Contemporary prehospital care and the function of an effective ambulance service

Peter Bradley
CEO, St John New Zealand

St John
first to care

If you were given 100 Paramedics – no strings, what would you do? (And you could only choose one option)

St John
first to care

A. Would you dump your emergency call prioritisation system and get these guys to supplement 111 call takers on a new call prioritisation approach?

B. Would you put them full time in the community developing new care pathways, rest home management, injury prevention and health promotion?

C. Would you provide additional primary care education and have them targeting low acuity calls?

D. Would you put them on ambulances to plug gaps in cover and improve response times?

St John
first to care

The grey Tsunami is coming

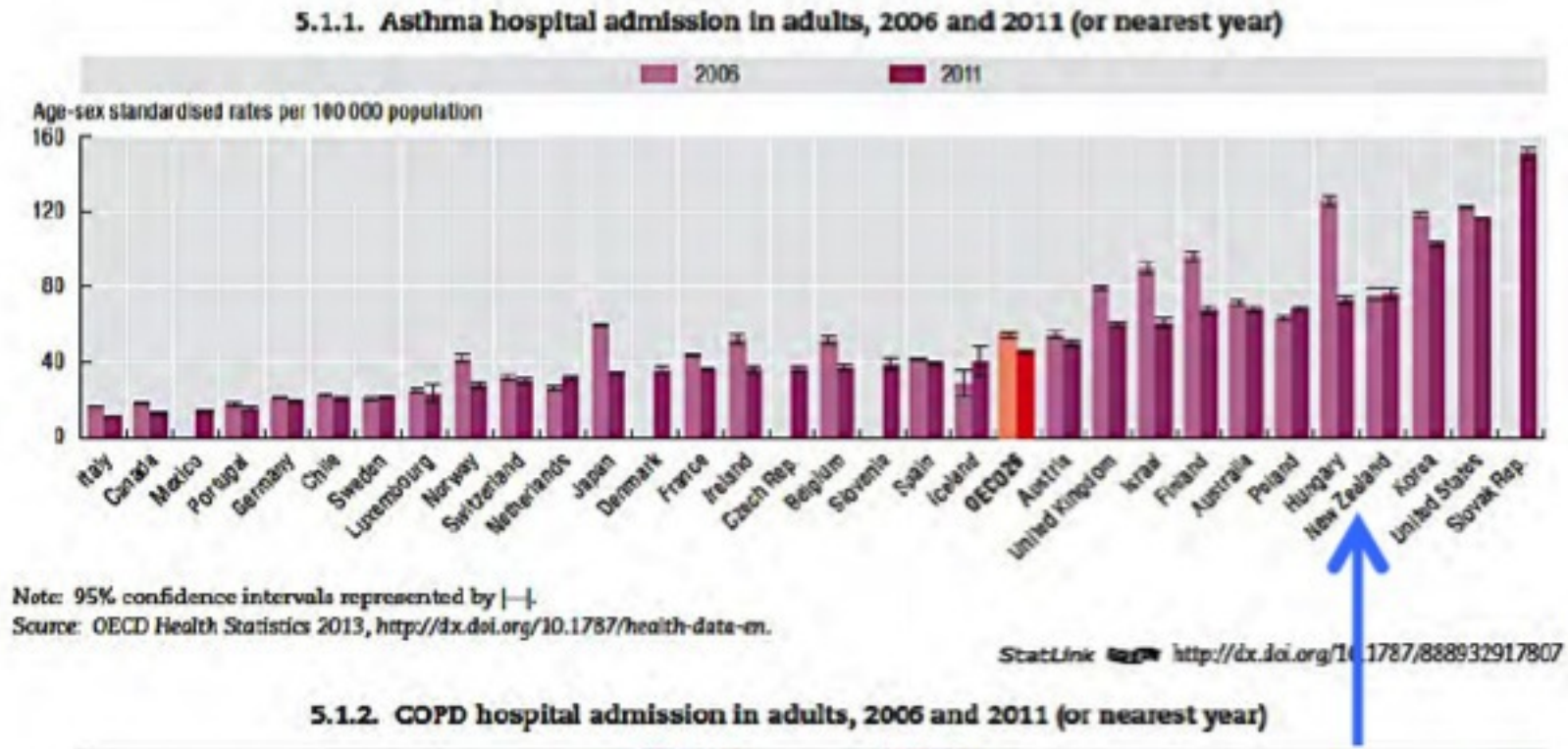
The diabetics are coming - the pre-diabetics are here

