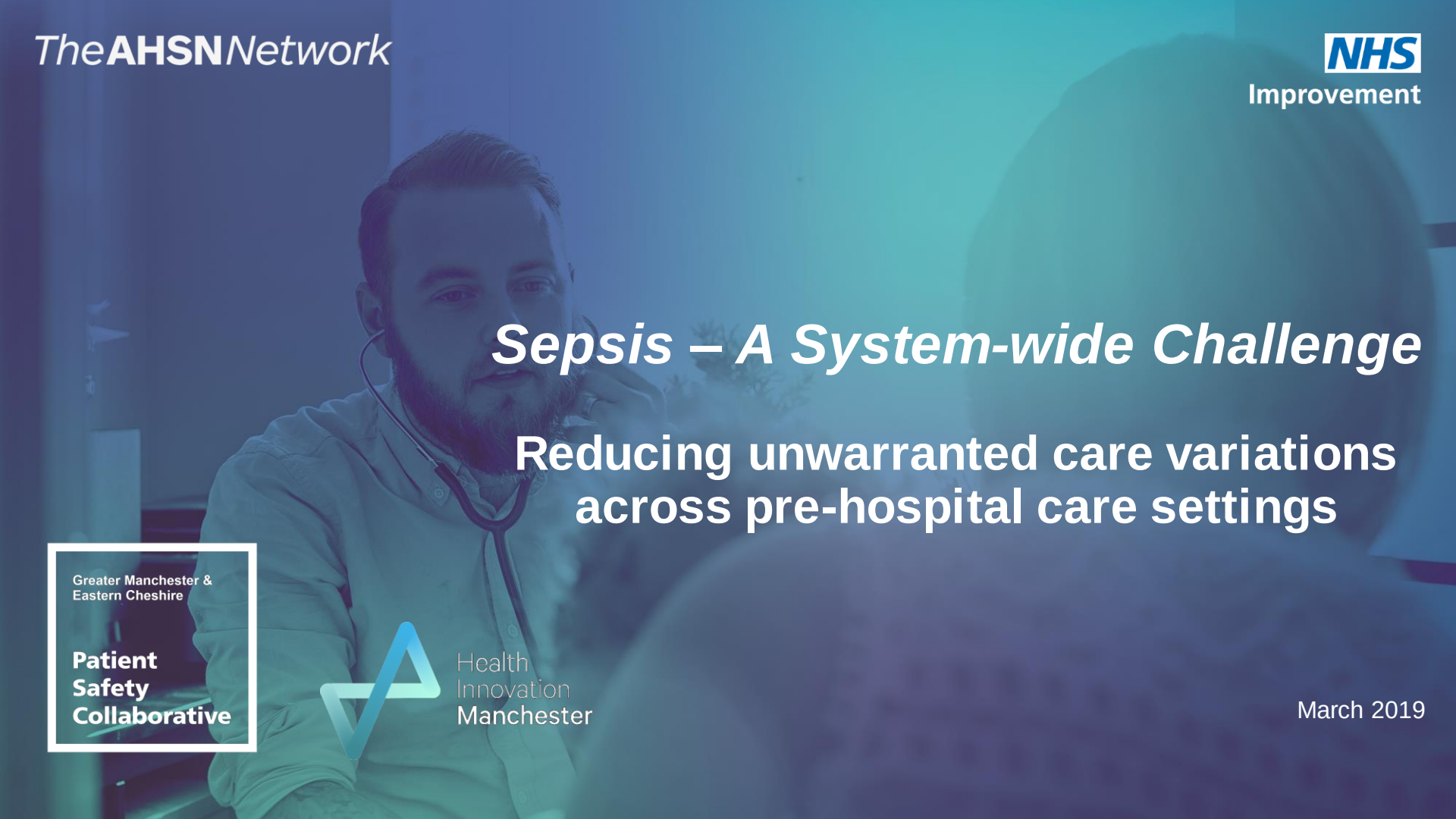


The AHSN Network

NHS Improvement

Sepsis – A System-wide Challenge

Reducing unwarranted care variations across pre-hospital care settings

Greater Manchester & Eastern Cheshire

Patient Safety Collaborative

Health Innovation Manchester

March 2019


TheAHSNNetwork
NHS
Improvement
Welcome
Jay Hamilton
Associate Director of Health & Implementation
Patient Safety Collaborative Lead
Greater Manchester &
Eastern Cheshire
Patient
Safety
Collaborative
Health
Innovation
Manchester
March 2019

