The Advisory Board Company

International
Global Forum for Health Care Innovators

Mind the Gap

Managing the Rising-Risk Patient Population

Region Midtjylland

27 October 2016

Where Health Care Goes to Get Better

Advisory Board International

We are a best practices group that uses a combination of research, technology, and consulting to improve the performance of 5,500 health care organisations and educational institutions around the world.

We forge and find the best new ideas and proven practices from across our vast network of leaders. Then we customise and embed them into every level of your organisation, creating enduring value.

Our unmatched perspective into global trends helps us focus agendas, uncover areas of opportunity, and restart stalled initiatives. In short we help you hear the signal within the noise.

As a result our members achieve outsized returns by more effectively and efficiently directing investments of time, attention, and resources, while unlocking the latent power of their staff to solve the challenges of today and tomorrow.

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Years Experience

3,000+
Participating Organisations

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165,000+
Health Care Leaders

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> "Neither I nor my organisation would be where we are today without the support of the Advisory Board."
>
> *CEO, UK NHS Foundation Trust*

Comprehensive Coverage Across Health Care

Partnering with Members to Transform Performance

RESEARCH	TECHNOLOGY	CONSULTING

Global Forum for Health Care Innovators

Uncovering the Signal in the Noise

Designed to provide insights and analytics to inform executive team decision making on key strategic issues facing today's health care providers. Sample areas of expertise include:

- Keeping pace with disruptive change
- Sustaining prosperity in a turbulent care environment
- Building the health system of the future
- Mobilising the organisation for transformation

Serving Chief Executives and their Senior Leadership Teams

Clinical Operations Board

- Improving clinical quality and patient safety
- Maximising capacity and utilisation
- Partnering with clinicians
- Managing patients with chronic diseases

Serving Chief Medical Executives and Chief Operational Leaders

Global eHealth Executive Council

- Improving governance and management of IT
- Leveraging IT to improve care quality
- Achieving return on IT investments
- Optimising business intelligence and executive data strategy

Serving Chief Executives and Chief Information Officers

Global Centre for Nursing Executives

- Achieving excellence in care quality and experience
- Enhancing care team productivity and operations
- Recruiting and motivating high-quality nurses
- Developing next-generation nursing leaders

Serving Chief Nurse Executives and their Senior Leadership Teams

Clinical Investment Insights

- Identifying strategic growth opportunities
- Optimising investment choices
- Minimising risk of capital investments
- Delivering insight into future disruptive innovation

Serving Chief Executives, Strategy and Clinical Specialty Leaders

The Advisory Board Company

International
Global Forum for Health Care Innovators

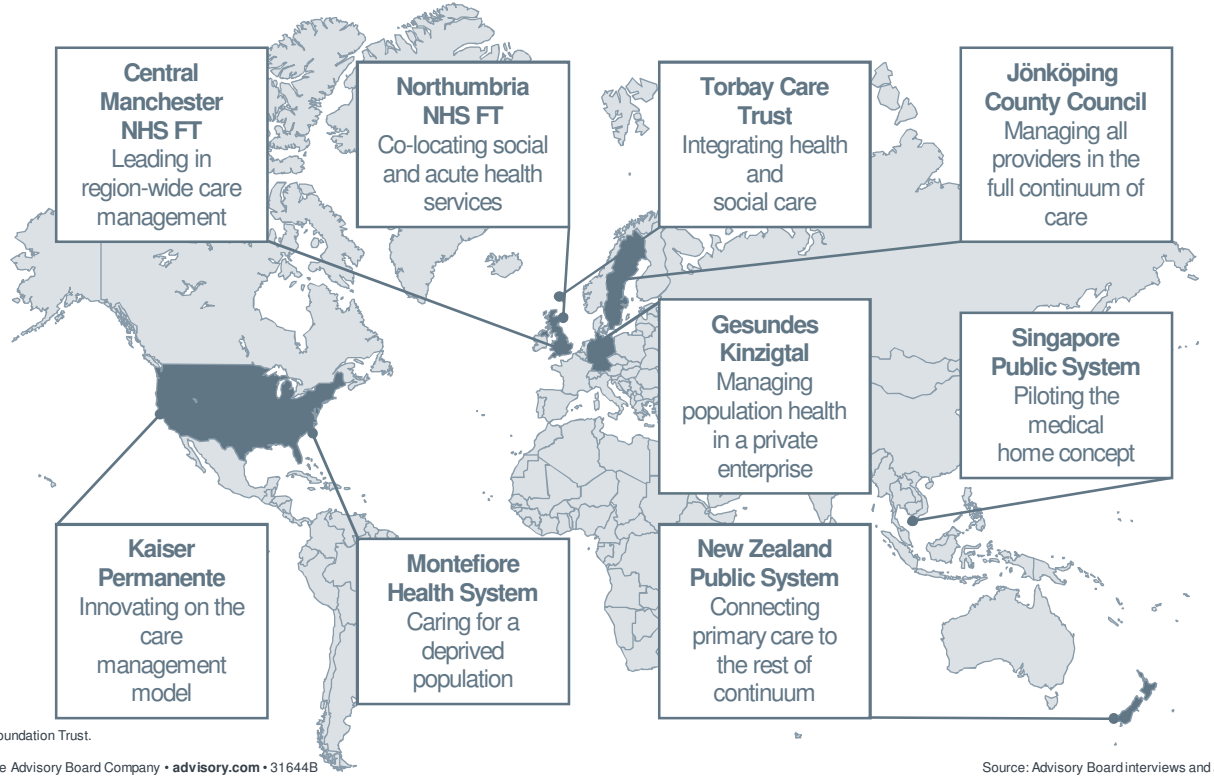
Mind the Gap

Managing the Rising-Risk Population

Stemming the Tide

Global Race to Manage Population Health

Selected Global Care Transformation Innovators and Pilots



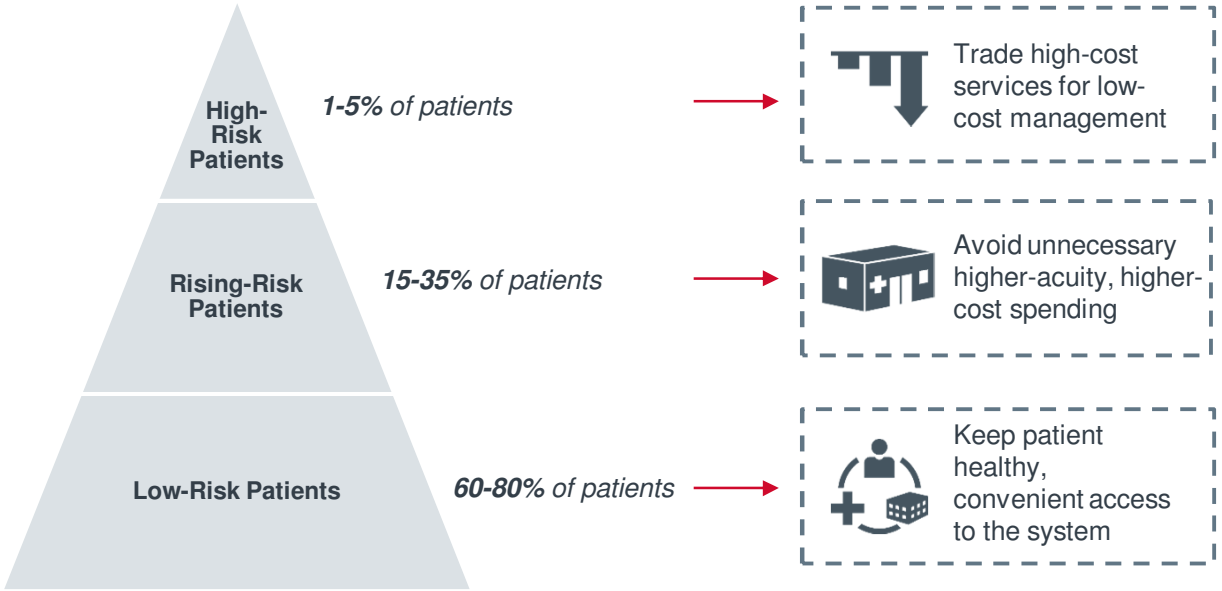
1) FT= Foundation Trust.

Source: Advisory Board interviews and analysis.

The Science of Care Management

The Best Population Managers Manage Three Distinct Populations

Managing Three Types of Patient Demand

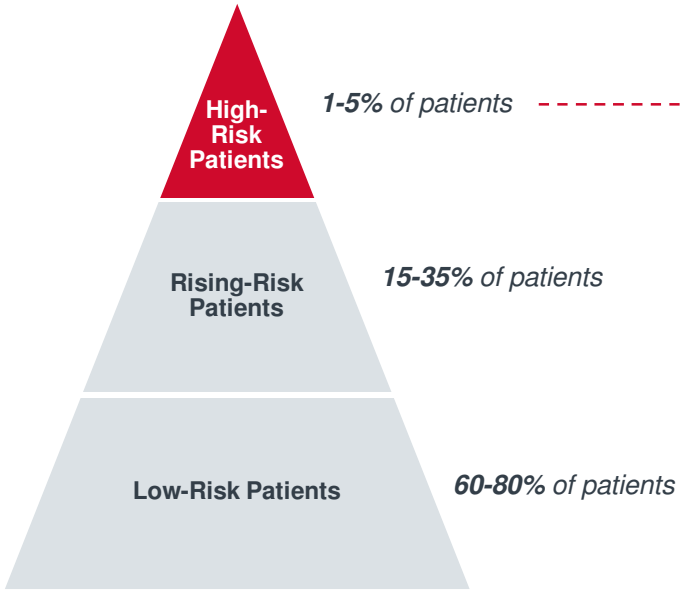


Source: Advisory Board interviews and analysis.

Population Health Managers Target High-Risk First

Poly-Chronic Equals High-Risk

Patient Population Pyramid



***1-5%** of patients*

***15-35%** of patients*

***60-80%** of patients*

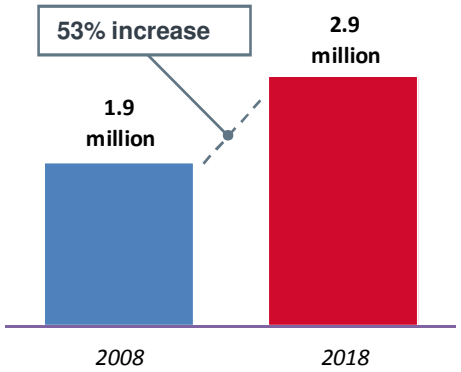
Common Characteristics of High-Risk Patients

1. Three or more chronic conditions
2. At least one severe condition
3. In need of constant, individualised management

Source: Advisory Board interviews and analysis.

Poly-Chronic Patients Put Pressure on Hospitals

Projected Growth of People with Multiple Chronic Conditions in England



40%

Australians over 45 have two or more chronic conditions

Hospital Burden of Poly-Chronic Patients

Length of Stay

62% longer

Than patients with less than 3 conditions

Readmission Rates

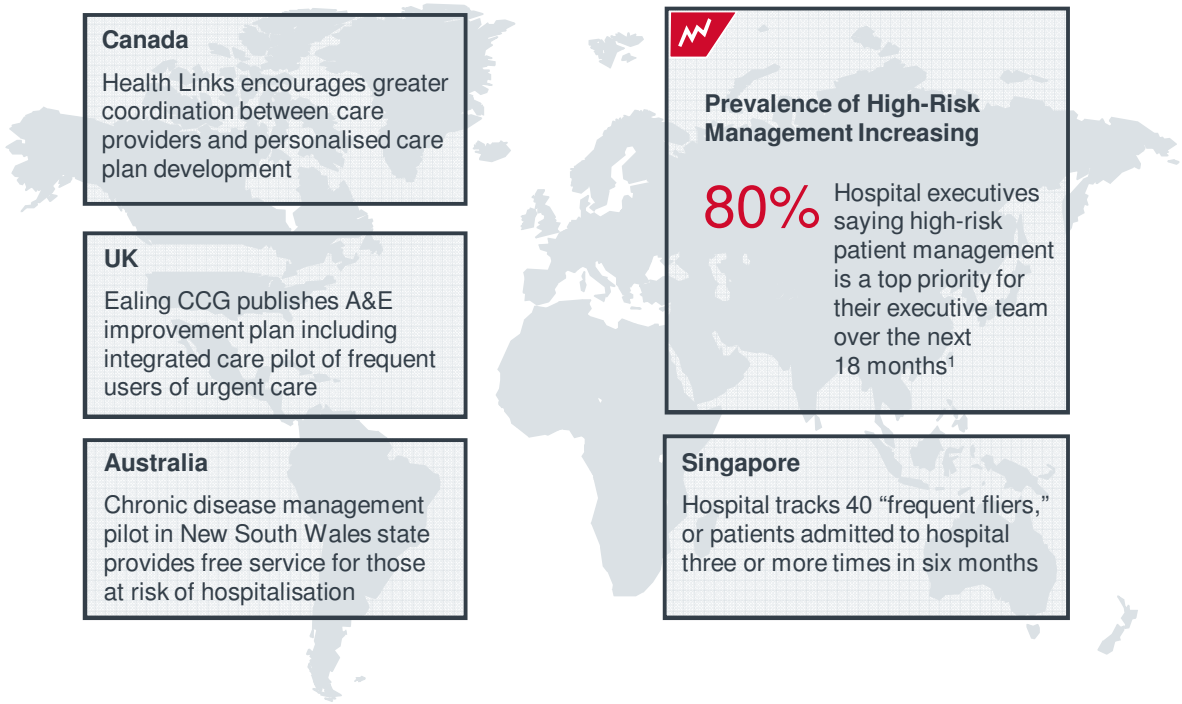
4-8x

The readmission rate compared to patients with less than 3 conditions

Source: Coulter A et al, "Delivering Better Services for People with Long-Term Conditions", The King's Fund, 2013, http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/delivering-better-services-for-people-with-long-term-conditions.pdf; Joanna H. et al, Characteristics of Hospital Stays for Super Utilizers by Payer, 2012; Advisory Board interviews and analysis.