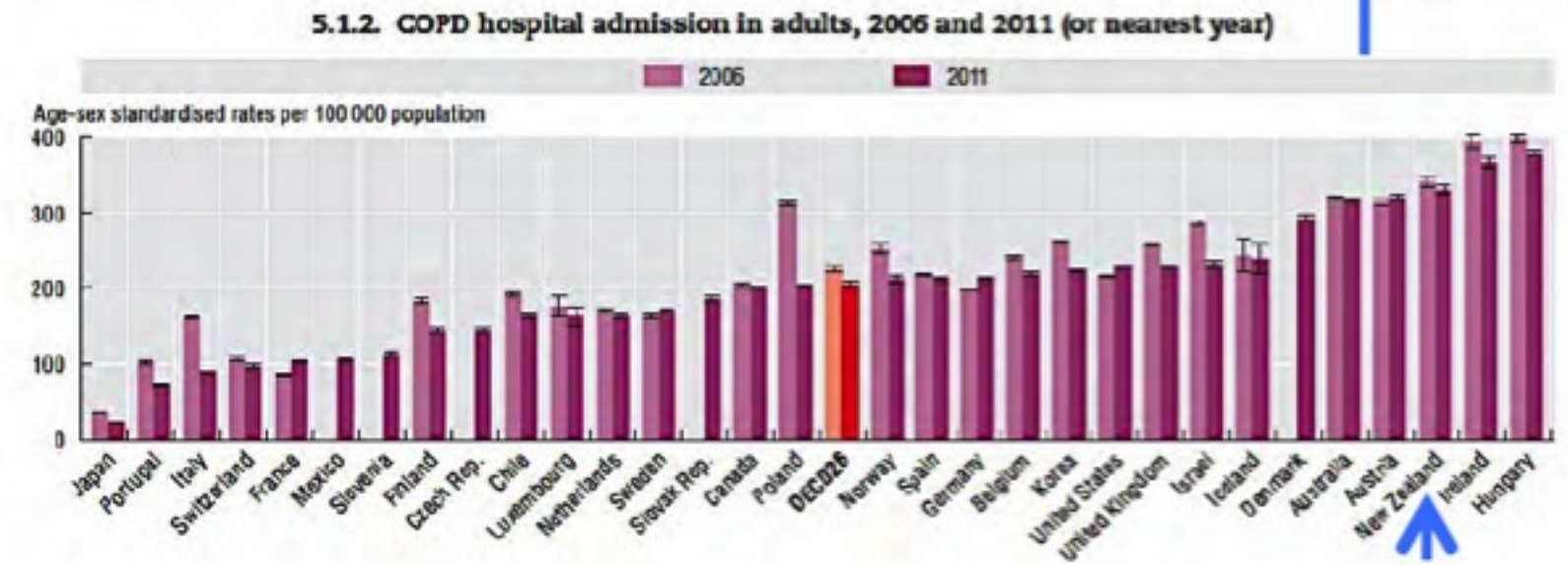
An avalanche of the aged

Health bosses buy £90,000 'fat ambulances' for obese patients

XXXL the new L

We're big on asthma and lung disease

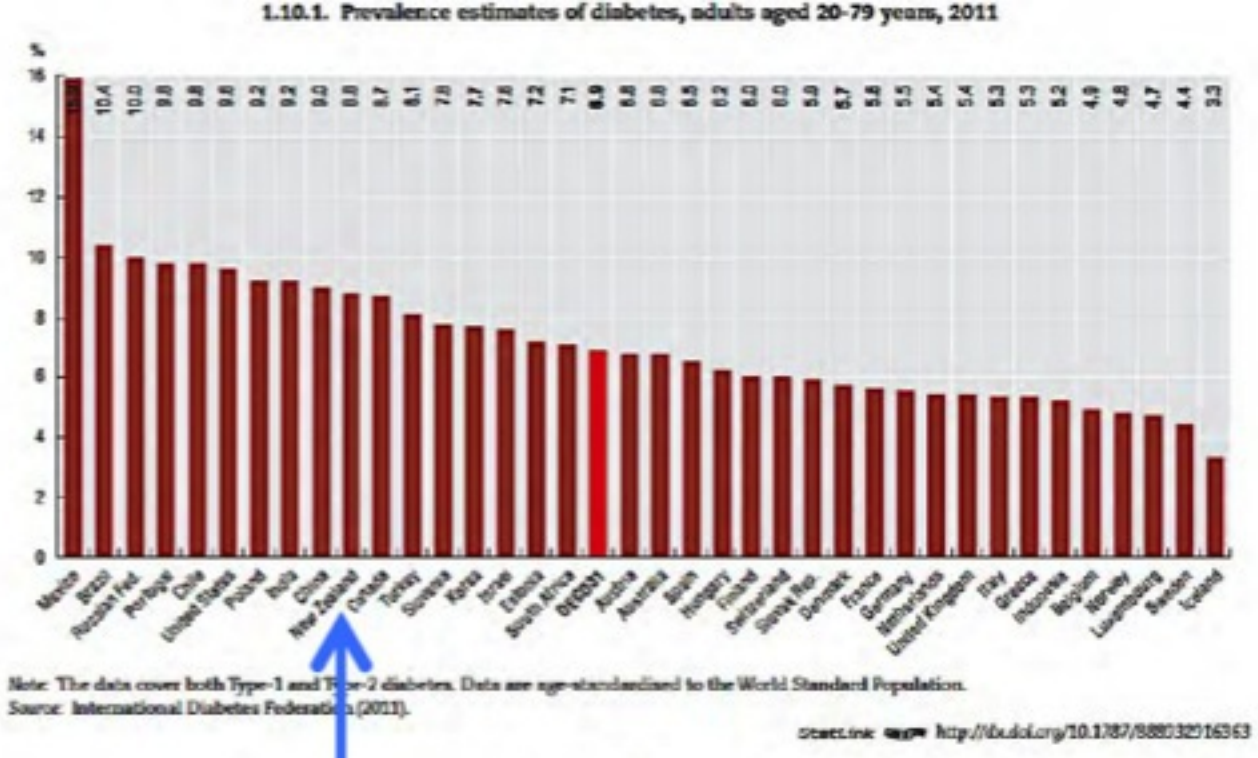


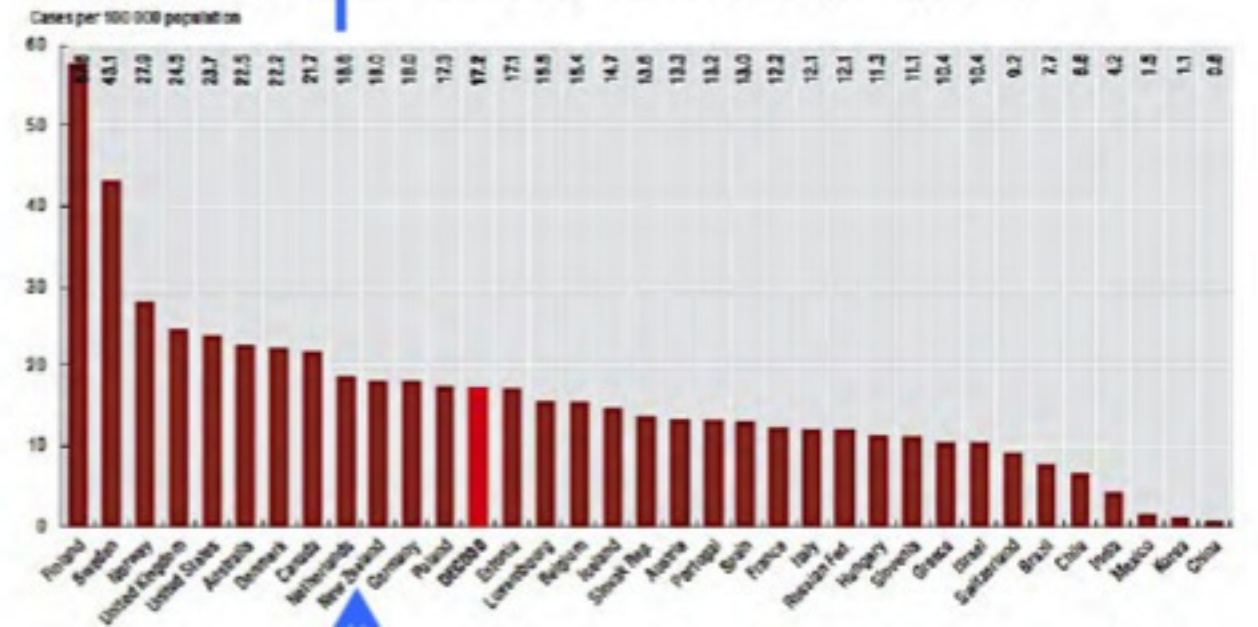


St John
first to care

Diabetes

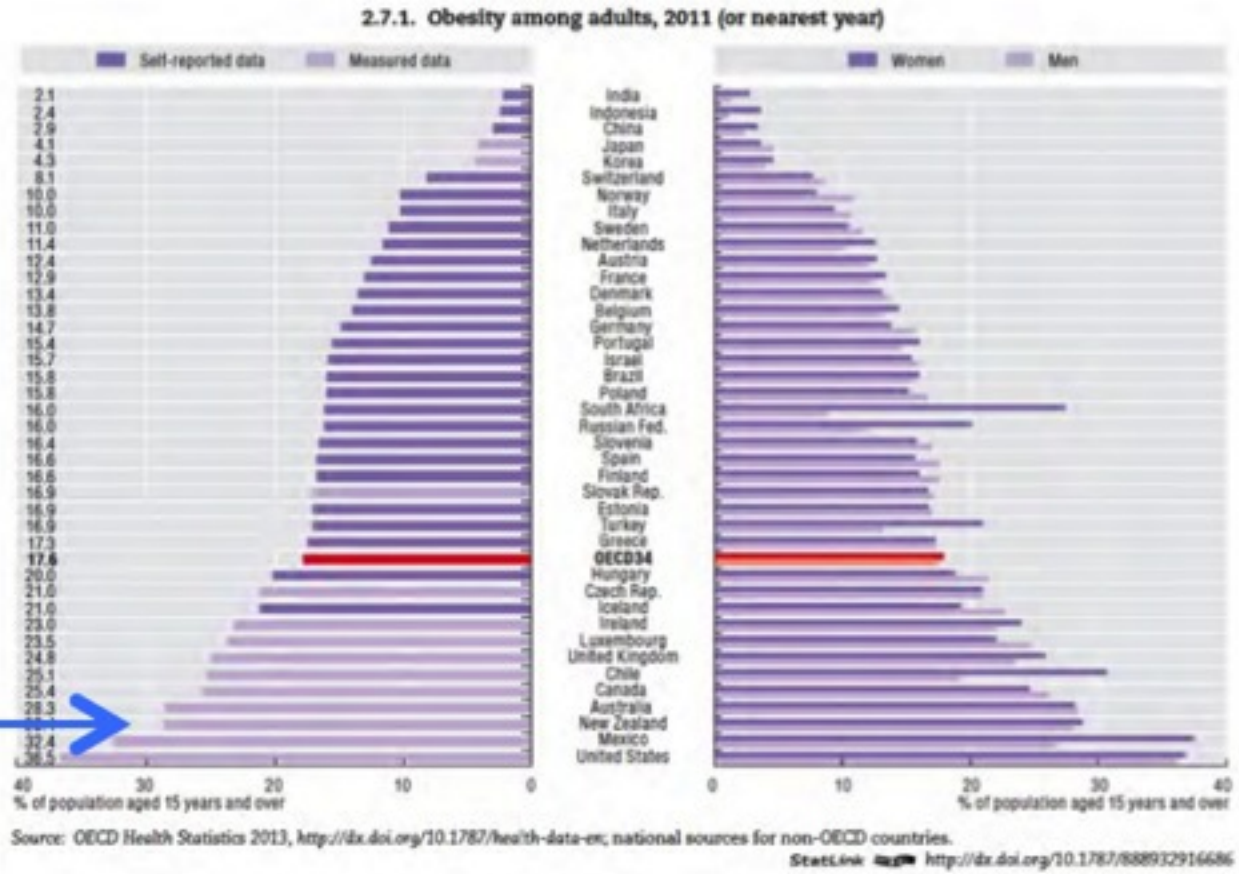
- 10th highest rate in OECD
- …9th highest for children

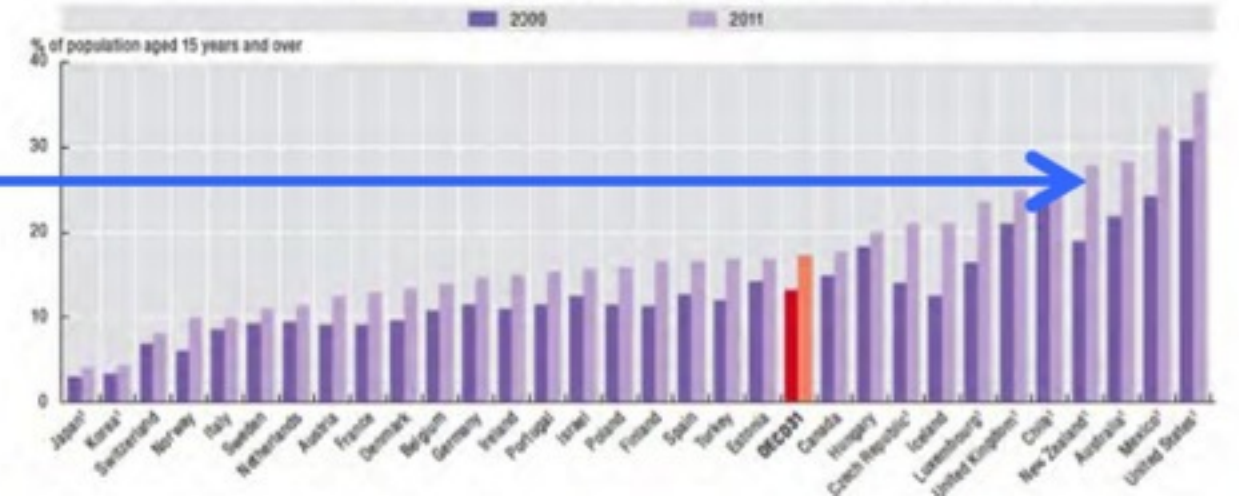




Obesity

- NZ - 3rd highest rate in the OECD
- …and rising fast
- …big burden on people
- …and health system

