contracts. For other patients, it remains dependent on fee-for-service payments. Under a more supportive financing system, it could dramatically improve how resources are used for this group too. Toxic payment schemes hamper improvement even in the most well-intentioned health systems.

It is also worth noting that Montefiore is the only one of these four systems where there is a clear purchaser-provider split and where providers receive strong financial rewards or penalties dependent on whether they meet performance targets. Funders in the three tax-funded, not-for-profit health systems in our sample rely on different mechanisms to motivate performance.

Structure of the system

Despite enormous differences in the architecture of these four systems, one common feature is their degree of structural integration. Montefiore brings together primary care, community and hospital services within a single organisation with a unitary executive and a single bottom line. Canterbury and Jönköping bring together the funding and planning function, hospitals and other health services within a single public system. In Anchorage, Alaska, there are only two main health care organisations serving Alaskan natives: Southcentral Foundation, which brings together preventive, primary care, and community services, and the Alaskan Native Medical Centre which delivers hospital care.

Another common feature is the closeness of the relationships between separate organisations within the system. None of the lead organisations in these systems maintains arm's length contracting relationships with other important service providers, where it seeks to transfer risk and reward to these providers, remains indifferent to their financial challenges, and retenders services wherever there is an opportunity to secure a better short-term deal.

Instead, Montefiore maintains long-term strategic partnerships with providers in its primary care network, making direct investments in improving their services and taking the hit when costs overrun. The Canterbury Health Board maintains a corporate head office's oversight rather than a purchasing relationship with its small group of public and private providers, requiring transparency about costs and profitability, moving resources between services as if they were divisions of the same company and protecting their sustainability. Southcentral sits on the board of its local hospital and maintains an ownership stake in it.

These arrangements do not magic away any of the immense challenges of implementing change in complex systems. They may, however, make it easier for large groups of people across the system to develop common purpose, a shared sense of responsibility, effective joint working and a system-wide perspective. They may also present fewer institutional or contractual obstacles to reallocating funds and testing new ways of doing things.

Joint decision-making

As part of this commitment to long-term partnerships, all the key organisations in these four health systems make collective decisions on critical issues such as strategic priorities and allocation of resources. Montefiore makes joint decisions with its network of independent providers on how to manage their risk-based contracts. The Canterbury Health Board is legally responsible for decisions on how to use public funds and manage the

Canterbury health system. Nevertheless, it commits to making collective and unanimous decisions with all the providers in its alliance, including private and not-for-profit organisations.

Shared resources

Each of these successful systems has a body of shared staff and resources whose attention is focused on the whole system rather than its component parts. At Montefiore, staff in the care management organisation adopt this system-wide perspective, identifying the patients who represent the greatest costs for the system, how one part of the system affects another and opportunities for system-wide improvement. At Jönköping and Canterbury, the County Council or Health Board and their shared improvement teams play this role. Each of these systems has also invested heavily in the data and analytics needed to provide a system-wide view of performance and measure system-wide improvement.

Cultivating system-wide learning

These are all health systems that systematically bring together staff from across services to make creative connections and advance collective learning (Wilson *et al* 2003). They provide staff some of the 'mechanics' needed to work together across organisational boundaries. At Montefiore, staff from primary care and hospital services meet every quarter to share practices and work together on improvement. At Jönköping, staff participate in regular 'development dialogues' on how to improve services.

One possible reason for the success of these arrangements is consistency and repetition. Montefiore initially developed its model of learning collaboratives in primary care in the 1990s and gradually expanded them to cover the whole system. Jönköping has operated its model of 'development dialogues' since the mid-1990s. Under these arrangements, staff can build relationships, develop a common language and establish familiar ways of working together.

The shared teams also appear to play a pivotal role in these collaboratives' success. Improvement experts in Montefiore's Institute for Performance Improvement and Jönköping's Qulturum institute help to direct attention to pressing problems and create a movement for change. They facilitate and mediate in the process of group learning. They bring technical expertise, support for project management and support for measurement. Without these resources, there is a danger that cross-system collaboration loses focus, momentum and eventually credibility.