Already Forced to Manage the High-Risk Group

Sample of High-Risk Patient Management International Programmes



Canada

Health Links encourages greater coordination between care providers and personalised care plan development

UK

Ealing CCG publishes A&E improvement plan including integrated care pilot of frequent users of urgent care

Australia

Chronic disease management pilot in New South Wales state provides free service for those at risk of hospitalisation

Prevalence of High-Risk Management Increasing

80% Hospital executives saying high-risk patient management is a top priority for their executive team over the next 18 months[1]

Singapore

Hospital tracks 40 "frequent fliers," or patients admitted to hospital three or more times in six months

1) Advisory Board's 2012 Survey of US hospital executives on population health management priorities.

Source: Advisory Board Population Health Advisor Survey 2012; Pang, K. "Keeping High-Flyers at Home," Khoo Teck Puat Hospital News, https://www.ktph.com/sg/main/news_details/75; New South Wales Government, Chronic Disease Management Program, http://www.health.nsw.gov.au/cdm/pages/default.aspx; Advisory Board interviews and analysis.

High Risk Patients Require Intense, Costly Care

Global Forum Resources on High-Risk Patient Management

Why High-Risk Care Management Isn't Enough

Video

Shows why population health managers need to focus on high-risk patients, while also creating a strategy to stem escalation of rising-risk patients.

The Right Care Management Approach for Specific High-Risk Populations

Tool

Explains examples of progressive care management programmes for subsets of high-risk populations.

High-Risk Patient Care Management

Study

Outlines concrete tactics for identifying and managing high-risk, high-cost patients using targeted care management strategies.

The Population Health Enterprise

Study

Provides a road map for creating a care management network by segmenting patients by risk level.

Interested in learning more?

Visit www.advisory.com/globalforum for additional resources on high-risk patient management.

Source: Advisory Board interviews and analysis.

High-Risk Management Alone Inadequate

Escalation of Larger Rising-Risk Group Driving High-Risk Growth

Patient Risk Escalation

15-35%
of your patient population is rising-risk

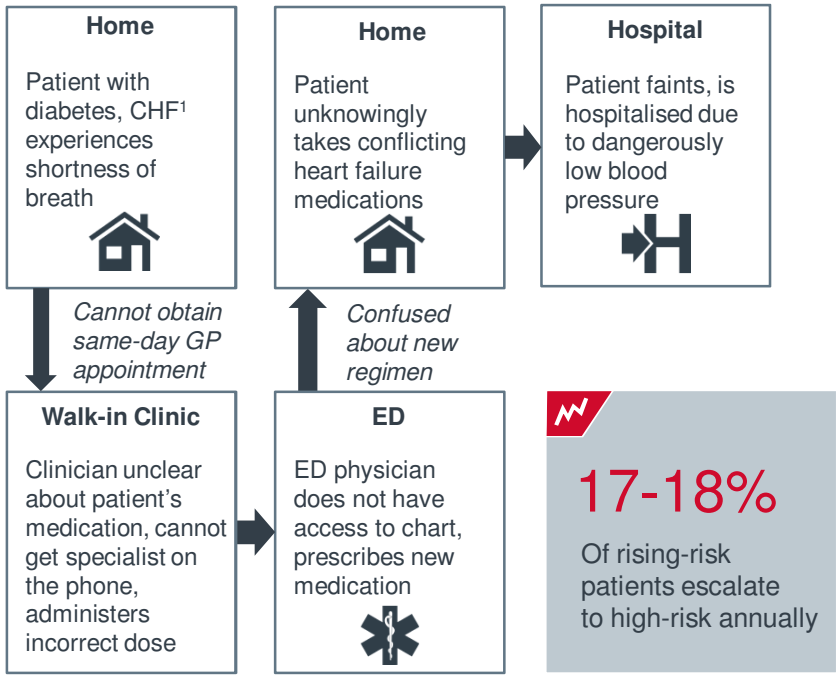
Key Characteristics of Rising-Risk Patients

1. **1-2 Chronic Diseases**
   Patient has 1-2 well-managed chronic diseases
2. **Ignorable Symptoms**
   Symptoms not severe and can be ignored
3. **Risk Factors**
   Patient has co-occurring psychosocial risk factors

Source: Edington, D "Lost Productivity, the High cost of Doing Nothing," available at: http://www.umich.edu/~hmrc/research/pdf/printableresearchslides.pdf; Advisory Board interviews and analysis.

One Mistake Away from Escalation

Care Miss Can Quickly Turn a Rising-Risk Patient Into High-Risk



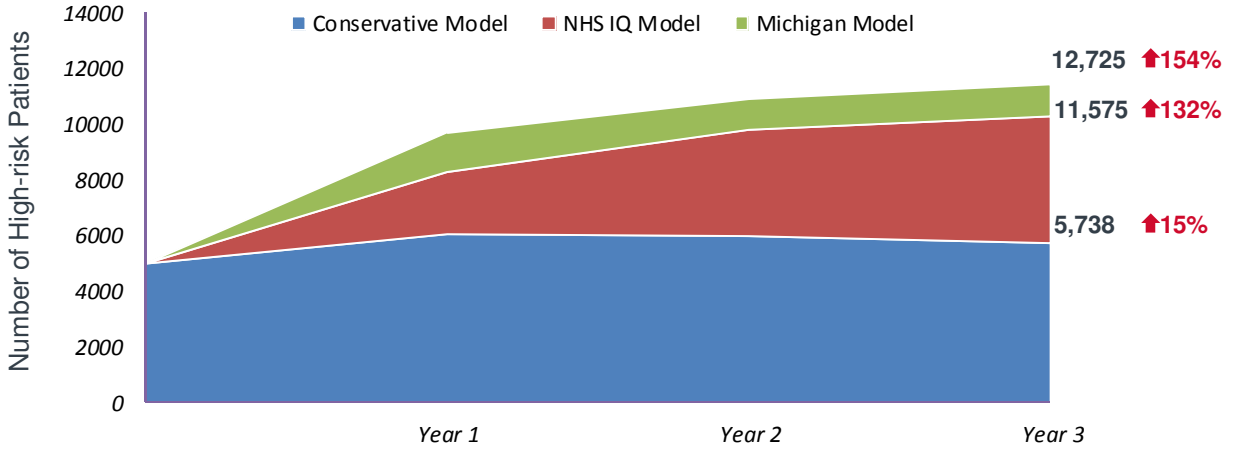
1) Congestive Heart Failure.

Source: Advisory Board interviews and analysis.

High-Risk Patient Pool Increasing Dramatically

Comparison of Three High-Risk Patient Projection Models

For a Catchment Area of 100,000



	Michigan Model	NHS IQ Model	Conservative Model
Rising-risk Escalation Rate:	18%	17%	12%

Source: Population Level Commissioning for the Future, Kent Whole Population Dataset: Interim Report, http://www.nhsiq.nhs.uk/media/2514788/population_level_commissioning_for_the_future.pdf; Edington, D, "Lost Productivity, the High Cost of Doing Nothing," http://www.umich.edu/~hmrc/research/pdf/printableresearchslides.pdf; Advisory Board interviews and analysis.

High-Risk Patient Pool Increasing Dramatically

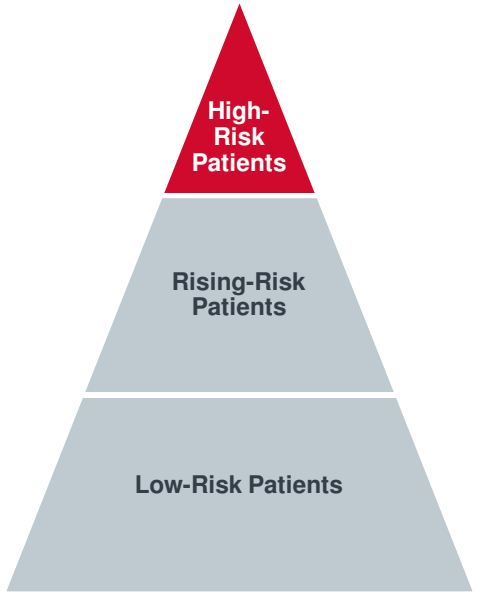
Inputs	Michigan Model	NHS IQ Model	Conservative Model
Source	University of Michigan Health Management Research Centre Study	Population study of Barking and Dagenham UK	Composite of models
Population Mix:	High: 5% Rising: 30% Low: 65%	High: 5% Rising: 30% Low: 65%	High: 5% Rising: 30% Low: 65%
Risk Migration Rates	Migration from low up to rising at 19% Migration from low up to high at 3% Migration from rising up to high at 18% Migration from high down to rising at 35% Migration from high down to low at 14% Migration from rising down to low at 39%	Migration from low up to rising at 28% Migration from low up to high at 1% Migration from rising up to high at 17% Migration from high down to rising at 25% Migration from high down to low at 9% Migration from rising down to low at 27%	Migration from low up to rising at 19% Migration from low up to high at 1% Migration from rising up to high at 12% Migration from high down to rising at 35% Migration from high down to low at 14% Migration from rising down to low at 39%
Leave Rates:	Not included	High-risk death rate:15% Rising-risk death rate: 10% Low-risk: 5%	High-risk death rate:15% Rising-risk death rate: 10% Low-risk: 5%

Source: Population Level Commissioning for the Future, Kent Whole Population Dataset: Interim Report, http://www.nhsiq.nhs.uk/media/2514788/population_level_commissioning_for_the_future.pdf; Edington, D, "Lost Productivity, the High Cost of Doing Nothing," http://www.umich.edu/~hmrc/research/pdf/printableresearchslides.pdf; Advisory Board interviews and analysis.

Costs Will Increase as High-Risk Patients Increase

Greater Number of High-Risk Leads to Greater Unsustainability

Theoretical Population Pyramid With Escalation Management



Source: Advisory Board interviews and analysis.