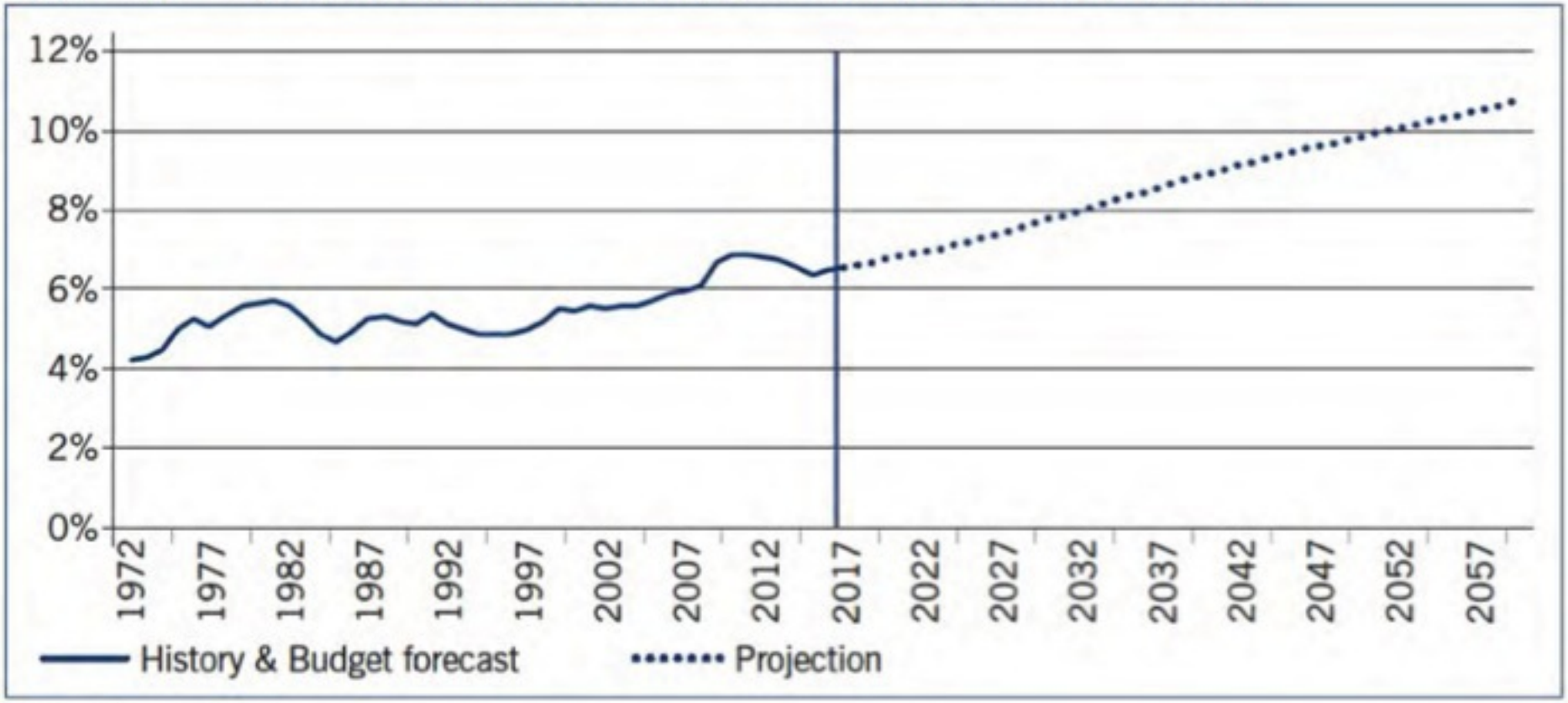




Health costs are growing

- Treasury's latest update on long-term view of the sector, 2103

Figure 11: Core Crown Health expenditure, % GDP, long-term projection



Source: Treasury, 2013

St John
first to care

http://www.youtube.com/watch?v=HMGIbOGu8q0

Which conditions caused the most ACS admissions?

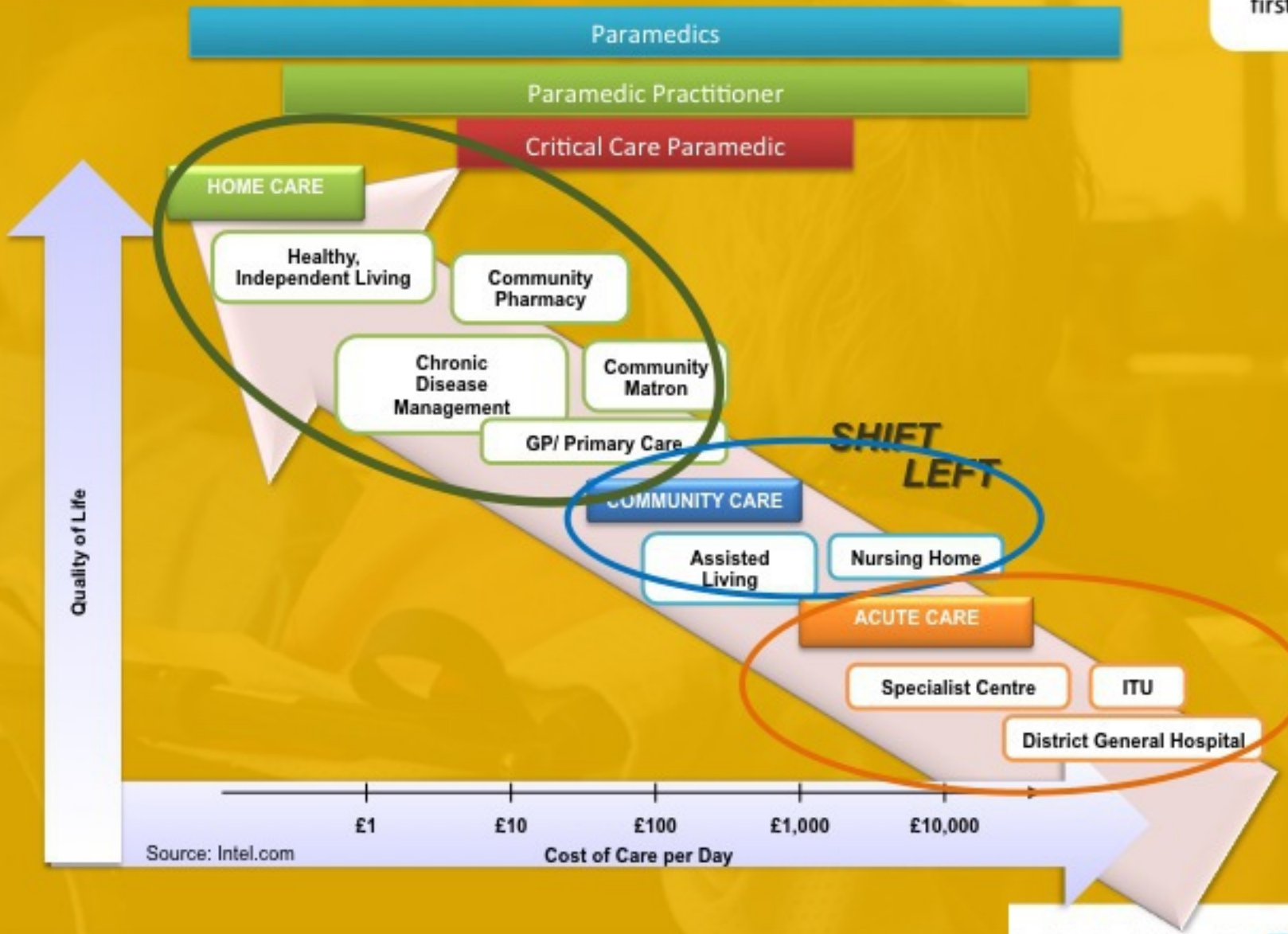
St John
first to care

In 2012/13, five individual ACS conditions accounted for more than half of all ACS admissions. These were urinary tract infection (UTI) and pyelonephritis (16 per cent of ACS admissions, 229 admissions per 100,000), COPD (12 per cent, 163 per 100,000), pneumonia (10 per cent, 141 per 100,000), ear, nose and throat (ENT) infections (9 per cent, 207 per 100,000) and convulsions and epilepsy (7 per cent, 142 per 100,000).

QualityWatch, Nuffield Trust 2013

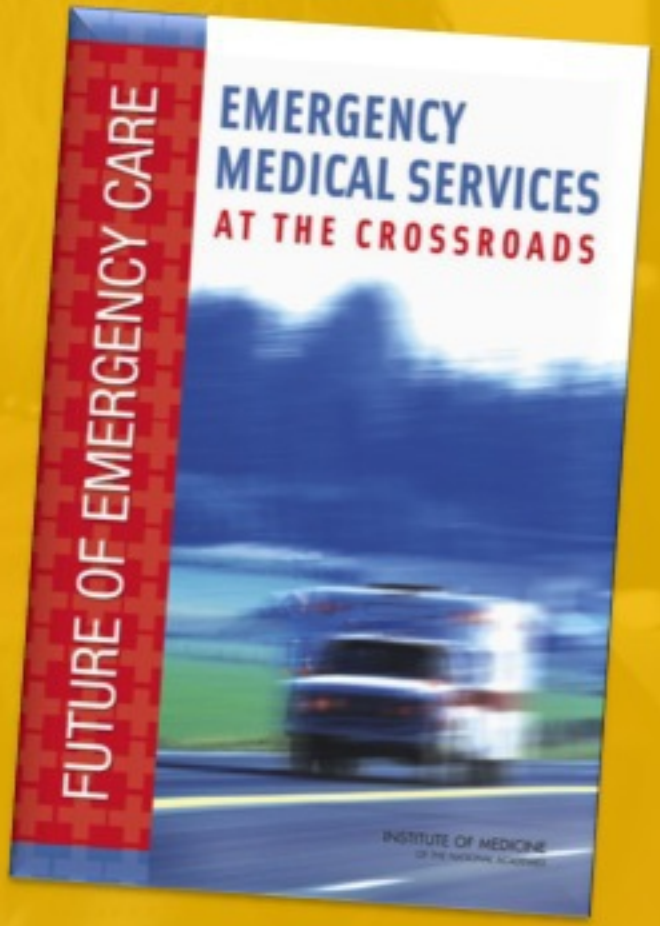
Service advances require a "Shift Left"