Housekeeping





@GMEC_PSC

@healthinnovmcr

#GMECDetPat

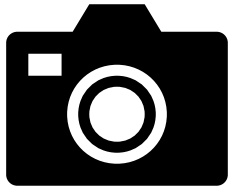
#GMECSepsis













WIFI (FREE)

Network name: Kings House

Password: Welcome247

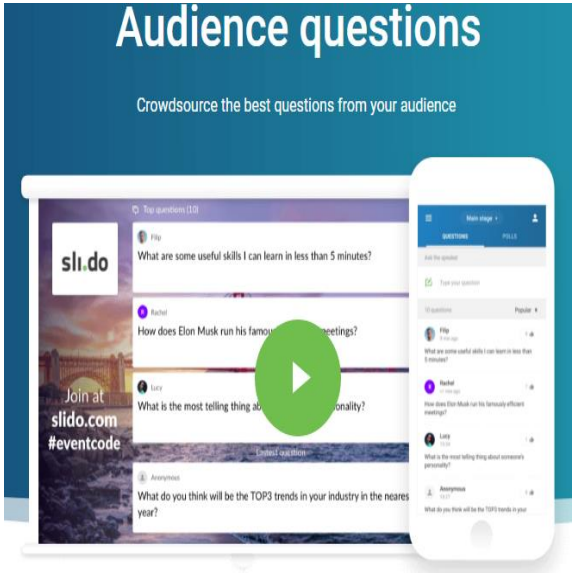


@GMEC_PSC

Questions for Speakers?







@GMEC_PSC

Questions for the PSC?



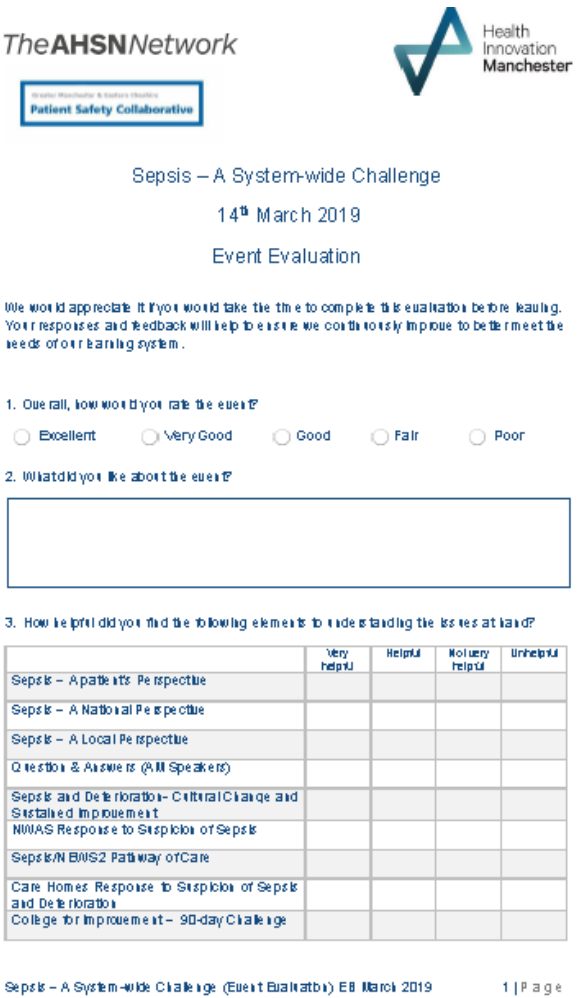
- Fill in table top card
- Member of the team will respond post-event

@GMEC_PSC

Event Evaluation

Please don't forget to complete your evaluation!

@GMEC_PSC



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NHS Improvement

Sepsis – A System-wide Challenge

14th March 2019

Event Evaluation

We would appreciate it if you would take the time to complete this evaluation before leaving. Your responses and feedback will help to ensure we continuously improve to better meet the needs of our learning system.