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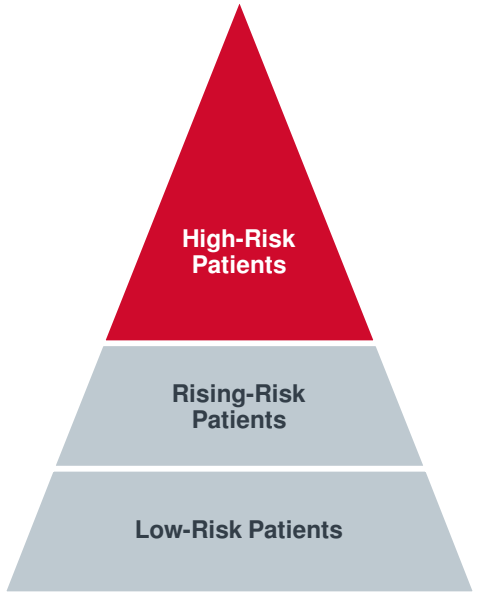
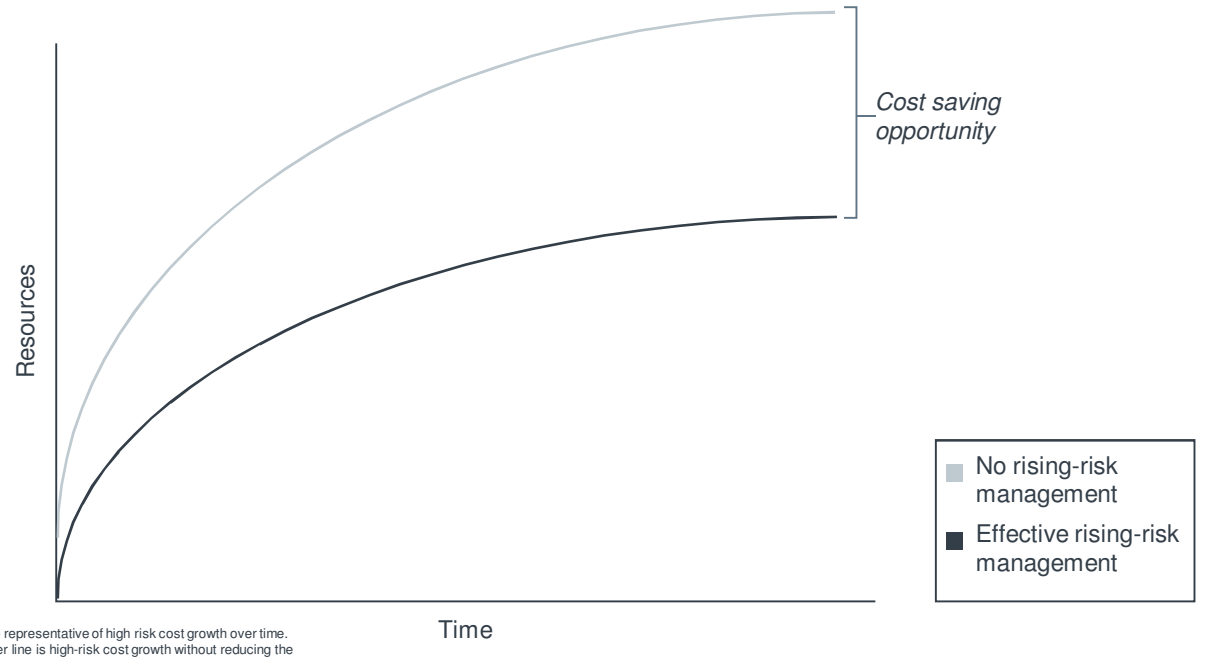


Source: Walter P et al "The Concentration of Health Care Spending: Little Ado (yet) About Much (Money,)" Presentation at the Canadian Association of Health Services and Policy Research Conference, May 20, 2012; Advisory Board interviews and analysis.

Our Mandate: Bend the Health Care Cost Curve

Cost Growth of High-Risk Patients With and Without Rising-Risk Management[1]



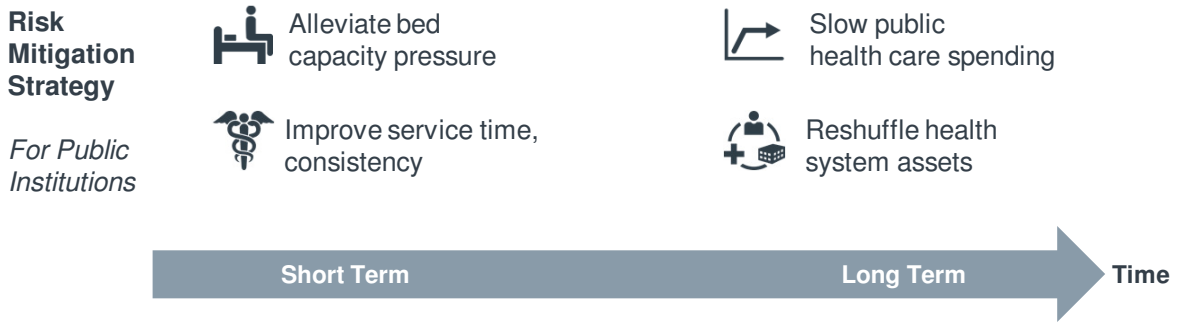
1) Lines are representative of high risk cost growth over time. The lighter line is high-risk cost growth without reducing the rising-risk escalation. The darker line represents a reduction in high-risk cost due to decreased escalation.

Source: Advisory Board interviews and analysis.

Rising-Risk Management: A Potential Win-Win

Individual Organisations Could Benefit From Bending System Cost Curve

Rising-Risk Management Opportunities



Source: Advisory Board interviews and analysis.

Few Working on Rising-Risk Strategy

> “To be honest, I don’t think I know of anyone working on these middle patients.
>
> I think we agree in theory that we should be targeting them, it’s just not where we’re focusing our efforts”

Director of Strategy,
A Local Health Integration Network, Ontario

Source: Advisory Board interviews and analysis.

Rising-Risk Management Tough to Do

Rising-Risk Management Challenges

Hard to Identify

Rising-risk patients are not always part of the health care system or do not interact with primary care providers

Common Limitations:

- *Clinical data is retrospective*
- *Only includes patient in the system*

Diverse Risk Factors

Conditions and risk factors are not mutually exclusive, often occurring together and clustering in different ways

Common Risk Factors:

- *Socio-economic status*
- *Behavioural health*
- *Social isolation*
- *Patient activation*

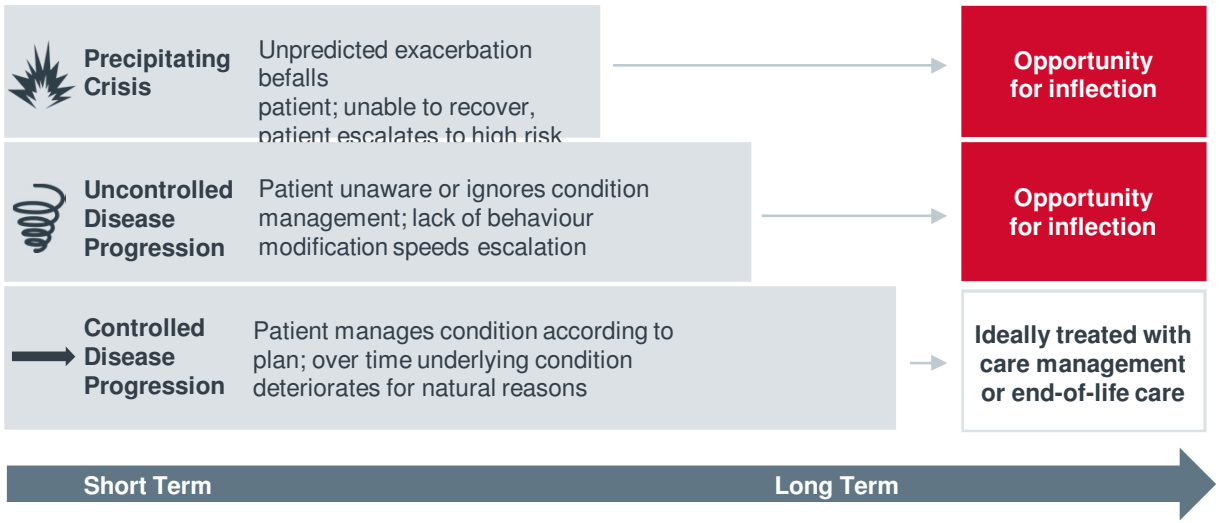
Large Population Size

Rising-risk patients can comprise up to 35% of a patient population, versus a 5% high-risk population

Source: Advisory Board interviews and analysis.

Understanding Root Cause of Escalation Critical

Common Triggers of Rising-Risk Patient Escalation

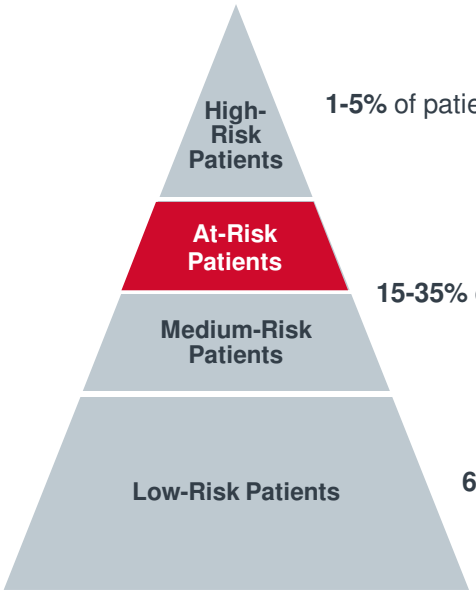


Source: Advisory Board interviews and analysis.

Target Patients on the Cusp

Crucial to Stem the Flow of Rising-Risk Deterioration to High-Risk

Patient Population Pyramid



1-5% of patients

15-35% of patients

60-80% of patients

Focus on the "One-in-Five"

17-18%

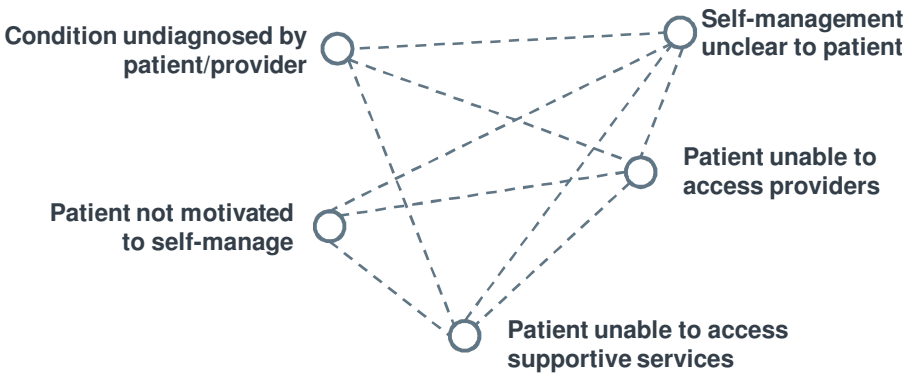
Of rising-risk patients become high-risk, annually

Source: Advisory Board interviews and analysis.

System Gaps Underpin Escalation

Approach Must Address Complex and Interconnected Mechanisms

Risk Escalation Mechanisms



Three Common Misconceptions

- Hospitals don't know where to start
- It's often seen as someone else's job to manage rising-risk patients
- Hospitals do not have sufficient resources for long-term rising-risk management

Source: Advisory Board interviews and analysis.

Mind the Gap

Lessons for Managing the Rising-Risk Patients

1

Identify Your At-Risk Populations

I. *Be Creative with Data You Have Available*

II. *Find At-Risk Patients That Are Unknown to the System*

III. *Avoid Overreliance on Others' Data*

2

Use Existing Resources to Maximise Scale

IV. *Ensure Clinician Awareness of Continuum Services*

V. *Connect Social Services to Clinical Care*

VI. *Turn Successful Patients into Care Partners*

3

Elevate Primary Care to Sustain System

VII. *Equip Primary Care with Critical Competencies*

VIII. *Case Study: Primary Care Partnership, Ribera Salud, Spain*

IX. *Implement Alternative Primary Care Models*

Source: Advisory Board interviews and analysis.

Mind the Gap: Identify Your At-Risk Populations

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Source: Advisory Board interviews and analysis.

Commercial Industries Rigorously Segment Markets

Micro-Demographics Underpin Competitive Grocery Store Strategy

Consumer Segmentation at Core of Supermarket Business

"All supermarkets have property teams, who sift locations according a wide range of factors – population density, footfall, the proximity of train stations and schools. They also use location analysis software, like Acorn, produced by the retail consultant CACI. Acorn segments households, postcodes and neighbourhoods into …range(s) from Affluent Achievers to the Difficult Circumstances group of single parent, elderly or low-income households."

How supermarkets choose where to open … and where to close, The Guardian

Source: http://www.theguardian.com/cities/2015/feb/11/how-supermarkets-choose-where-open-close-tesco; Advisory Board interviews and analysis.