Broader partnerships

Finally, each of these health systems works in effective partnerships with a much broader alliance of public services, not-for-profits and other

organisations. The members of these alliances work reciprocally, pursuing coordinated, mutually reinforcing activities to address large-scale social problems. Montefiore works with education services, the justice system and not-for-profits to keep children safe, healthy and on the path to a meaningful career. At Jönköping, health services work with other public services to deliver tangible improvements in quality of life for people with mental health conditions and the elderly.

Why these elements rather than others?

What it is about these common features, as opposed to others, that makes them particularly important? One possibility is that, in combination, they help to create a sense of collective responsibility while focusing attention on what really matters for people and the community. Another is that these features help to shift staff from working in operational silos to taking a system-wide perspective. Each of these four systems has been able to break away from common but destructive behaviours in health care – pursuing short-term fixes with damaging long-term consequences, taking actions in one area without regard for consequences in others, or simply shifting burdens from one part of the system to another – and to focus on the types of change that will deliver enduring improvement.

Implications for leaders and policy-makers

If this assessment is correct, astute agriculturalists might start by detoxifying the land. Rather than creating new incentives, they might first clear the rubble (ill-considered payment schemes or tendering rules) preventing parts of local systems working together. Rather than devising detailed plans, local leaders might concentrate more on enrolling people to a compelling vision and developing principles to guide local action. Rather than prescribing specific models, they might instead seek to establish the backbone support organisations and other institutional arrangements that enable system-wide learning. These might be the small number of actions, the 'rudder on the rudder' that can nudge complex systems onto a different trajectory.

The Montefiore Health System in New York

<i>Features of system</i>	Montefiore	Canterbury, New Zealand	Southcentral Foundation, Alaska	Jönköping, Sweden
Vision	Achieving social justice for a deprived community.	To improve, promote and protect the wellbeing of the Canterbury community.	A Native community that enjoys physical, mental and spiritual wellness.	A good life in an attractive city.
Principles to guide action	Doing 'whatever it takes' to address patients' needs. Taking charge of people's lives. Focus on total cost of care.	Keeping people well at home. Eliminating delay. System-wide working. 'One system, one budget.'	Respect for individuals and community. Whole-person care. Building sustained relationships with patients. Close team working.	Listening and responding to patients' needs. Collaboration across services. Sustainability and social responsibility.
Funding	Montefiore holds a single capitated budget for all health care and some social services for patients under capitation.	Health Board holds a single budget for health and social care.	Southcentral holds a single budget for primary, community and mental health care. Shares savings with hospital.	County Council holds a single budget for health care and social care.
Structure of the system	Montefiore owns hospitals, community services and a large proportion of primary care services.	Health Board owns hospital and social services, and contracts with community services and primary care.	Southcentral owns primary care, community services and mental health. It has an ownership stake in the hospital.	County Council owns almost all of the health system including hospitals, primary and community care.
Joint-decision-making	Montefiore has strategic partnership and makes joint decisions with primary and community providers in its network.	Health Board maintains strategic partnership with all service providers with joint decision-making.	Southcentral sits on the board of hospital. Shared decision-making on strategic priorities and management of system.	County Council makes strategic decisions in consultation with services and public. Use of 'development dialogue.'
Shared resources	Care Management Organisation brings together staff and resources for co-ordination and improvement across the system.	Health Board oversees funding and planning. Canterbury Clinical Network pools improvement expertise.	Central team oversees data collection, identifies opportunities for improvement and develops in-house programmes for training and spread of innovation.	County Council oversees financial and clinical performance. Qulturum centre acts as think tank and source of improvement expertise.
Support for system-wide learning	Primary care and hospital staff meet quarterly to work on improvement projects.	Staff across system work on care pathway design and improvement projects as part of the Canterbury Clinical Network.	Central improvement team helps staff run improvement projects.	Staff across services participate in development dialogues. Qulturum centre supports local improvement projects.
Broader partnerships	Extensive partnerships for homeless, housing, education, economic development.	Joint work between Health Board, council and charities on education, employment and health in all policies.	Close joint working with public services and charities on homelessness, drug abuse.	Partnerships to support for children, people with mental health conditions and older people.