St John
first to care



South East Coast Ambulance Service NHS
NHS Foundation Trust

St John
first to care



St John
first to care

Sustaining the unsustainable
Police and Community Safety Review, final report

August 2013

MINISTRY OF HEALTH

Better, Sooner, More Convenient Health Care in the Community

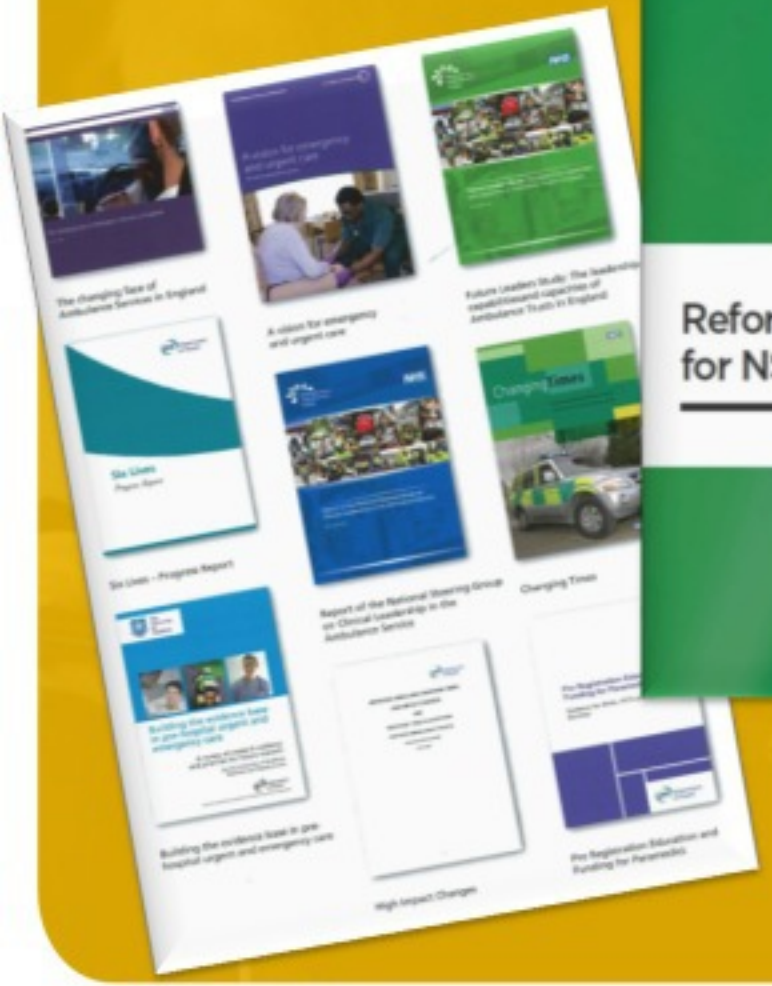
A Service and Organizational Study of Toronto's Emergency Medical Services and Fire Services

Final Report

June 2013

Pomax

St John
first to care



Reform Plan
for NSW Ambulance

NSW GOVERNMENT

New Delivery Model

- Hear and advise
- See and Treat
- See, treat and refer
- See, treat, refer & transport

St John
first to care

Nine years on what has changed?

St John
first to care

Mega trends of disruption in healthcare

1. Self determined healthcare - trusting the population
2. Anytime anywhere healthcare through transformational technologies (smart phones)
3. Insight and intelligence through the use of big data
4. Predict, prevent and personalise
5. A move from volume to value (outputs to outcomes)

Dr Lester Levy

St John
first to care

A journey to 2022

2006	2007	2008	2009	2010	2011	2012	2013
Launch of Twitter	*Apple launches the iPhone*	*Lehman Brothers files for bankruptcy*	*Urban dwellers become a majority of the global population for the first time[1]*	*China overtakes the US as world's largest manufacturer[2]*	*Global population passes 7 billion[3]*	*Impact of resource scarcity comes into sharp focus as prolonged droughts threaten blackouts in Texas (power plants are the largest users of water in the US)[4]*	*Number of mobile devices and connections surpasses the number of people on the planet[5]*

1 Urban population growth, World Health Organisation (http://www.who.int/gho/urban_health/situation_trends/urban_population_growth_text/en/)
2 Economist, 10.03.12
3 Guardian, 31.10.11
4 Reuters, 30 April 2013
5 Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2013–2018, Cisco, 05.02.14

2015

Worker in Germany says the "best is yet to come" after celebrating 75 years' service with the same firm

2016

$10 tablet computer comes on to the market

2017

Assembly workers in factory in Hanoi start wearing sensors to gauge concentration, work rate and mood

2018

Analysts attend presentation by Fortune 500 Chief Performance Officer, who heads a combined Finance and HR function

2019

Doctor in China carries out 'remote' surgery on patient in Ghana

2020

Rioting sweeps across university campuses as students lose patience with lack of job opportunities

2021

Licences granted for driverless cars

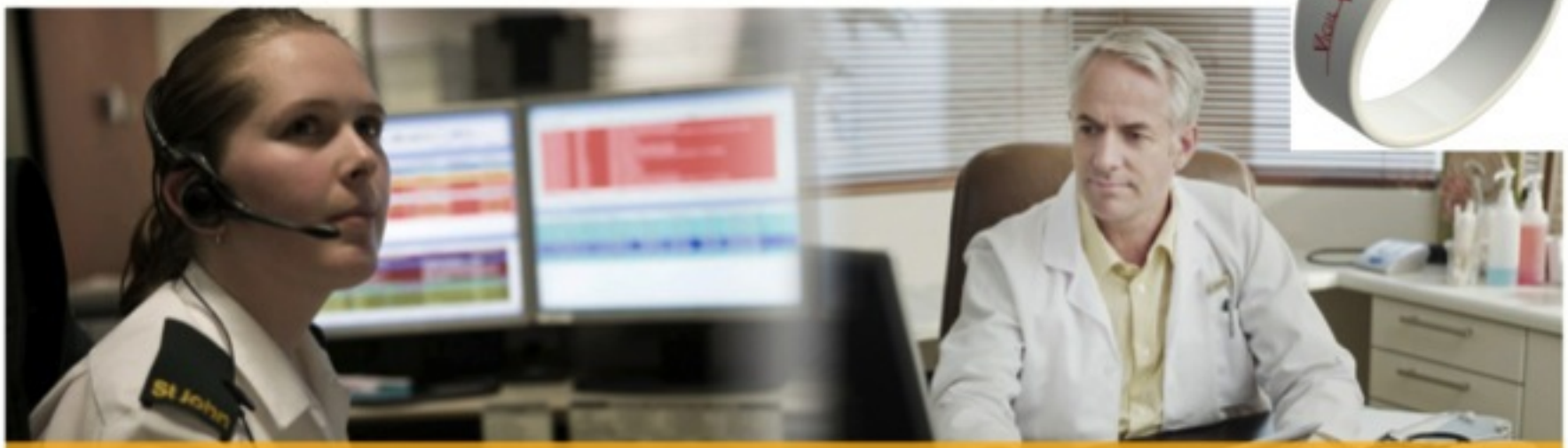
2022

World's first fully automated and robot-served hotel opens

Telehealth & Telecare

St John
first to care

- Remote Patient Monitoring (RPM)
- Medicines management
- Patient assessment
- Advice & support
- - massive growth in smart mobile devices
- - 9.4m RPM connections expected by 2017
- - big opportunities for interconnectivity with health



St John/Vigil Telemonitoring Project

- Cloud based Telehealth solution
- Biometric analysis and alerts platform
- Configurable Telehealth solutions and user interfaces
- Wearable technology and supports 3rd party sensor device data
- Automatic data and EHR syncronisation with data encryption