1. Overall, how would you rate the event?

Excellent Very Good Good Fair Poor

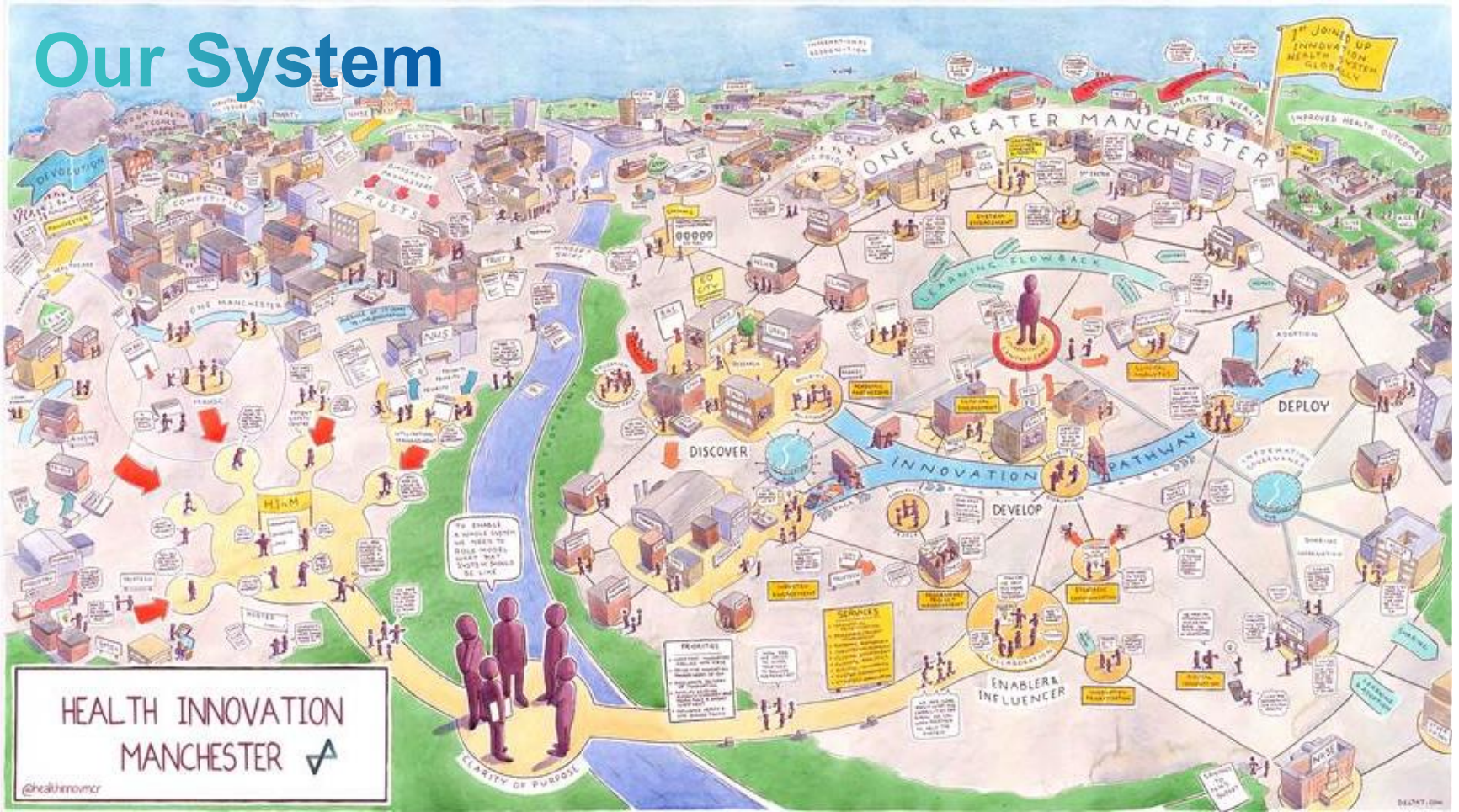
2. What did you like about the event?

3. How helpful did you find the following elements to understanding the issues at hand?

	Very helpful	Helpful	Not very helpful	Unhelpful
Sepsis – A patient's Perspective				
Sepsis – A National Perspective				
Sepsis – A Local Perspective				
Question & Answers (All Speakers)				
Sepsis and Deterioration- Cultural Change and Sustained Improvement				
NWAS Response to Suspicion of Sepsis				
Sepsis/NEWS2 Pathway of Care				
Care Homes Response to Suspicion of Sepsis and Deterioration				
College for Improvement – 90-day Challenge				

Sepsis – A System-wide Challenge (Event Evaluation) 8th March 2019 1 | Page

Our System


ONE GREATER MANCHESTER
DEVOLUTION
TRUSTS
COMPETITION
LEARNING FLOW BACK
DISCOVER
INNOVATION PATHWAY
DEVELOP
DEPLOY
ADOPTION
HSCN
ENABLER & INFLUENCER
CLARITY OF PURPOSE
HEALTH INNOVATION MANCHESTER
@healthinnovmcr

How can the PSC support improvement?