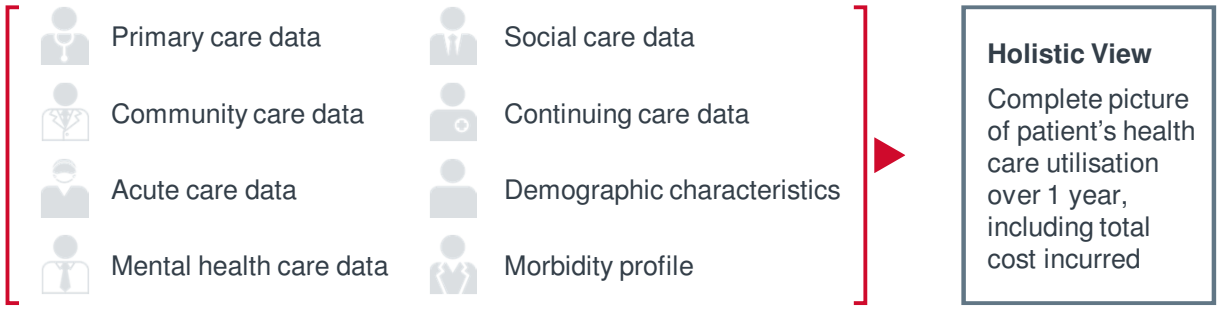
Connect Multi-Provider Data Across Continuum

Data from Various Sources Gives Holistic View of Patient

Symphony Project Population Health Assessment for South Somerset

Objective	Hypothesis	Data Analysis
To understand the population that would benefit from integrated care, support	Assumed that services targeted at frail elderly would be focus of integration plans	Compiled disparate datasets to see holistic view of health care use by 115,000 patients

Bringing Together Disparate Data Sources

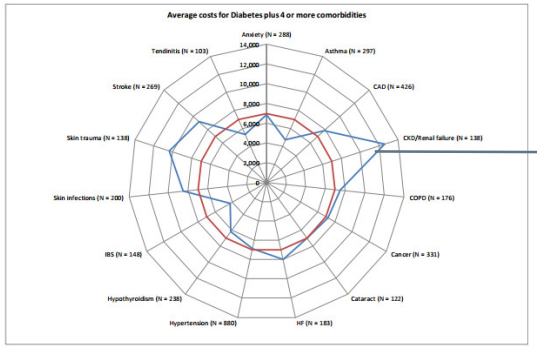


Source: Martin J, Street A, "Symphony Project, person-centred, co-ordinated care in South Somerset," The King's Fund, http://www.kingsfund.org.uk/sites/files/kf/media/Jeremy%20Martin%20and%20Andrew%20Street%20-%20Symphony%20Project,%20person-centred%20co-ordinated%20care%20in%20South%20Somerset.pdf; Street A, "Laying the foundations for integrated care in South Somerset," Health Service Journal, https://www.youtube.com/watch?v=Cr7aevRGBqM; Advisory Board interviews and analysis.

Focus Can Change After Comprehensive Data Review

Cross-Continuum Inquiry Finds Different Priority Population

Average Costs of Patients with Diabetes and 4+ Comorbidities



Little difference between the red and blue lines shows that costs driven as much by *number* of conditions as by *type* of conditions.

Costs Variation by Chronic Conditions vs. Age

Regression Variables	Variation Explained
Age	3.36%
Number of Chronic Conditions	**10.48%**

Action Steps Resulting from Symphony's Data Analysis

1. Core focus changed from age to multi-morbidity as identifier
2. Guided decision to create multi-morbidity care model
3. Identified pilot cohort based on findings
4. Definition of initial cohort enabled creation of capitated budget
5. Initial findings attracted national attention and investment
6. Introduced clinical staff to project and gained buy-in

Source: Kasteridis P, et al, "The Importance of Multimorbidity in Explaining Utilisation and Costs Across Health and Social Care Settings: Evidence from South Somerset's Symphony Project," The University of York Centre for Health Economics, https://www.york.ac.uk/media/che/documents/papers/researchpapers/CHERP96_multimorbidity_utilisation_costs_health_social%20care.pdf; Martin J, Street A, "Symphony Project, person-centred, co-ordinated care in South Somerset," The King's Fund, http://www.kingsfund.org.uk/sites/files/kf/media/; Advisory Board interviews and analysis.

Focus Can Change After Comprehensive Data Review

Case in Brief: South Somerset Symphony Project

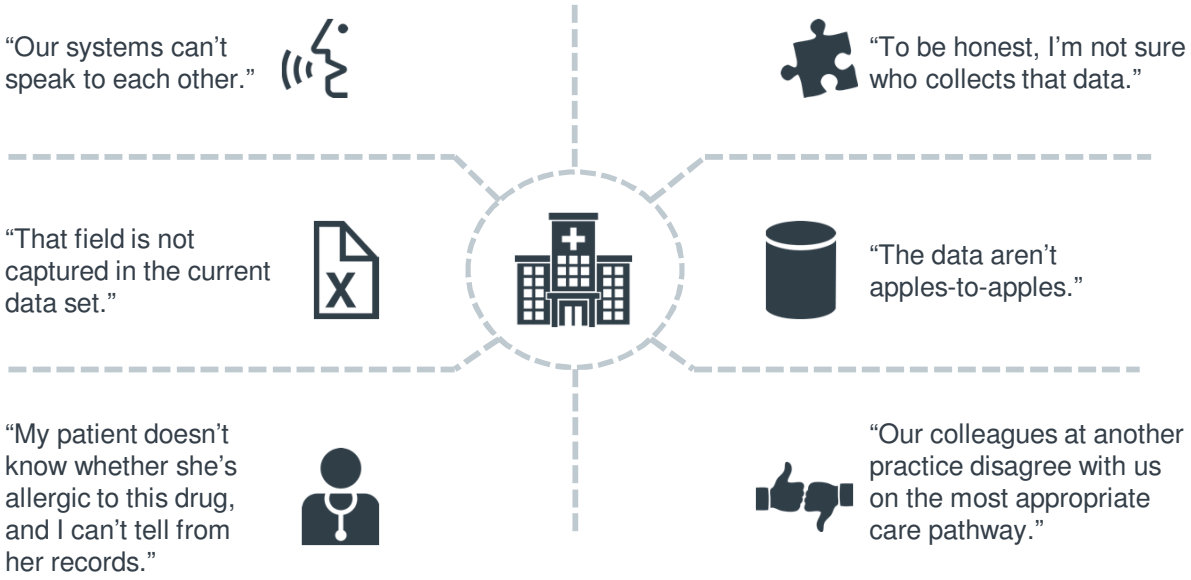
- Health and social care providers and commissioners in Somerset, England partnered with the Centre for Health Economics at University of York to assess population demand trends
- Linked previously separated datasets to provide view of each individual's health and social care use over one year; costs of each type of care also calculated
- Group assumed frail, elderly to be the focus of integration initiatives. Analysis found multi-morbidity the major cost driver, opportunity for improvement
- Comprehensive data analysis the start to the much larger Symphony Project initiative, which integrates primary care, secondary and other types of care for multi-morbid

Source: Symphony Project, South Somerset, England; Street A, "Laying the foundations for integrated care in South Somerset," Health Service Journal, https://www.youtube.com/watch?v=Cr7aevRGBqM; "Integrated primary and acute care systems vanguard sites: South Somerset Symphony Programme," NHS England, https://www.england.nhs.uk/ourwork/futurenhs/new-care-models/primary-acute-sites/#three; Advisory Board interviews and analysis.

Data Barriers Seem Paralysing, Intractable

Cross-Continuum Data Sharing Easier Said Than Done

Examples of Common IT-related Problems



Source: The Advisory Board research and analysis.

People Are Your Data Sources

> "Health care hot spotting is not just geography. Just the term 'hot spotting' is really about how to look for outliers…[Outliers] are the people who will tell you how to fix the system. They're also the people that we are failing in our delivery models."

Dr Jeffrey Brenner, Executive Director, Camden Coalition for Healthcare Providers

https://www.youtube.com/watch?v=Ylr_at0s4S4

Hospital Data Powerful When Used Correctly

Utilisation Data Pinpoints Narrow Pockets of Overuse

History of Camden's Hot Spotting Protocol

Lone GP Wants to Find Pockets of Need

Doctor loads medical billing data from three hospitals on laptop for analysis

GP Maps Data Cuts to Postal Codes

Various cuts of data (ex.ambulance pick ups) and mapping to city blocks highlights various pockets of need

Outliers Identified

Data mapped by patients' addresses, reveals 2 buildings with extreme overuse

Just Two Buildings Responsible for Overwhelming Costs[1]

Northgate II
Low-income housing tower

Abigail House
Large nursing home

900 people
4,000 hospital visits
$200M health care bills[2]

1) Between January of 2002 and June 2008.
2) USD.

Source: Gawande, A, "The Hot Spotters," *The New Yorker*, 24 January 2011, http://www.newyorker.com/magazine/2011/01/24/the-hot-spotters; Camden Coalition of Healthcare Providers, "About the Camden Coalition," https://www.camdenhealth.org/about/about-the-coalition/history/; Advisory Board interviews and analysis.

Hospital Data Powerful When Used Correctly (cont.)

Case in Brief: Camden Coalition of Healthcare Providers

- A group of health care providers, community partners, and advocates in Camden, New Jersey, US
- Dr Jeffrey Brenner compiled, analysed medical billing records from Camden's three main hospitals to find "hot spots" of crime and health care use
- Initial findings revealed the two most expensive city blocks in Camden

Source: Camden Coalition of Healthcare Providers, Camden, New Jersey, US; Advisory Board interviews and analysis.

Pinpoint Your System Gaps To Find At-Risk Patients

System Gap Analysis

Population

Measure Disease Burden

Look for chronic disease prevalence above the mean

Identify Localised Risk Factors

Zero-in on common psychosocial risk factors in community/ catchment area

Provision

Map System Pathway

Map rising-risk patients' journey

Evaluate Potential Partners

Perform gap audit of partner services & skills for rising-risk patient management

Position

Weigh Investment Needs

Evaluate whether existing service gaps need to be filled or not

Identify Accountable Parties

Determine if system has assigned a provider to manage rising-risk patients

Source: Advisory Board interviews and analysis.

Meet Your Patient Identification Task Force

Roles Needed in Effective Patient Identification Team

Chief Executive

- Set an institutional vision for population health management
- Ask partner institutions to cooperate; earmark funding

Integrated Care Lead

- Own institutional vision for population health
- Manage funds and partnerships at strategic level

Data and Analytics Staff

- Compile and merge relevant datasets
- Conduct quality assurance of datasets

Clinical Champion

- Provide clinical guidance on identification plans
- Lend credibility to initiative

Public Health Expert

- Source data on population at large
- Map prevalent non-clinical barriers to health

External Partner Liaisons

- Supply data for data and analytics staff
- Set up data-sharing protocols

Five Risk Stratification Lessons for Health Care Executives

1. The goal of risk stratification is to match patient need to service
2. There is no current gold standard for risk stratification methodology
3. Risk stratification can be both quantitative and qualitative
4. Simpler algorithms can achieve better ROI than sophisticated ones
5. Not all risk stratification is the job of the hospital

Source: Advisory Board interviews and analysis.

Tackling Usual Suspects

Common Gaps Driving Escalation to High-Risk and Hospital Pain

Population		Provision		Position	
Disease Outliers	Risk Factors	System Disconnects	Partners Needing Training	Service Gaps to Fill	Accountable Provider
❑ Cardiovascular conditions (CHF, PAD) ❑ Respiratory conditions (COPD) ❑ Type II diabetes ❑ High-cholesterol ❑ Hypertension	❑ Depression ❑ Anxiety ❑ Substance abuse ❑ Low income ❑ Low education level ❑ Living in deprived neighbourhood ❑ Poor health literacy	❑ Initiating mental health treatment ❑ Poor primary care access ❑ Unclear connection between health and social care ❑ Missing acute care discharge information	❑ Frequent referring primary care ❑ Frequent referring home care ❑ Community providers	❑ Primary care in deprived/ remote communities ❑ Home monitoring ❑ Patient system navigation ❑ Patient activation	❑ No-one in the lead ❑ Under-resourced primary care ❑ Under-resourced community providers
Information Sources For Evaluation					
• Disease registries • Payer data • ED data • Activity data	• Local census data • Public records • Payer data • Activity data • ED data	• Patient survey • Patient case study • Provider partner interviews • ED data • Activity data	• Stakeholder meetings • ED data • Frequently referring partners	• Stakeholder meetings • Financial and volume modeling	• Primary care audit • Stakeholder meetings (payers, partners)

Source: Advisory Board interviews and analysis.