St John
first to care


St John
first to care
COMPAQ
iPAQ

Strategic Options

St John
first to care

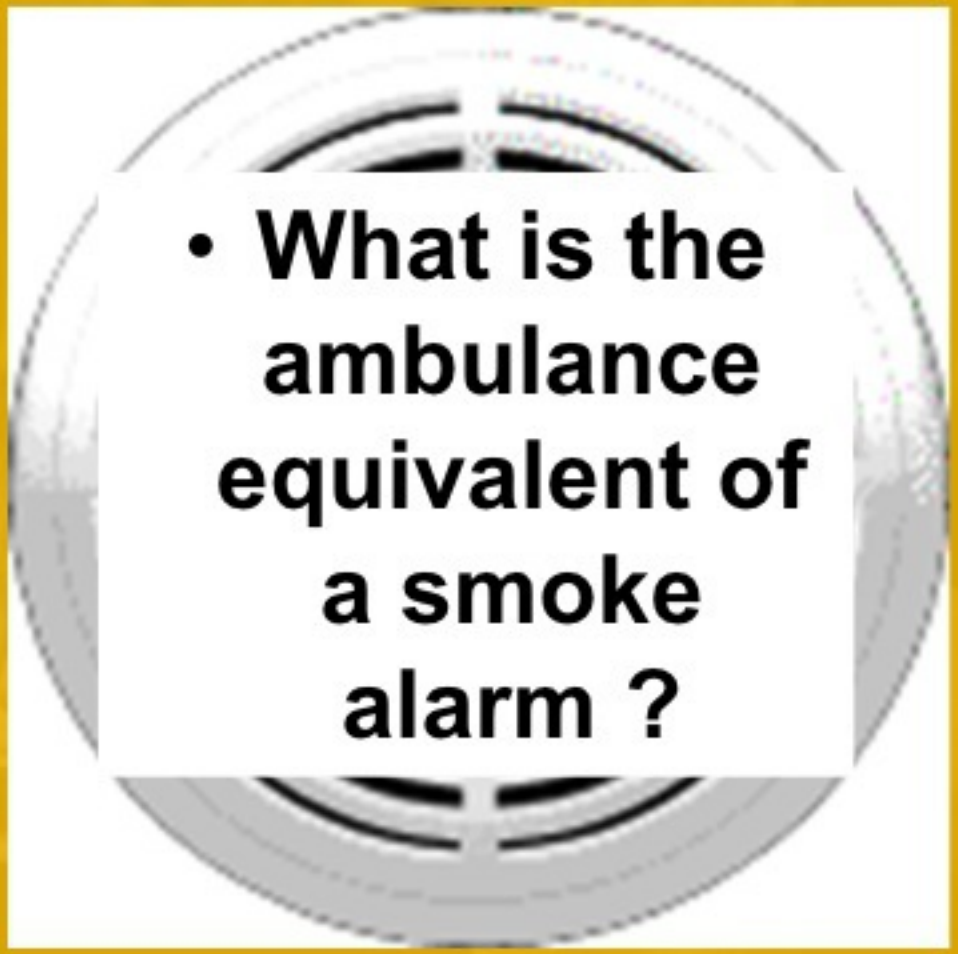
Urban Rural Remote

Divest and Specialise	Maintain and Integrate	Grow and Lead
Emergency Service Model	Emergency Service Remodel	Primary Urgent and Emergency Care Model
Call taking; Low priority work	Redesign workforce; Partnering with other agencies	Multidisciplinary workforce; Out of hrs services
PTS	Clinical hub; New models of care	Remote patient monitoring (RPM); Telehealth
Remove Demand	Absorb Demand	Encourage Demand

Remote Rural Urban

No magic bullet

St John
first to care



Bradley 2007

St John
first to care

ONLY ONE OF THESE IS A TAXI SERVICE

Need medical advice or treatment?

Talk to a pharmacist

Call NHS Direct 0845 46 47 (24hrs)

Visit your...

- GP surgery
- NHS walk-in centre

Or... if it's urgent, consider going to a hospital A&E department using a real taxi!

In a medical emergency:

Stay calm... dial 999

Describe your exact location

Is the casualty...

- breathing?
- conscious?
- bleeding seriously?
- having persistent chest pain?

Get someone to signal where the ambulance crew is needed.

London Ambulance Service NHS

St John
first to care

London Ambulance Service

NHS Trust

The London Ambulance Service is reaching more patients quicker than ever before. But we need your help so that we can continue to provide the fastest possible response to anyone who is seriously ill or injured.

Our staff work very hard to care for everyone who calls us, although we would like to remind you that if it's not a life-threatening emergency, there are a number of other options to consider before phoning 999:

- Self-care at home
- Talking to your local pharmacist
- Calling NHS Direct on 0845 4647
- Attending a local NHS Walk-in centre
- Visiting your GP
- Making your own way to your local A&E department. Arriving in an ambulance does not mean you will be seen more quickly

Use your ambulance service wisely.

New Delivery Model

- Hear and advise
- See and Treat
- See, treat and refer
- See, treat, refer & transport

St John
first to care

St John
first to care

Prehospital care

Is it cost effective to introduce paramedic practitioners for older people to the ambulance service? Results of a cluster randomised controlled trial

S Dixon,[1] S Mason,[2] E Knowles,[2] B Colwell,[2] J Wardrope,[3] H Snooks,[4] R Gorringe,[5] J Perrin,[3] J Nicholl[2]

EDITOR'S CHOICE

BMJ

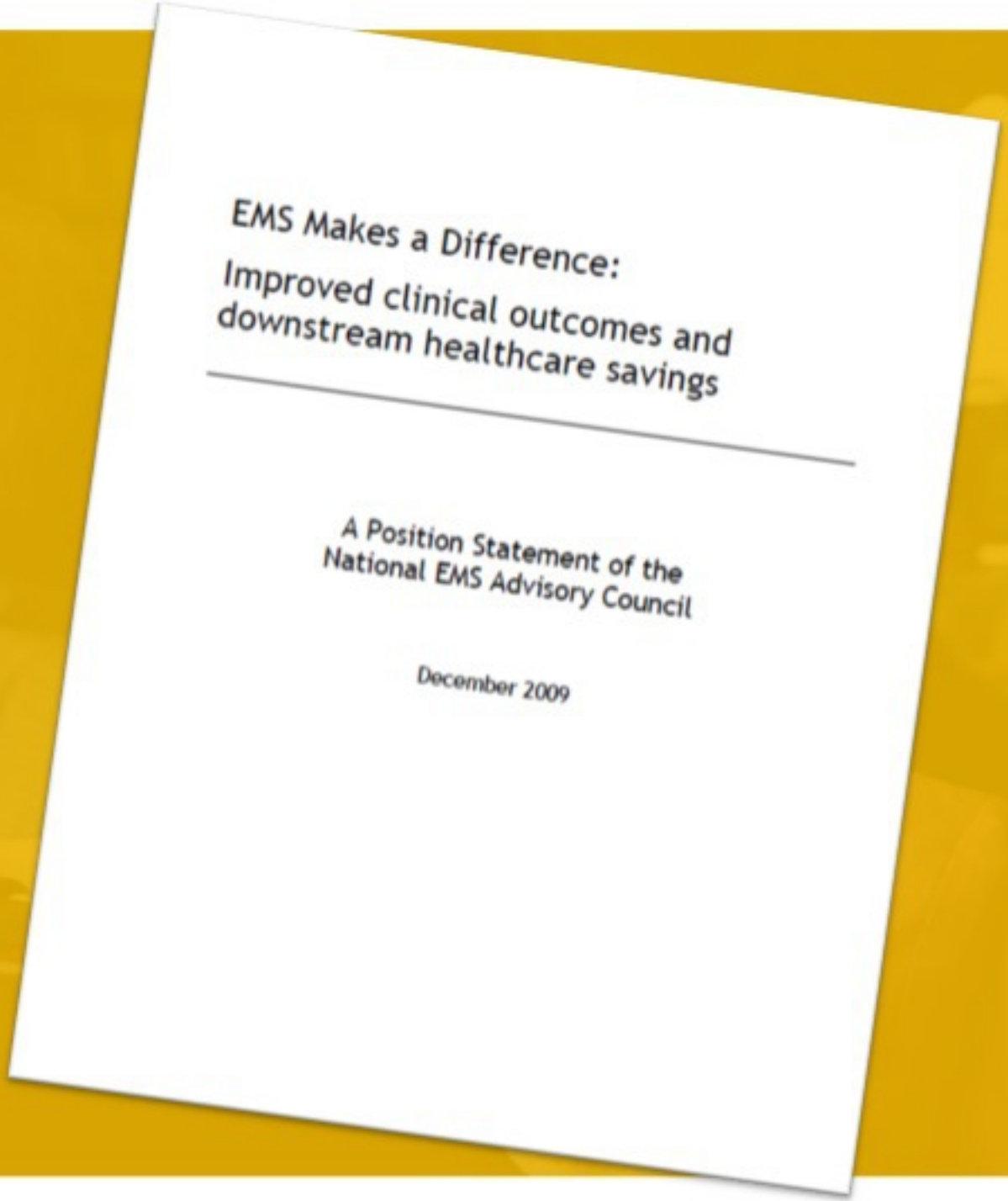
Effectiveness of paramedic practitioners in attending 999 calls from elderly people in the community: cluster randomised controlled trial

Mason et al 2007

3018 patients over 60 years old

- √ Less likely to attend ED
- √ Less likely to require admission within 28 days
- √ More likely to be highly satisfied