End note

If cut-and-paste approaches to health system design worked, we would all be enjoying excellent health care. We cannot simply dismantle a century-old health system, like London Bridge or a Greek temple, and reassemble it on foreign soil. The wiring and the plumbing are all different. Our plugs don't fit in their sockets. Some local NHS health systems face similar challenges to Montefiore and, in many cases, are pursuing similar solutions. But the jury is out on, say, whether the details of US accountable care contracts, replete with risk transfer and incentives and penalties, can bear the trip across the Atlantic. (The jury is also out on whether ACOs can thrive in the US and on how much they can save.)

If there isn't a manual, Montefiore does offer us some guiding principles. It highlights the benefits of health care organisations adopting a broad perspective on their social purpose: being willing to apply their skills to the most pressing health care or broader problems facing their communities, even when that leads them far outside their own institutional walls. Indeed, it offers a particularly ambitious objective for consideration: the objective of using the skills and resources of health care to address inequality and achieve social justice. This is what appears to have allowed Montefiore to see past the hospital boundaries, escape the straitjacket of conventional health care and focus on what mattered to its population.

It also reminds us of the importance of consistent leadership and consistency of purpose. Dr Foreman led Montefiore with vision and courage for two decades. Dr Safyer studied at the Albert Einstein College of Medicine, completed his residency at Montefiore, became its medical director in 1993 and has now been chief executive for 10 years. Stephen Rosenthal, the Senior Vice President for Population Health, established the Care Management Organisation in the mid-1990s and leads it today. Montefiore has now pursued its vision of integrated services and population health, not for the five years of a forward view, but for at least three decades. It has made strides in short periods without waiting for changes to payments or contracting to deliver progress, but it has taken decades to build an integrated system and touch the social and environmental problems causing ill health in a poor community.

Montefiore makes the case for large academic medical centres and hospitals, the health care organisations with the greatest resources in most countries, to take responsibility for building the missing primary, community and social infrastructure needed for an effective health system. It was through Montefiore's active intervention, and effective partnering, that a poor

community has access to a system of primary and community services. Some hospitals in the English NHS are working to support the local primary care system. Montefiore throws down the gauntlet by demonstrating the scale and pace of change that a large hospital group might engineer.

Montefiore shows what health care organisations with sufficient ambition can do to support their most deprived populations. The number 5 tram from Manchester to Oldham tells a similar story to the 4 train from Manhattan to the Bronx. If we really want to help deprived people, Montefiore's experience (like areas of England such as Wigan or Coventry) says that we need to go out and find them, connect with them wherever they are, understand the reality of their lives, and offer the services they want, on their terms, where they want them. If that means that expensive doctors should travel to poor people, that behavioural health should park next to primary care, that we offer taxis and bus tickets, we should do so.

Montefiore also shows what health care organisations can achieve through sustained strategic partnerships with the other public and voluntary organisations that touch local communities. Health care organisations cannot have a profound impact on wellbeing on their own. They need to work in broad coalitions if the ambition is to tackle intractable social problems. Montefiore does not see its work with partners outside health as a secondary activity, something to turn to when the waiting lists are eradicated. Partnership is integral to its mission and critical for its effectiveness.

For those with the most complex needs, Montefiore presents a model of care management applied on an industrial scale with precision and determination. It highlights the advantages of bringing doctors, nurses, social workers and others together in a large organisation capable of providing effective support for case managers and investing in rigorous care management processes. It reminds us of the need to bring health care and social support together. What is the point of lecturing a patient with diabetes on her diet if she is about to lose her house? It also highlights the need for the economists, programmers, researchers, data and analytics that can tell us if our interventions are working.

The danger when we dissect successful health services and label their component parts – the risk stratification algorithms, the motivational interviews, the holistic care plans and the population health solutions – is that we look past the magic of what makes them work. The mantra of Montefiore's case managers is to take charge of people's lives and do whatever it takes to allow them to regain health.

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