Data Sets Will Only Go So Far

Moving From Populations to Patients

Characteristics of Rising-Risk Patient Health Care Use

Correct-Utilisers	Over-Utilisers	Under-Utilisers	Non-Utilisers
Rising-risk patient effectively managing his condition with provider help	Rising-risk patient that uses intense care services for routine symptom management	Rising-risk patient with undiagnosed conditions or inadequate care provision	Rising-risk patient that does not use any health care service despite need

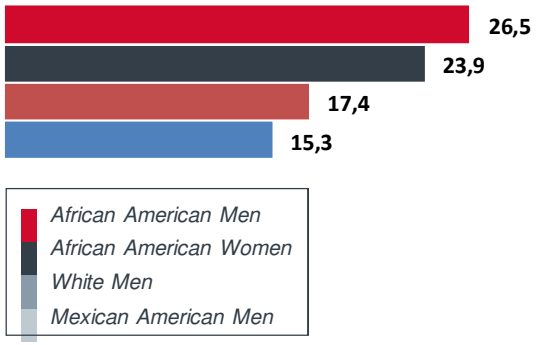
Frequency & Type of Personal Interactions

Every Half Year	Every Month	Every Week	Every Day
• GP • Dentist	• Hair Stylist • Cleaners	• Religious leader • Grocer	• Family • Coworkers

Source: Advisory Board interviews and analysis.

Ally With Partners to Find Individual Patients

Rates of Hypertension in the US



Barbershops Untapped Resource for Identifying At-Risk Patients

"The barbershop, heralded within the [African American] community for its credibility as a forum for in-depth discussions, information-gathering, and the relaying of shared experiences, represents an opportune venue for positively influencing health behaviour and outcomes."

Health Promotion in Barbershops, Ethnicity & Disease, 2010

Case in Brief: MedStar Health Hair, Heart, and Health Programme

- MedStar Health is the largest health care provider in Maryland and Washington, DC in the US
- In 2008, the "Hair, Heart, and Health" programme began in DC as a community-based programme that aims to reduce risk for cardiovascular disease among African American men

Source: Centers for Disease Control and Prevention, "A Closer Look at African American Men and High Blood Pressure Control: A Review of Psychosocial Factors and Systems-Level Interventions," US Department of Health and Human Services, http://www.cdc.gov/bloodpressure/docs/african_american_executive_summary.pdf; Releford, B, et al., "Health promotion in barbershops: Balancing outreach and research in African American communities," *Ethnicity & Disease*, 2010, 185-188, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4244298/pdf/nihms618952.pdf; Advisory Board interviews and analysis.

Train Trusted Resource to Screen and Send

Barbers Screen Patients, Refer for Follow-Up Care When Necessary

Key Elements of Barbershop Screening

Screen

Barbers trained to screen patrons for high blood pressure, diabetes, obesity

Advocate

Barbers serve as heart health advocates, trusted resource for their patrons

Refer

Patrons referred to follow-up care if necessary based on screenings

"Hair, Heart, and Health" Programme Results

54%

Patrons identified with pre-hypertensive or hypertensive blood pressure, previously undiagnosed

19%

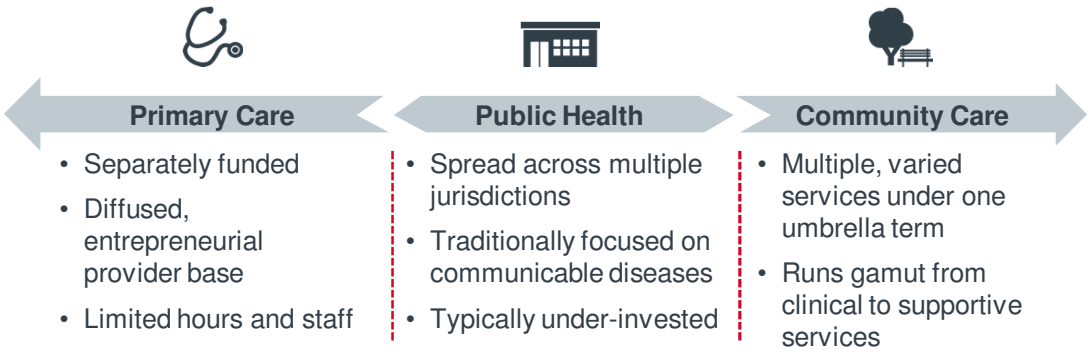
Patrons identified with uncontrolled blood pressure and referred to and tracked for follow up

Source: MedStar Washington Hospital Center – Hair, Heart and Health, American Hospital Association Community Connections, http://www.ahacommunityconnections.org/case-studies/index.dhtml?dcrpath=COMMUNITYCONNECTIONS/cc_case_study/data/output/2015/medstarwahospctr; Advisory Board interviews and analysis.

Relying on Others Rarely an Ideal Option

Blurred Boundaries Lead to Unclear Picture of Population Health

Factors Driving Provider Focus in Most Health Systems



Source: Advisory Board interviews and analysis.

Mind the Gap: Use Existing Resources for Scale

Lessons for Managing the Rising-Risk Patients

1

Identify Your At-Risk Populations

I. *Be Creative with Data You Have Available*

II. *Find At-Risk Patients That Are Unknown to the System*

III. *Avoid Overreliance on Others' Data*

2

Use Existing Resources to Maximise Scale

IV. *Ensure Clinician Awareness of Continuum Services*

V. *Connect Social Services to Clinical Care*

VI. *Turn Successful Patients into Care Partners*

3

Elevate Primary Care to Sustain System

VII. *Equip Primary Care with Critical Competencies*

VIII. *Case Study: Primary Care Partnership, Ribera Salud, Spain*

IX. *Implement Alternative Primary Care Models*

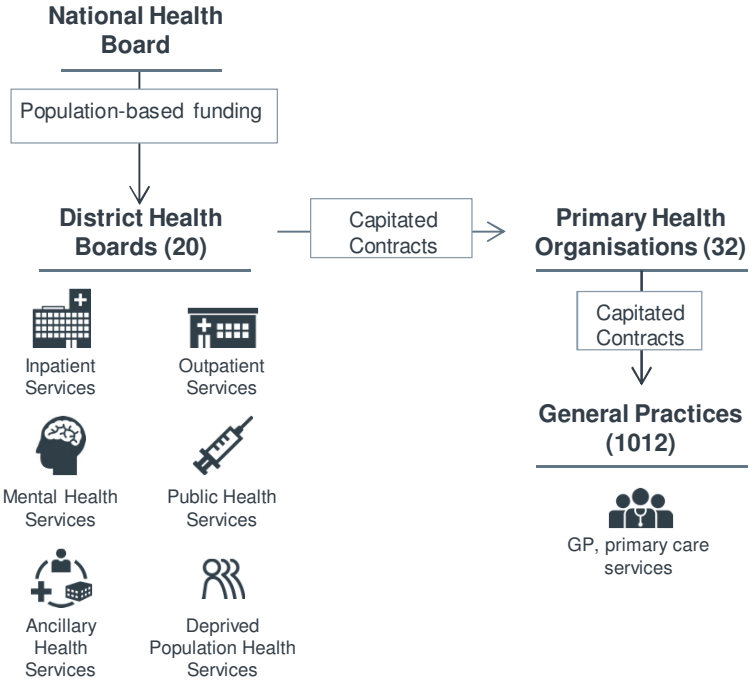
Source: Advisory Board interviews and analysis.

At a Glance: The New Zealand Health Care System

System in Brief

- Health care delivery organised on geographic, population basis
- 20 District Health Boards operate as major funder, manager for health services
- 32 Primary Health Organisations pay and manage GP services
- Capitated contracting the major payment method
- GPs act as system gatekeeper; refer patients to specialist services

New Zealand Public Health System Overview



Source: New Zealand Ministry of Health; Advisory Board interviews and analysis.

Population Health Approach Still With Challenges

NZ Health System Data

10.1%
GDP spent on health care

2.6 / 1000
Ratio of doctors to population

27%
Of New Zealander adults have unmet primary health care needs

New Zealand Public Health System Assessment

Strengths

- DHBs can be more responsive to population health needs through central management
- Centralised funding allows for easier service mix revision
- Centralised funding aligns primary and secondary care more closely than peer systems

Challenges

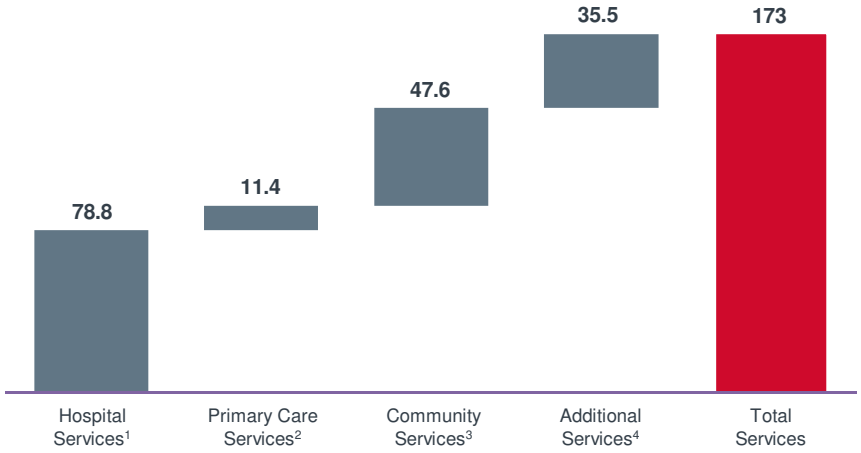
- Health services remain fragmented, complex to patients
- Deprived populations still underserved despite centralised management, funding
- GP copay frequently cited as barrier to greater primary care access

Source: New Zealand Ministry of Health; Advisory Board interviews and analysis.

Where Does the Money Go?

South Canterbury DHB's Distribution of its Population-Based Funding, Totaling $173M

Money Spent in New Zealand Dollars (Millions)



Notable Funding Allocations

14%
of funding spent on patients using other DHBs

17%
of funding spent on hospital surgical care

1) Hospital services include hospital surgeries ($29.6M), South Canterbury patients receiving care in other hospitals ($24.8M), hospital medical services ($18.2M), maternity services ($3.5M), and emergency department ($2.7M).
2) Primary care services include GP service ($11.4M).
3) Community services include health of older persons ($28.8M), mental health services ($11.6M), community public nursing ($5.2M), palliative care for the dying ($1.3M), and Māori health services ($658,000).
4) Additional services include prescriptions ($16.7M), other services ($8.9M), lab tests ($4.4M), democratic process ($3.5M), and dental ($2.1M).

Source: "Where the Money Goes," South Canterbury District Health Board, http://www.scdhb.health.nz/about-south-canterbury-dhb/planning-and-funding.html; Advisory Board interviews and analysis.

Referral Pathways for Services Often Broken

Providers Frequently Unaware of Correct Support Options

GP Office

- Unaware of patient's preferred provider while out-of-hours
- Rarely shares records with all providers
- Unaware of alternative services available to patient

Urgent Care Centre

- Lacks patient electronic health records, and so unaware of patient allergies, conditions
- Unable to easily communicate with GPs, specialists, or other care services

Lack of Communication and Awareness

Hospital ED

- Attending doctor lacks patient electronic health records
- Treats episode, not condition
- Unable to provide episodic details to other providers

Social Care

- Unaware of how patient's social needs relate to health condition
- Other providers rarely communicate with social care

Source: Advisory Board interviews and analysis.

Still, Care Continuity a Challenge in Most Systems

Even Structurally Connected Health Systems Face Care Gaps

26%

Of New Zealand patients report receiving conflicting information from providers

20%

Of New Zealand patients report problems with care fragmentation in their system

Case in Brief:
Canterbury District Health Board

- District Health Board (DHB) manages eight hospitals, non-GP providers, and 510,000 lives in and around Christchurch, New Zealand
- Observed high emergency admissions and long specialist wait times due to ineffective referrals
- Secondary, primary, and allied health developed 800+ standardised pathways, improving system collaboration, patient assessment, referral, education

Source: Cumming, J. et al. "Integrated care in New Zealand," 2011, International Journal of Integrated Care, vol.11; Advisory Board interviews and analysis.

System-Wide Mapping Minimises Misdirection

Maps Widely Adopted Across Providers

Four Characteristics of "HealthPathways" Effectiveness

1. Plans are uniform
2. Span the continuum
3. Accessible to all providers[1]
4. Continuously updated

Design Based on the Entire System

"We've centred the design around the patient to include the whole health system—not just the hospital, but the health system, which for us involves primary care practitioners, community organisations, and so on."