St John
first to care



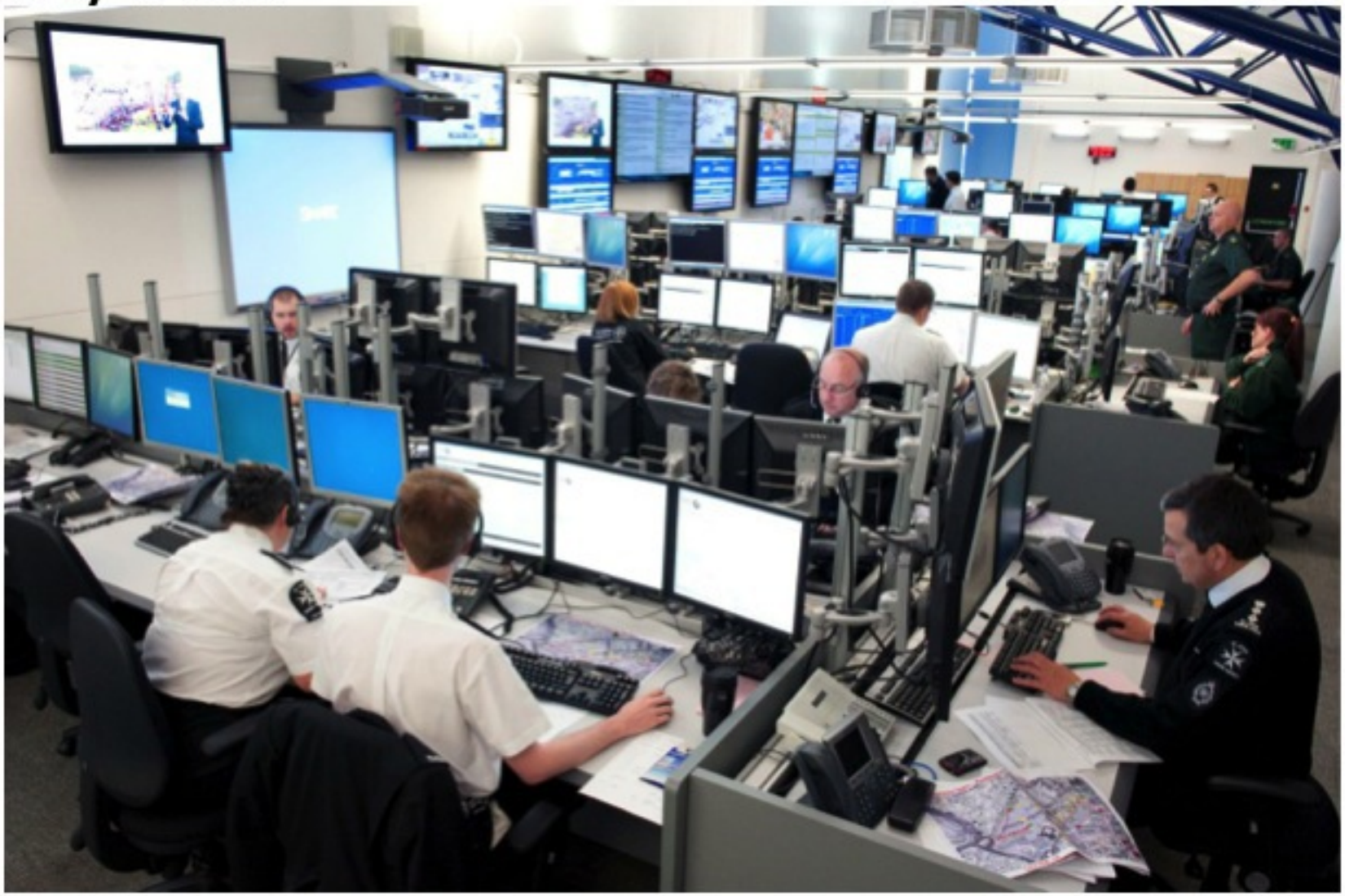
St John
first to care

Future National Clinical Priorities for Ambulance Services in England (2014)

1. Emergency care (cardiac, stroke, trauma, sepsis)
2. Urgent care (prescribing, healthline, integrated community workforce)
3. Mental health
4. The frail elderly and falls
5. Long term conditions
6. Care for patients at the end of life
7. Public health and prevention

National Ambulance Service Medical Directors (NASMeD)

Ambulance control rooms play a key role



Time critical?

- 75%
- A8

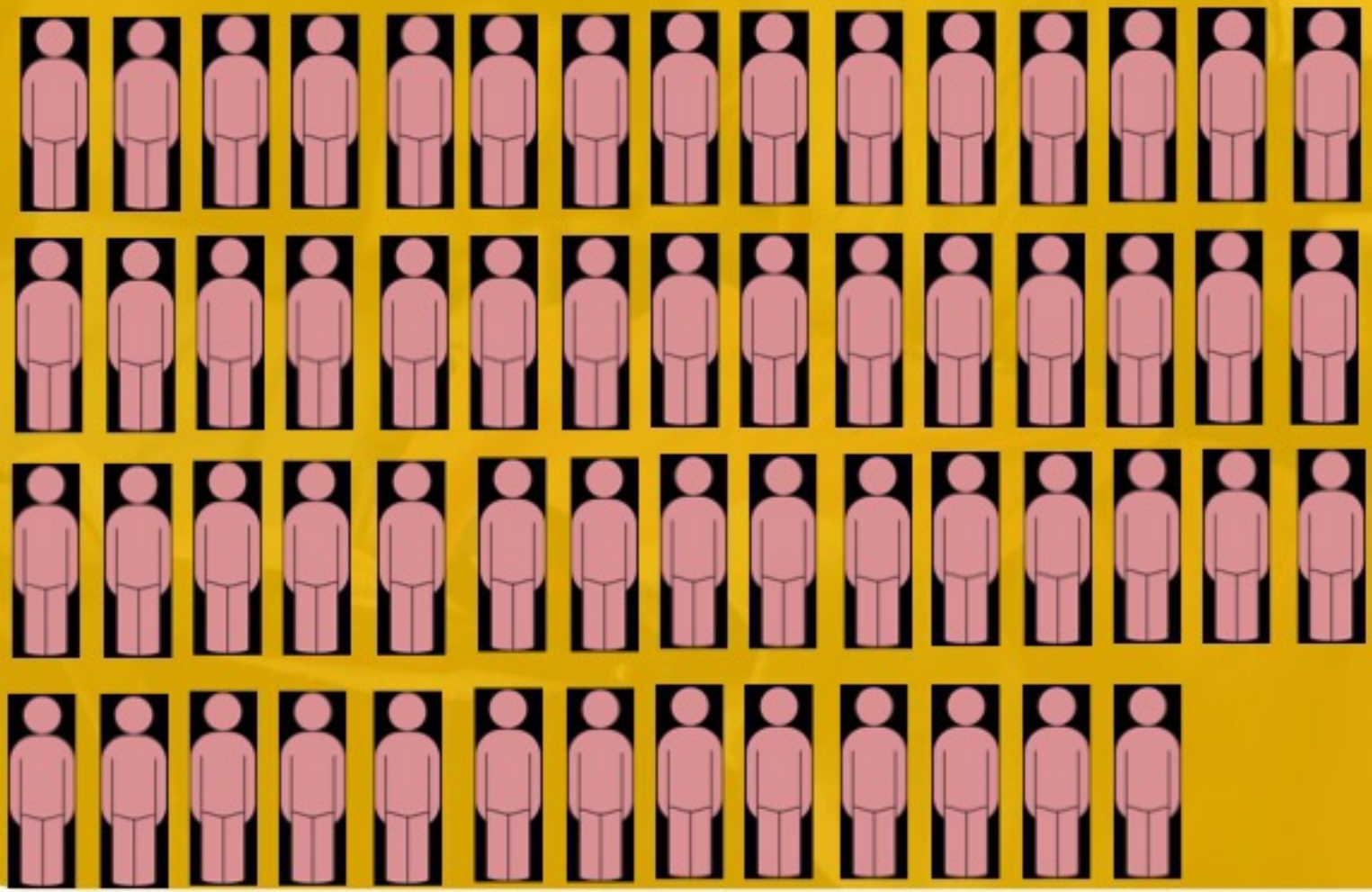
Reducing on Scene Times

- Penetrating Trauma (15 minutes)
  - Aim for less than 5 minutes for central penetrating trauma
- Stroke (35 minutes)
  - Aim for less than 30 minutes
- Acute Coronary Syndrome (37 minutes)
- Overdoses - potentially lethal (23minutes)

St John
first to care

Air coordination and integration is key

London's major trauma system - in year one 58 people survived who were expected to die of their injuries



St John
first to care

Face Arms & Speech Test

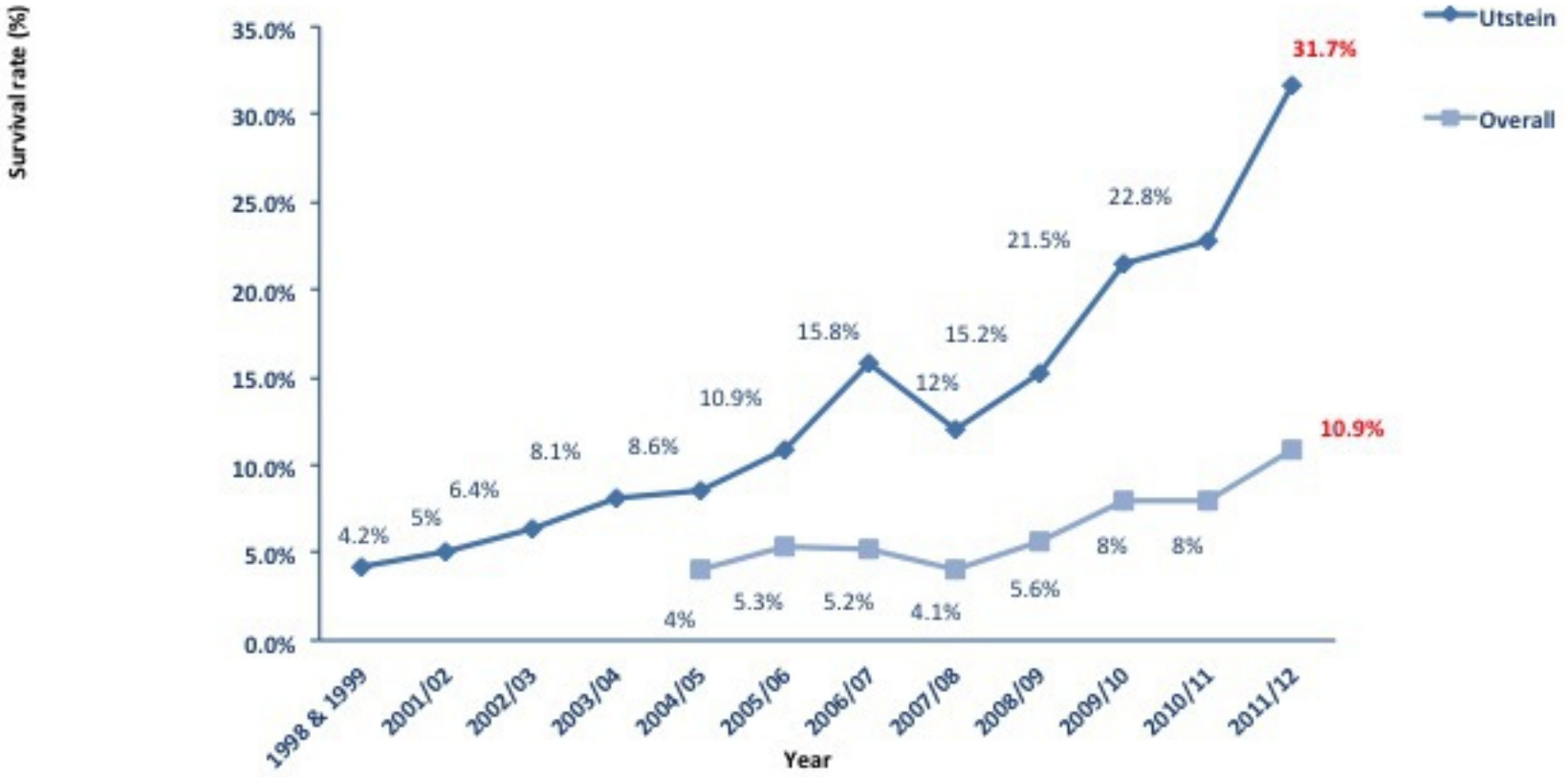
St John
first to care

Acute Coronary Syndrome

St John
first to care

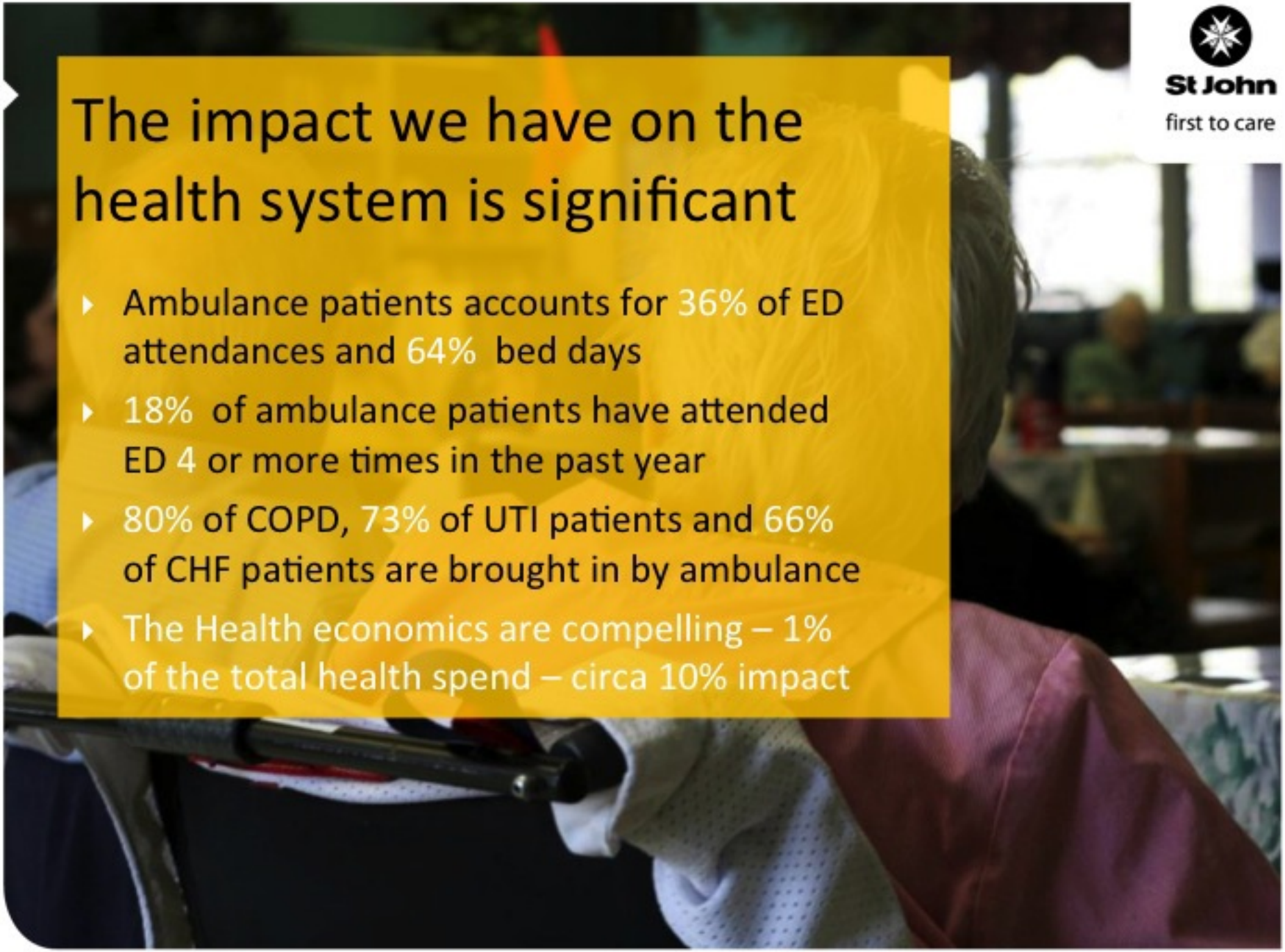
Resuscitation

- Highest ever cardiac arrest survival rate!




St John
first to care
What is St John in New Zealand doing?


ST JOHN
34
Northern Region



The impact we have on the health system is significant

- Ambulance patients accounts for 36% of ED attendances and 64% bed days
- 18% of ambulance patients have attended ED 4 or more times in the past year
- 80% of COPD, 73% of UTI patients and 66% of CHF patients are brought in by ambulance
- The Health economics are compelling – 1% of the total health spend – circa 10% impact