District Health Board Chief Medical Officer

Results of Care Mapping Implementation

80%
Of primary care doctors use pathways regularly (6-15 times/week)

90%
Of primary care doctors rate care they provide to patients as improved

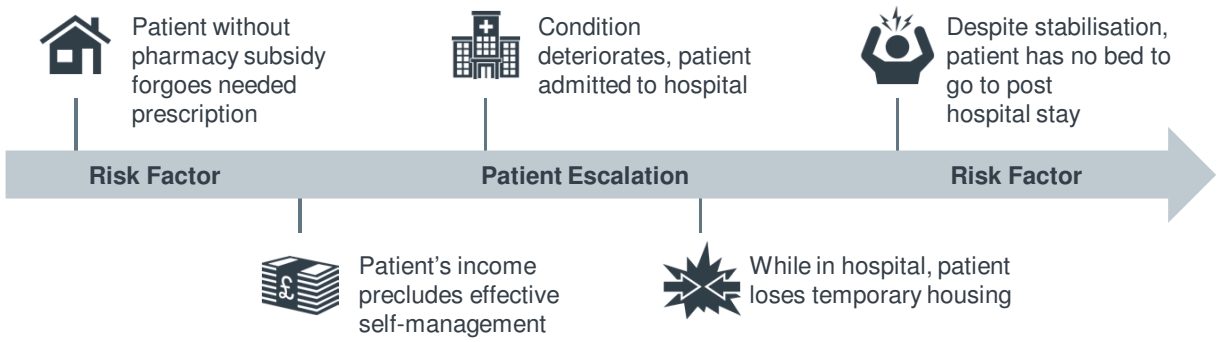
71%
Of primary care doctors provide more education to their patients[1]

1) Providers have access to educational pamphlets through the system. Additionally, the patient version of the system allows for self-study.

Source: McGeoch, G. et al., "Is HealthPathways effective? An online survey of hospital clinicians, general practitioners and practice nurses," 2015, New Zealand Medical Journal; Robinson, S. et al. "HealthPathways: creating a pathway for health systems reform," Australian Health Review, vol. 39; Health Pathways Community, 2015, http://www.healthpathwayscommunity.org/; Advancing Quality Alliance, "The Integrated Care Fellowship Programme," 2015, International Conference of Integrated Care; Advisory Board interviews and analysis.

Some Rising-Risk Patients Lack Means to Manage

Example Pathway of Income-Insecure Person



Source: Advisory Board interviews and analysis.

Specialist Role Connects Clinical and Social Services

Life Coach Role "Treats" Non-Clinical Risk Factors

How Community Resource Specialists Help

Low income patient suffers from diabetes

Patient frequently skips meals/ eats poorly

Patient's condition deteriorates

Patient requires inpatient care

Resource specialist learns patient eligible for nutrition support

Additional funds supports better patient diet

Community Resource Specialist Job Functions

- Arrange transport
- Set up primary care appointments
- Fill out insurance applications

500	Patients served per resource specialist[1]
140	Acute readmissions prevented
1,100	Patient days reduced

1) High-risk care managers, at maximum, can only treat 200 patients per month.

Source: Bon Secours Foundations, "The Spirit September/October 2010," available at: http://www.bsvaf.org/document.doc?id=79.; Tang N, et al., "Trends and Characteristics of US Emergency Department Visits, 1997-2007," JAMA, August 2010: 664-670.; all accessed September 15th, 2011; Advisory Board interviews and analysis.

Specialist Role Connects Clinical and Social Services

Life Coach Role "Treats" Non-Clinical Risk Factors

Case in Brief: Bon Secours Hampton Roads Health System

- Three-hospital system located in Virginia, US
- Identified patient mix carried several non-clinical risk factors such as:
  - Up to 15% without high school diploma
  - Up to 22% at or below poverty line
  - Up to 10% unemployed
  - Diabetes, CHF, hypertension, other chronic diseases common
- Piloted Life Coach programme at Bon Secours DePaul Medical Center in Norfolk, Virginia in partnership with local FQHC[1]

1) Federally Qualified Health Center.

Source: Advisory Board interviews and analysis.

More Social Need Begets More Social Services

Current Health Care System Failing Homeless Patients

Rates of Health Care Use Among Homeless

9 times

rate of ED use higher for homeless single men than for controls[1]

4.1 days

Length of stay longer per admission than other low-income patients[2]

Rates of Presence of Psychosocial Factors

39%

of homeless patients with current mental health problems[3]

50%

of homeless patients with current alcohol and/or drug problems

Case in Brief: Ottawa Inner City Health Inc.

- Not-for-profit organisation created by a broad stakeholder group serving the homeless community in Ottawa in Ontario, Canada; initially piloted in 2001
- Coordinates and integrates health care services for chronically homeless individuals in Ottawa; provides an extensive array of services, including palliative care and managed alcohol
- The Ottawa Hospital aids in organisational and day-to-day management; it played a lead role in ensuring stable funding for the programme as well

1) In a representative sample of homeless people and age-and sex-matched low income controls.
2) After adjusting for mental illness, substance abuse, and demographic characteristics.
3) In a nationwide US survey of homeless adults.

Source: Hwang A, Henderson, M, "Health Care Utilization in Homeless People: Translating Research into Policy and Practice," Agency for Healthcare Research and Quality Working Paper No. 10002, 2010, http://meps.ahrq.gov/mepsweb/data_files/publications/workingpapers/wp_10002.pdf; Advisory Board interviews and analysis.

Social, Clinical Combination Alleviates Pressure

Comprehensive Approach to Homelessness Paying Off

Selected Clinical and Social Programmes of Ottawa Inner City Health

- Special care clinic for men
- Primary care clinic in homeless mission
- Special care clinic for women

Clinical Need  **Social Need**

- Alcohol addiction support
- Dedicated housing
- Short-stay housing for women

Targeted Engagement and Diversion Programme

618

Episodes of care diverted from ED[1]

$170,000

Net cost savings[1]

Comprehensive Approach to Homelessness Sees Rewards

"Now you could argue, 'Why should we bend over backwards for these marginalised populations?' And other than compassion and a commitment to service, which I think are important Canadian values, at the very least I think you have to make the argument that **this saves you money**."

Dr Jeffrey Turnbull, Medical Director, Ottawa Inner City Health Inc.

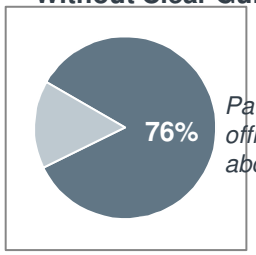
1) January 2013-2014.
2) Canadian dollars; $309,000 total savings generated from 618 diversions at estimated avoided cost of $500 per initial ED visit ($250 paramedics, $250 ED assessment, excluding any intervention in hospital). Total cost of TED programme is $139,000.

Source: "The Ottawa Hospital and Ottawa Inner City Health: The Population Health Approach in Action," CIHI Canada, https://www.youtube.com/watch?v=WJzzBv7xm8A; "Programs and Services", Ottawa Inner City Health Inc., http://www.ottawainnercityhealth.ca/; Huynh, T, "Population Health and Health Care: Exploring a Population Health Approach in Health System Planning and Decision-Making," CIHI Canada, https://secure.cihi.ca/free_products/CIHI_Bridiging_Final_EN_web.pdf; Advisory Board interviews and analysis.

Patient Self-Management Not Easily Achieved

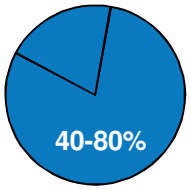
Knowledge and Adherence Both Lacking

Patients Leaving Providers Without Clear Guidance[1]



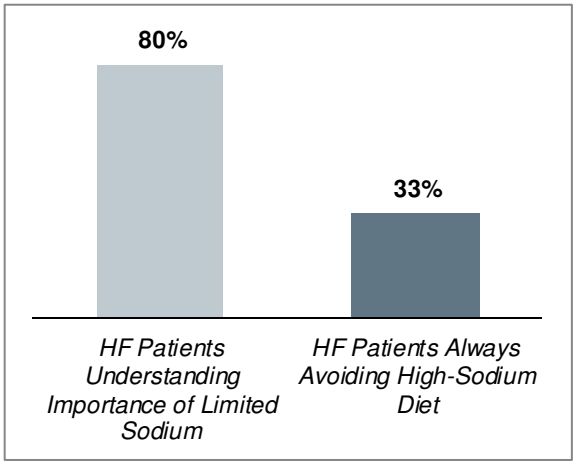
Patients leaving the doctor's office or hospital confused about next steps

Medical Information Provided by Practitioners Forgotten Immediately



Patients who forget medical information immediately

Adherence to Self-Management Guidelines Among Heart Failure Patients



1) Data analysed from Get With the Guidelines Heart Failure (GWTG-HF) registry.

Source: Ambardekar, A, et al., "Characteristics and In-Hospital Outcomes for Nonadherent Patients with Heart Failure: Findings from Get With The Guidelines-Heart Failure (GTWG-HF), *American Heart Journal*, October 2009; McGuire LC "Remembering what the doctor said: organization and older adults' memory" *Experimental Aging* Research 1996:22:403-28; Ni, H et al. "Factors Influencing Knowledge of and Adherence to Self-care Among Patients With Heart Failure " *Archives of Internal Medicine*. 1999;159:1613-1619l; Advisory Board interviews and analysis.

Current Patients Are Effective Partners

Project Dulce Uses Peers to Teach Day-to-Day Self Management

Peer Education Improves Results

In a study on the effect of peer education on self-management and psychological status[1], patients receiving peer education[2] saw significant improvements related to:

- Anxiety
- Depression
- Diabetes knowledge
- Distress
- Self-management
- Quality of life

Key Attributes of Project Dulce

1. **Short Term Commitment**
   5-8 weekly sessions, short term commitment from patients and peer coaches
2. **No Out-of-Pocket Cost**
   Patient assumes no financial responsibility for participation
3. **Real World Application**
   Patients taught to manage day-to-day events and needs
4. **Cultural Accommodation**
   Course materials written in numerous languages to aid ease of comprehension

Case in Brief: Scripps Health

- Four-hospital system headquartered in San Diego, California, United States
- Within Scripps and San Diego, Project Dulce started helping people with diabetes manage the daily aspects of their disease through culturally appropriate programmes and handouts

1) For patients with type 2 diabetes with emotional disorders.
2) Versus usual diabetes education.

Source: Philis-Tsimikas A, et al., "Peer-Led Diabetes Education Programs in High Risk Mexican-Americans Improve Glycemic Control Compared to Standard Approaches: A Project Dulce Promotora Randomized Trial," Diabetes Care, 34, no. 9 (2011): 1926-1931; Gilmer TP, et al., "Outcomes of Project Dulce: A Culturally Specific Diabetes Management Program," The Annals of Pharmacotherapy, 39, no. 5 (2005): 817-822; Liu Y, et al., "Effect of peer education on self-management and psychological status in type 2 diabetes patients with emotional disorders," Journal of Diabetes Investigation, 2015, 479-86, http://www.ncbi.nlm.nih.gov/pubmed/26221528; Advisory Board interviews and analysis.

Patients Can Also Be Their Own Solution

Peer Coaches a Source of More Staff

Daily Management Skills

- Test blood sugar
- Read food labels
- Exercise
- Care for feet
- Control food portions
- Inject insulin properly

Programme Introduction and Adoption Process

Patients with diabetes identified as "natural leaders," chosen as peer coaches

New peer coaches trained over 3 month period, undergo 40 hours of training

Coaches learn education curriculum, behaviour modification, group instruction, and mediation

Project Dulce Seeing Significant Results

18,000
Patients served by Project Dulce over 15 years

54%
Participants with HbA1c levels below 7%, compared to 35% in control group

33%
Cost of health coach relative to nurse

Source: Philis-Tsimikas A, et al., "Peer-Led Diabetes Education Programs in High Risk Mexican-Americans Improve Glycemic Control Compared to Standard Approaches: A Project Dulce Promotora Randomized Trial," Diabetes Care, 34, no. 9 (2011): 1926-1931; Gilmer TP, et al., "Outcomes of Project Dulce: A Culturally Specific Diabetes Management Program," The Annals of Pharmacotherapy, 39, no. 5 (2005): 817-822 "Registered Nurse: Salary," US News, 2014, http://money.usnews.com/careers/bestjobs/registered-nurse/salary; Advisory Board interviews and analysis.

Mind the Gap: Elevate Primary Care for Sustainability

Lessons for Managing the Rising-Risk Patients

1

Identify Your At-Risk Populations

I. Be Creative with Data You Have Available

II. Find At-Risk Patients That Are Unknown to the System

III. Avoid Overreliance on Others' Data

2

Use Existing Resources to Maximise Scale

IV. Ensure Clinician Awareness of Continuum Services

V. Connect Social Services to Clinical Care

VI. Turn Successful Patients into Care Partners

3

Elevate Primary Care to Sustain System

VII. Equip Primary Care with Critical Competencies

VIII. Case Study: Primary Care Partnership, Ribera Salud, Spain

IX. Implement Alternative Primary Care Models

Source: Advisory Board interviews and analysis.