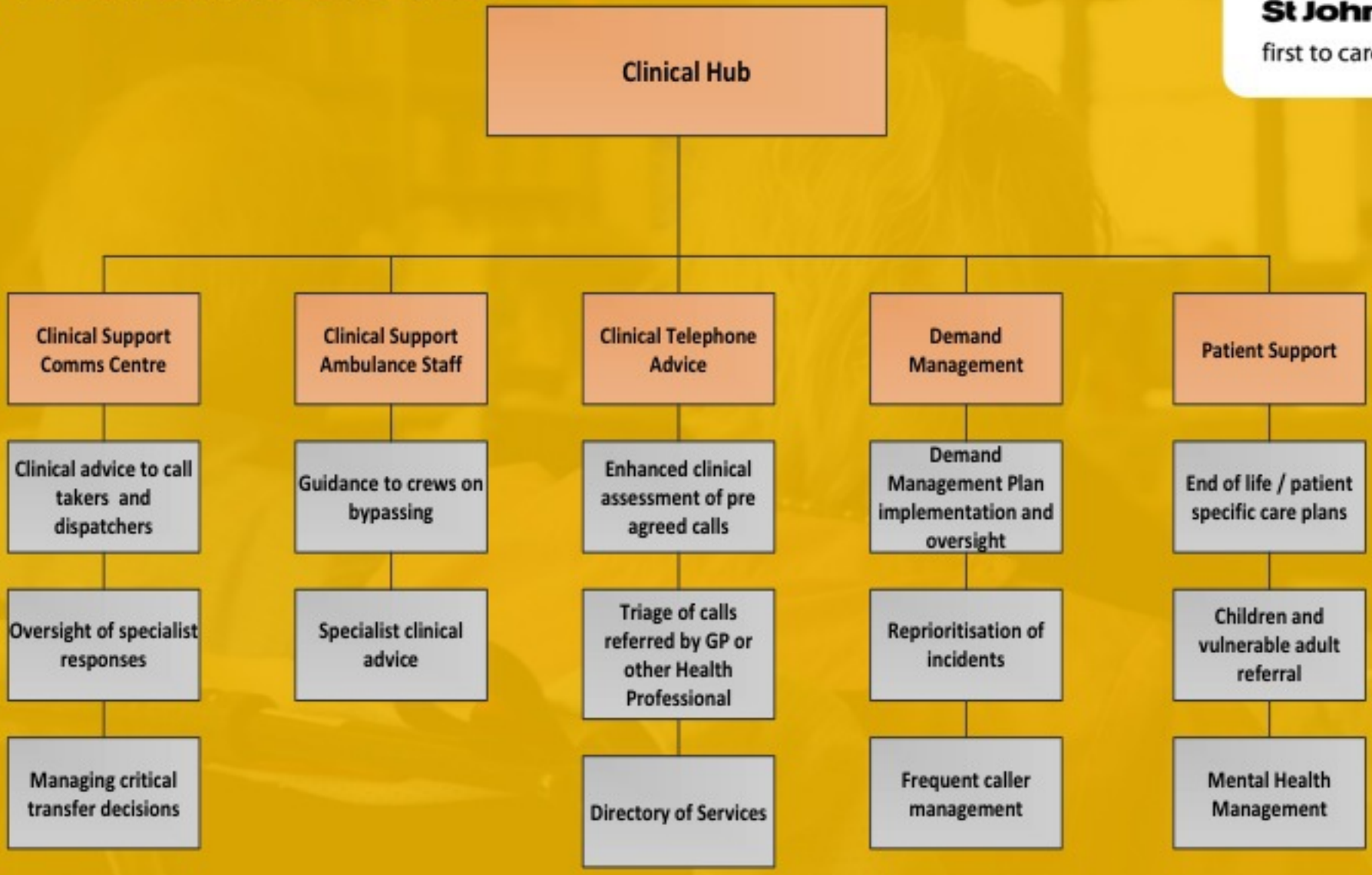
St John
first to care

St John
first to care

New
Service Delivery
Model

Non time critical

St John
first to care



Patient Pathways – going beyond the proof of concept stage

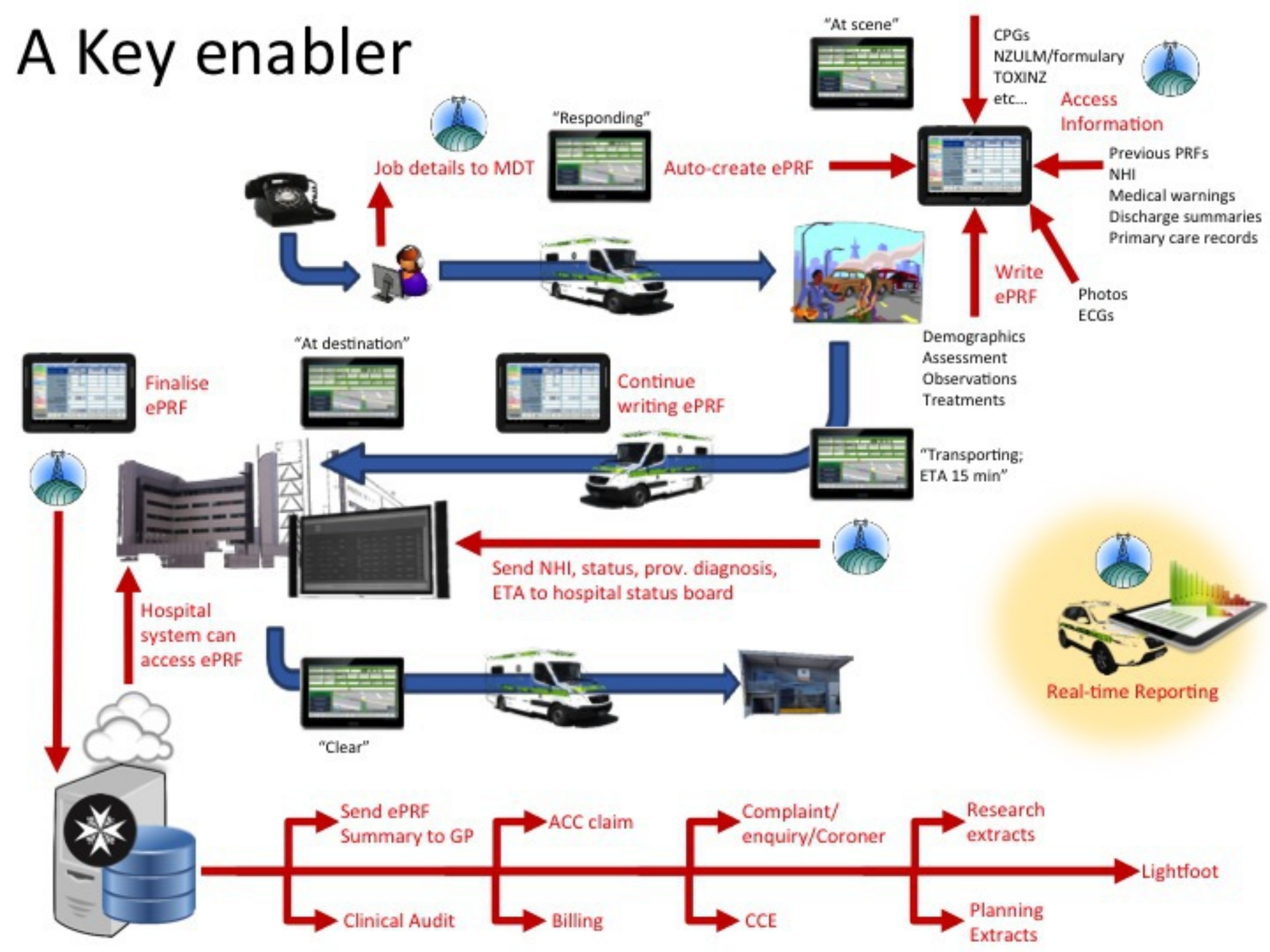
- Local
- District
- Regional
- National
- International
- Falls
- COPD
- POAC

St John
first to care

EPRF Tablet


Patient Care Report
Incident Information
Patient Info
Incident Info
Clinical Info
Clinical Imp
Vital Obs
Medical Rx
Additional Info
Date of Call
Time of Call
Passed
At Patient
At Scene
Mobile
Department
Destination
Code
CC01
EMT Attending
1234
Valentia

A Key enabler



New Clinical Practice Guidelines (CPG) rolled out for staff

St John
first to care

Our Workforce

St John
first to care

- Clinical career path – case mix appropriate
- Mixed model based on patient need/demographic
- Access to clinical information & decision support software
- Access to multi disciplinary teams
- Specialist practitioners not clock stoppers
- Clinical roles in control rooms need to attractive
- Clinical Leaders are needed to role model the future

There will be a major shift away from the thinking that we learn one profession, have one job and stay in it for decades.

Female, voluntary worker (aged 33 – 47), Germany.

Health promotion and prevention

- Heart Safe
- Blood Pressure Awareness Campaigns
- Diabetes screening
- Alcohol abuse awareness
- Collaboration on national campaign on appropriate use of 111
- We must leverage the opportunities we have with our thousands of staff and volunteers

St John
first to care

Improving Clinical Governance, Quality and safety

- Learning lessons from serious and adverse incidents
- Understanding the health needs of high risk patient groups
- Our Boards and wider health knowing the risks & issues
- Formalising reporting arrangements for vulnerable children and adult cases
- Strengthening our clinical audit and research
- Infection control

St John
first to care

Measuring and reporting the quality of what we do

- Use of alternative pathways
- Cardiac arrest survival to discharge
- Stroke, trauma & ACS outcomes
- Recontact rates
- Discharge and admission rates
- Learning from serious incidents
- Feedback from our patients – patients stories and experience

St John
first to care

IMPLEMENTATION SCIENCE

RESEARCH Open Access

The effect of a national quality improvement collaborative on prehospital care for acute myocardial infarction and stroke in England

Aloysius Niroshan Siriwardena[1,2*†], Deborah Shaw[1†], Nadya Essam[1†], Fiona Jayne Togher[2†], Zowie Davy[2†], Anne Spaight[1†], Michael Dewey[3†] and on behalf of the ASCQI Core Group

Abstract

Background: Previous studies have shown wide variations in prehospital ambulance care for acute myocardial infarction (AMI) and stroke. We aimed to evaluate the effectiveness of implementing a Quality Improvement Collaborative (QIC) for improving ambulance care for AMI and stroke.

Methods: We used an interrupted time series design to investigate the effect of a national QIC on change in delivery of care bundles for AMI (aspirin, glyceryl trinitrate [GTN], pain assessment and analgesia) and stroke (face-arm-speech test, blood pressure and blood glucose recording) in all English ambulance services between January 2010 and February 2012. Key strategies for change included local quality improvement (QI) teams in each ambulance service supported by a national coordinating expert group that conducted workshops educating staff in QI methods to improve AMI and stroke care. Expertise and ideas were shared between QI teams who met together at three national workshops, between QI leads through monthly teleconferences, and between the expert group and participants. Feedback was provided to services using annotated control charts.

Results: We analyzed change over time using logistic regression with three predictor variables: time, gender, and age. There were statistically significant improvements in care bundles in nine (of 12) participating trusts for AMI (OR 1.04, 95% CI 1.04, 1.04), nine for stroke (OR 1.06, 95% CI 1.05, 1.07), 11 for either AMI or stroke, and seven for both conditions. Overall care bundle performance for AMI increased in England from 43 to 79% and for stroke from 83 to 96%. Successful services all introduced provider prompts and individualized or team feedback. Other determinants of success included engagement with front-line clinicians, feedback using annotated control charts, expert support, and shared learning between participants and organizations.

Conclusions: This first national prehospital QIC led to significant improvements in ambulance care for AMI and stroke in England. The use of care bundles as measures, clinical engagement, application of quality improvement methods, provider prompts, individualized feedback and opportunities for learning and interaction within and across organizations helped the collaborative to achieve its aims.

Keywords: Quality improvement, Performance measures, Prehospital care, Team training, Audit and feedback, Interrupted time series design

St John
first to care

If you were given 100 Paramedics – no strings, what would you do? (And you could only choose one option)

St John
first to care

A. Would you dump your emergency call prioritisation system and get these guys to supplement 111 call takers on a new call prioritisation approach?

B. Would you put them full time in the community developing new care pathways, rest home management, injury prevention and health promotion?

C. Would you provide additional primary care education and have them targeting low acuity calls?

D. Would you put them on ambulances to plug gaps in cover and improve response times?

Final thoughts… (1)

St John
first to care

- Control rooms centre stage (air, road, phone)
- Tailored care – PSPs and pathways (directory of services)
- Clinical information used to drive decisions
- Clinical leaders – visible, influencial
- Patients centre stage – patient stories, patient advocates
- Outcomes focus (with benchmarking)
- Right destination for our patients first time – stroke , trauma and cardiac

Final thoughts.... (2)

St John
first to care

- We need to better understand the quality of care we are providing and use this to best effect – internally and externally
- We need to keep engaging with key health influencers – and be listened to
- Those initiatives that are scalable – need to be
- We need to make some courageous decisions
- We have a fantastic opportunity to realise our full potential