Primary Care in Need of Enhancement

> "It's not an insurmountable problem but depending on their age and breadth of expertise, there are opportunities to improve their [primary care doctors] understanding of chronic conditions and management."

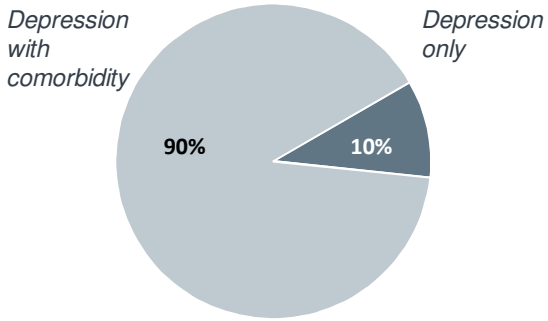
Manager, Australian Health Insurance Provider

Source: Advisory Board interviews and analysis.

Undiagnosed Comorbidities Complicate Care

Depression Often Missed During Routine Care

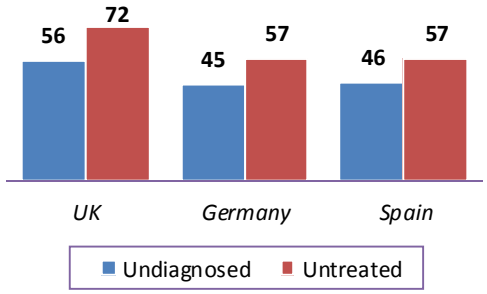
Percent of Comorbid Depression in Chronic Disease[1] Patients



> Depression is clearly associated with a poorer prognosis and more rapid progression of chronic illnesses
>
> *Gregory Simon, Researcher*

Rate of Undiagnosed, Untreated Depression in Europe

In percent



Up to 75%

Depression diagnoses missed by US primary care providers[3]

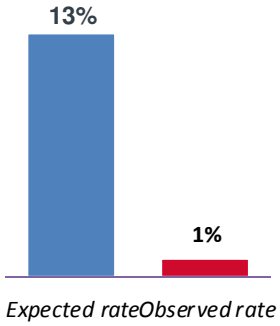
1) Among Medicare patients in the US (those over 65 or with disabilities).
2) 30-50% for physicians and 66-75% for primary care residents.

Source: European Depression Association, 2015, http://www.europeandepressionday.com; CMS, "Chronic Conditions Among Medicare Beneficiaries," http:// www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/2012Chartbook.pdf; Penn, JV et al. Recognition and Treatment of Depressive Disorders by Internal Medicine Attendings and House staff. *Gen Hosp Psych*. 1997, vol. 19; Simon, G., "Treating depression in patients with chronic disease," The Western Journal of Medicine, 2001, vol. 175; Advisory Board interviews and analysis.

Bolstering Primary Care Screening Skills

Discrepancy in Disease Prevalence Prompted ACO Action in New York

Undiagnosed Depression at NYC HHC[1]



Reasons for Depression Under-Diagnosis

- Stigma of mental illness
- Lack of disclosure by patients
- Difficulty addressing difficult topics or emotions in primary care providers
- Missed diagnosis and treatment

Many Barriers to Screening Patients for Depression

"You can't just go out and screen people even though it sounds easy. There are language barriers and training requirements for staff who need to verbally administer assessment tools. You have to train [primary care] to assist in asking questions to get accurate data—make eye-contact, be trustworthy, frame why we're doing this—you can't just read the questions and expect accurate answers."

Anonymous, New York Health and Hospital Corporation

1) Within their catchment area, only 1% of individuals had a diagnosis of depression (the "observed rate").

Source: Gutnick, D. et al. "HHC Depression Teaching Module," Drexel University, http://webcampus.drexelmed.edu/interactive/hhc/PHQ9/2_main/index.htm; Advisory Board interviews and analysis.

Clinicians Help Peers Develop Diagnostic Skills

Training Programme Milestones

- Volunteer champions identified, assigned to primary care clinics
- Champions build rapport and trust through visits, one-on-one interaction
- Scenario-planning, training, virtual resources teach real-world application
- Annual refresher sessions keep skills sharp

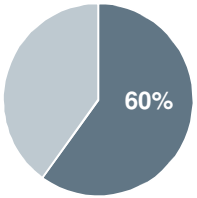
Training Modules

- Rational for screening
- Depression diagnosis
- Initial counseling
- Follow-up care
- Support Services
- Cultural issues

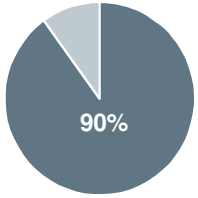
NYC HHC Use of Depression Screening in Primary Care

2012 - 2014

Before Programme



After Programme



Source: Gutnick, D. et al. HHC Depression Teaching Module, http://webcampus.drexelmed.edu/interactive/hhc/PHQ9/2_main/index.htm; Advisory Board interviews and analysis.

Clinicians Help Peers Develop Diagnostic Skills

Case in Brief: NYC Health and Hospitals Corporation (NYC HHC)

- The largest public hospital system in the US, with 11 acute care hospitals and 6 diagnostic and treatment centers
- Launched “Depression Collaborative Care” programme in 2012 after identifying high rates of under diagnosis among system GPs
- Trained GPs to identify unmet depression; clinical coach assigned to GPs to enhance depression assessment, increasing screening rates and depression yield

Source: Advisory Board interviews and analysis.

The Alzira Model

Control Incentives Enforced by Valencia

Budget Controls	Quality Protection	Access Protection
• Hospital ownership retained • Set fee per inhabitant	• Outcomes targets in contract • Free patient choice • Profit capped at 7.5%	• Universal, free care stipulation • 80% out of network reimbursement

20-25%
Consistently lower expenditures than comparable publicly managed institutions

91%
Patient satisfaction rate

Case in Brief: The Alzira Model

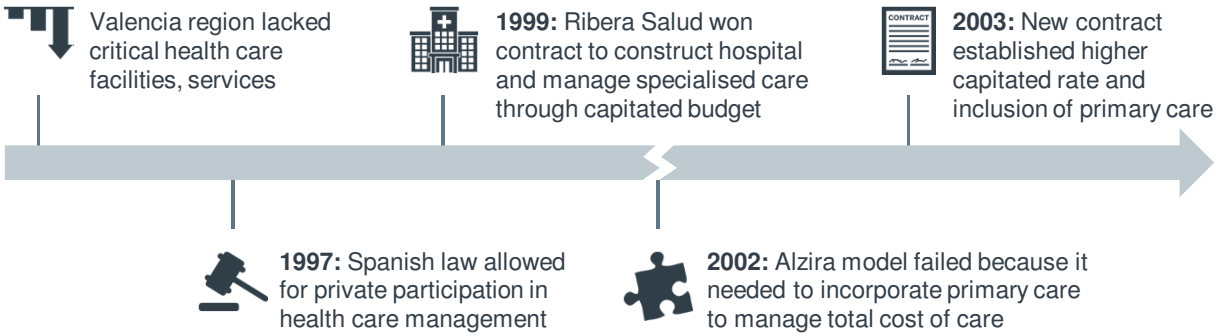
- Spain's national health system grants private companies ability to manage public health care assets in Valencia
- Private company, Ribera Salud, assumes responsibility for health of Valencia region's population of 250,000 people based on capitated annual payment for each citizen
- Renegotiated contract to include primary care after first endeavour failed. Now operating several sites of care

Source: McClellan, Mark, "Accountable Care Around the World," *Health Affairs*, Sept. 2014, 33:9, 1507-1515; "Spanish health district tests a new public-private mix", *WHO*, http://www.who.int/bulletin/volumes/87/12/09-031209/en/; Advisory Board interviews and analysis.

Missing Partner Up-Ended Business Model

Critical Partners Needed to Assume Population Health Risk

Timeline of Alzira Model
Alzira, Spain



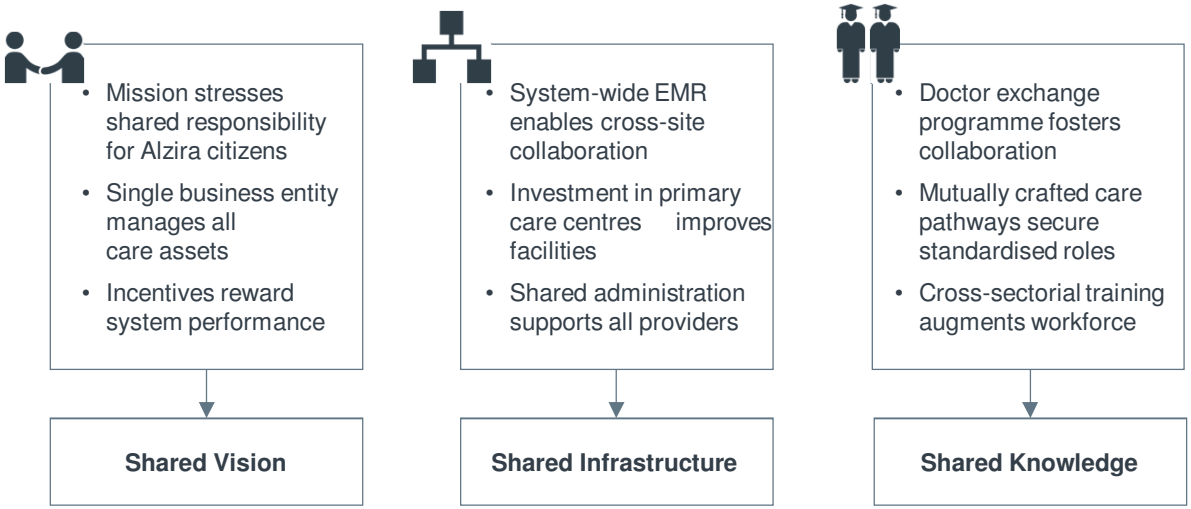
> "Before primary care was integrated with the hospital, our model struggled. We were responsible for the health of the population but could not do that without full integration of primary and hospital care. Now that primary care, home care, and hospital care are integrated, we can fully manage our population's health."
>
> *Alberto de Rosa Torner, CEO, Ribera Salud*

Sources: Carlos T. Serrano, "Alzira model: Hospital de la Ribera, Valencia, Spain," EUREGIO III; Advisory Board interviews and analysis.

Cross-Sectorial Collaboration Key to Success

Care Management Grounded in Primary Care with Acute Care Support

Key Investments in Primary-Secondary Partnership

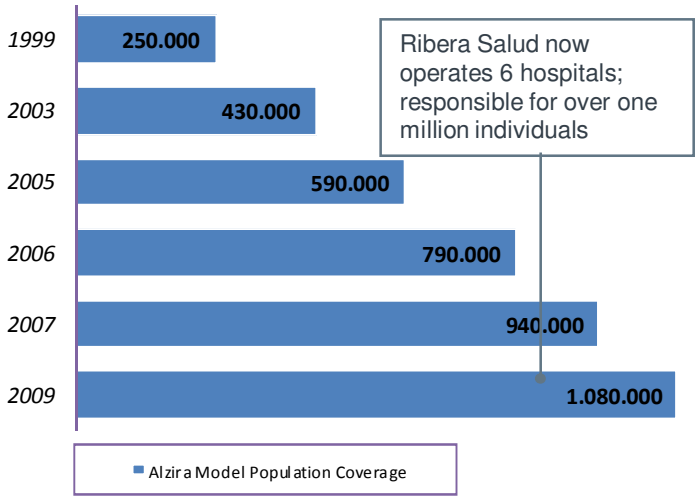


Sources: Advisory Board interviews and analysis.

Sustained Partnership Drives Business Success

System Exceeds Government Targets and Expands

Population Covered Under Ribera Salud Group[1]



Alzira Performance Compared to Peers in Valencia on Major Metrics

34%
Fewer 3-day readmissions

54%
Lower emergency wait times

26%
Higher patient satisfaction

1) In Spain across Valencia region and Madrid: Hospital Universitario de La Ribera, Hospital de Torrevieja, Hospital de Denia, Hospital de Manises, Hospital de Vinalopó, Hospital de Torrejón.

Sources: NHS European Office, "The search for low-cost integrated healthcare," 2011, http://www.riberasalud.com/ftp/biblio/14032013102512201 1%20NHS%20bibliografia.pdf ; Advisory Board interviews and analysis.

Human Resources Greatest Limiting Factor

Primary Care Doctors Only Scale So Far

Three Challenges to Scaling Traditional General Practices

Human Capital
Adding new practice staff expensive and inefficient

Systemisation
Scaled virtualisation of care not possible in practice-centric environment

Patient Engagement
One quarter of patients not interacting with primary care every year

Not Enough Doctors

45,000 Estimated primary care doctor shortage by 2020[1]

Not Enough Time

21.7 Hours of GP time that would be required *per day* to meet clinical guidelines to sufficiently address the needs of standard 2,500 patient panel[1]

1) In the US.
2) US guidelines.

Source: AAMC, "Physician Shortages to Worsen Without Increases in Residency Training," available at: https://www.aamc.org/download/286592/data/, accessed October 1, 2013; Yarnall, K. et al., "Family Physicians as Team Leaders: 'Time' to Share Care," *Preventing Chronic Disease,* April 2009, Vol. 6: No. 2; Health Care Advisory Board interviews and analysis.

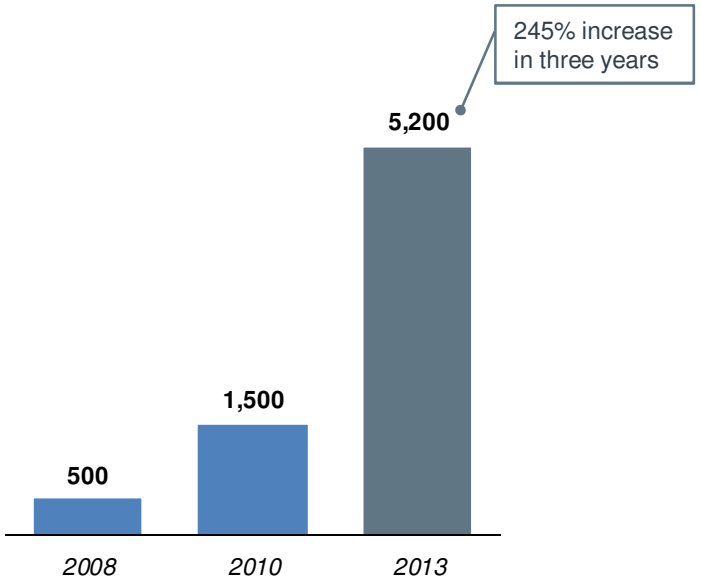
Ideal Management Hub for the Rising Risk

Six Principles Define "Medical Home" Concept

- Comprehensive care
- Enhanced access
- Coordinated care
- Patient engagement
- Disease registry
- Team-based approach

Number of US "Medical Homes"

Growth in Accredited Sites[1], 2008-2013

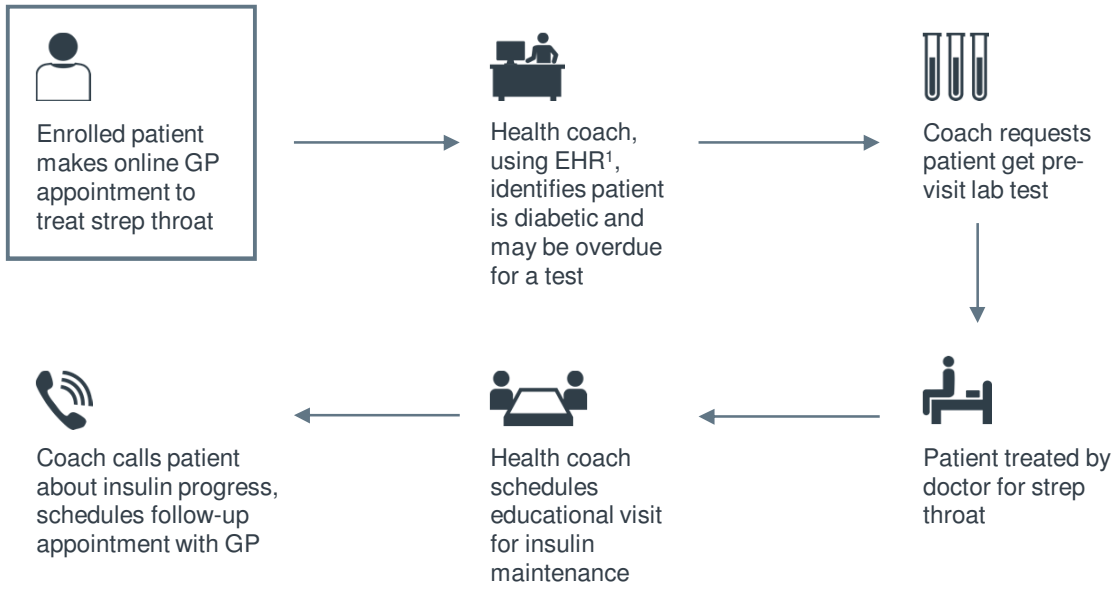


1) As determined by the National Committee for Quality Assurance in the United States.

Source: National Committee for Quality Assurance; Advisory Board interviews and analysis.

Concept Enables Multi-Specialty Primary Care

A Day in the Life of a "Medical Home" User



1) Electronic Health Record.

Source: Advisory Board interviews and analysis.

“Medical Home” Model Showing Reduced Escalation

Reducing Need for More Costly Care

Study in Brief

- Two year study of 15 small and medium-sized primary care groups in Colorado, US piloting “medical home” model
- Compared changes in utilisation, costs, and quality between patients attributed to pilot and non-pilot practices.
- Indicates patient-centered medical home initiative can produce sustained reductions in hospital use with mixed results on process measures of quality.

> “We found a reduction in ambulatory care–sensitive inpatient hospital admissions …suggesting that some PCMH interventions may be able to deliver on the promise to reduce hospital use by patients with chronic illness.

Study Results

10.2% Reduction in avoidable admissions

$6.61[2] Per person savings[1] per month from reduced ED visits

1) Based on a per member, per month, capitated payment model.
2) US Dollars.

Source: Rosenthal M., et al “A Difference-in-Difference Analysis of Changes in Quality, Utilization and Cost Following the Colorado Multi-Payer Patient-Centered Medical Home Pilot”, Journal of General Internal Medicine, Oct 2015; Advisory Board interviews and analysis

Enhancing Primary Care via Pharmacy Involvement

Pharmacist Expertise Can Improve Outcomes, Reduce Costs

Clinical Pharmacist Facilitator Role

- Trained as specialist clinical pharmacist
- Able to perform Medicines Therapy Assessment (MTA)
- Main goals are to reduce polypharmacy, facilitate clinical behaviour change

Case in Brief: Hawke's Bay District Health Board

- In 2010, presented business case for clinical pharmacist involvement based on high cost of medications prescribed
- Two clinical pharmacist facilitators trialed part-time at three proof of concept general practice sites

Clinical Pharmacist Facilitator Role Bending System Cost Curve

19.5% Reduction in drug costs across the 3 general practice sites[1]

$547,203 Cost savings generated at pilot sites

1) From September 2011 to August 2012, as compared with 8.7% reduction in drug costs throughout Hawke's Bay DHB at large.

Source: Olley, J, "Clinical Pharmacist Facilitators Working in General Practice: Evaluation," S&J Consultancy, http://www.hawkesbay.health.nz/file/fileid/48804; Advisory Board interviews and analysis.

Nurses Solving for Scale and Scope

Neighbourhood Home Care Creates Continuity, Improves Quality

Case in Brief: Buurtzorg Nederland

- Buurtzorg ("neighbourhood care") is a Dutch home care organisation internationally recognised for innovative use of self-governing nurse teams
- Started in 2007, Buurtzorg now employs 8,000 nurses in 700 teams; in 2014, nurses cared for 65,000 patients across the Netherlands
- Cost of care provision roughly the same as other home care providers; improved patient outcomes; clinician and patient satisfaction scores higher

Structure of Buurtzorg Model

1 **Independent Teams**

Teams of (maximum) 12 nurses are responsible for *all* aspects of care[1]

2 **Innovative Technology**

Model uses IT system for online scheduling, billing, and documentation

3 **Coaches Available**

"Coaches" available to problem-solve for each team

4 **Small Back Office**

Small back office leads to a streamlined, efficient administrative process

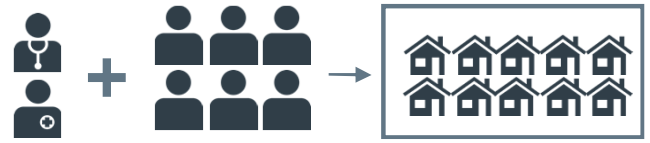
1) For 50-60 patients.
2) Per client per year.
3) Total case-mix adjusted cost per client, including home care and follow-up costs.

Source: Gray, BH, et al., "Home Care by Self-Governing Nursing Teams: The Netherlands' Buurtzorg Model, The Commonwealth Fund, May 2015, http://www.commonwealthfund.org/publications/case-studies/2015/may/home-care-nursing-teams-netherlands; KPMG, "The Added Value of Buurtzorg Relative to Other Providers of Home Care: A Quantitative Analysis of Home Care in the Netherlands in 2013 [in Dutch], January 2015; Advisory Board interviews and analysis.

Doing More with Less

Care Teams Visit Residents' Homes Regularly to Provide Primary Care

Brazil's Community Care Team



1 Doctor
1 Nurse

4-6 Community health workers

1000 households

Community Health Workers Services

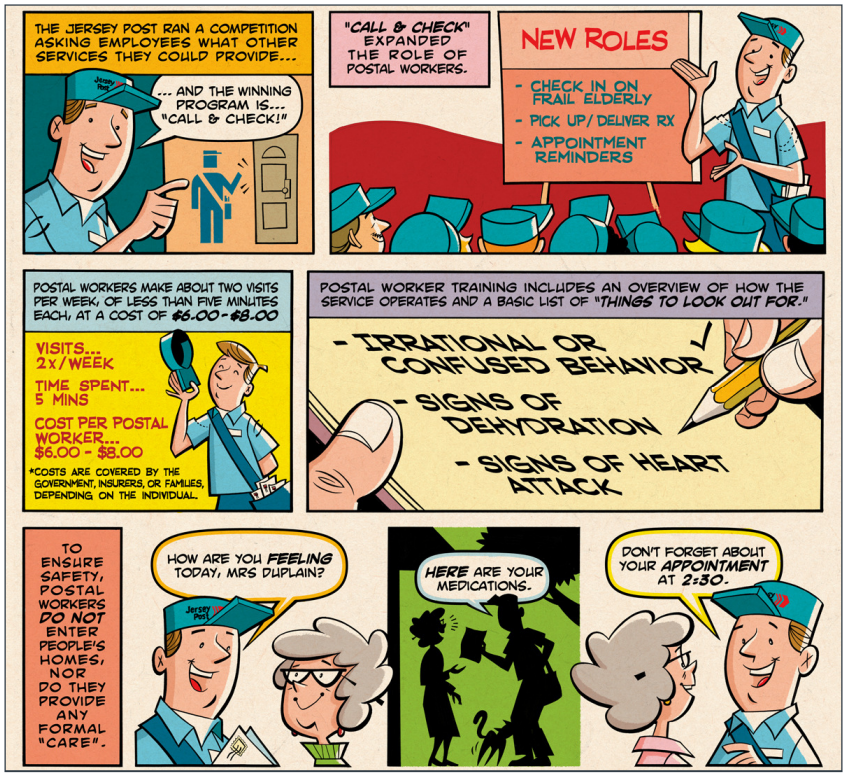
- Ensure regular data collection about assigned population
- Educates communities on health promotion and condition management
- Schedules and follows up on GP appointments
- Flags health deterioration in households

Case in Brief: Brazil's Family Health Strategy

- In 1988 Brazil guaranteed universal health, but struggled to deliver care to entire population, especially low-income citizens and rural populations
- Brazil created Family Health Strategy programme to deliver primary care to geographically-defined areas of up to 4,000 inhabitants
- Programme helped Brazil reduce infant mortality, hospitalisations, and increase immunisation rates

Source: Harris, M, "Learning from the Brazilian Community Health Worker Model in North Wales," 11 June 2013, available at: http://www.globalizationandhealth.com/content/9/1/25; Macinko, J, et al., "Brazil's Family Health Strategy," 4 June 2015, available at: http://www.nejm.org/doi/full/10.1056/NEJMp1501140; Advisory Board interviews and analysis.

Thinking Outside the Mailbox



Source: Stanton, M et al., "Thinking Outside the Mailbox," available at: http://www.commonwealthfund.org/interactives-and-data/infographics/2015/sep/thinking-outside-the-mailbox; Advisory Board interviews and analysis.

Thinking Outside the Mailbox

Case in Brief: Call and Check

- Looking for new services to offer, Jersey, UK postmen identified senior monitoring as service gap they could fill
- For a cost of $6-8 postmen, they fill prescriptions, provide appointment reminders and visit seniors two times a week for five minutes

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