Assessment tools

National Early Warning Score (NEWS2)

Physiological parameter	Score 3	2	1	0	1	2	3
Respiration rate (per minute)	≤8		9–11	12–20		21–24	≥25
SpO_2 Scale 1(%)	≤91	92–93	94–95	≥96			
SpO_2 Scale 2(%)	≤83	84–85	86–87	88–92 ≥93 on air	93–94 on oxygen	95–96 on oxygen	≥97 on oxygen
Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
Pulse (per minute)	≤40		41–50	51–90	91–110	111–130	≥131
Consciousness				Alert			CVPU
Temperature (°C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

© Royal College of Physicians 2018

Royal College of Physicians

Piloting NEWS2 in GP practice & care home settings

"Soft Sign" Indicators of Client Deterioration (from Interserve Healthcare)

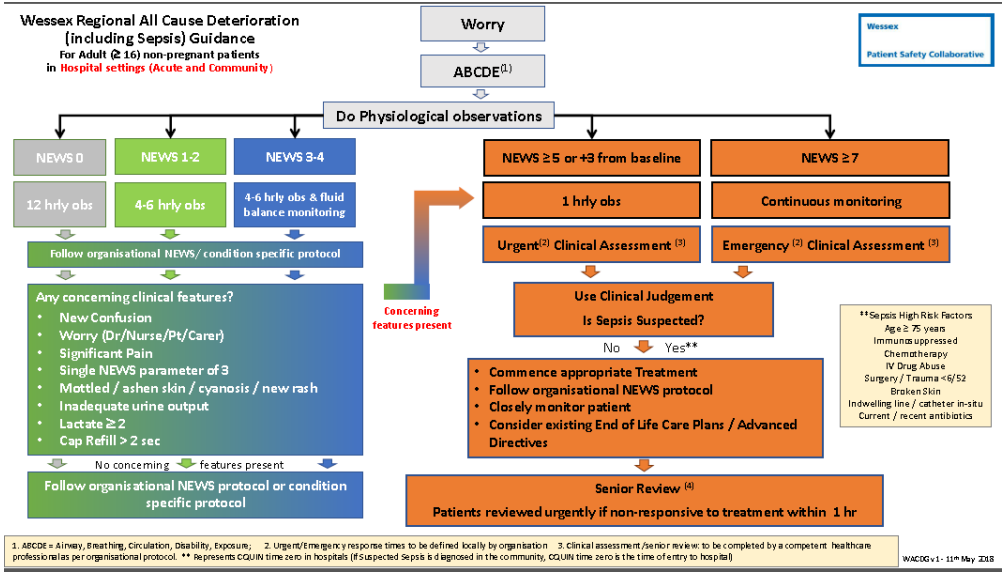
Interserve Healthcare

MAINTAINING A SAFE ENVIRONMENT	Lack of awareness of their surroundings or others – change to normal client presentation Lack of awareness of dangers around them – changes to normal client presentation Unable to respond to dangers around them – crossing road etc. and managing traffic hazards – change to normal client presentation Avoiding carrying out certain activities – e.g. crossing road Withdrawn - avoiding public places Panic/anxious when left alone
BREATHING	Colour of skin and extremities Exhaustion Using accessory muscles to breath Unable to speak/out of breath Change in respiratory rate – increase/decrease Wheeze on breathing Sweating Pale and clammy Discolouration of skin Chest pain Pain down arm Cold feet and legs Shortness of breath Abdominal pain
MOBILITY	Reduced mobility Loss of mobility Change in mobility Need to use walking aids which is not normal for client Need to take more rests than normal when mobilising the same as usual Increased slips/trips or falls Refusing to mobilise/get out of bed
EATING AND DRINKING	Reduced appetite No appetite Change in what would normally like to eat Refusing meals Unable to taste Increased urgent bowel movements following eating/drinking Not doing normal weekly/routine shop Buying significantly less than would normally for weekly shop
EATING AND DRINKING cont...	Fridge and cupboards empty – change for normal for client Food not eaten – left to go stale Reduced or increased fluid intake Visual signs of weight loss over a short period of time and abnormal for client -clothes loose - skin dry and dehydrated Reduced energy levels compared to normal Nausea Vomiting Swelling of tongue/throat
PERSONAL CARE	Lack of interest in personal care – change from normal Lack of interest/wanting to get out of bed and get dressed Change in presentation – unkempt/unshaven/hair unwashed/clothes not washed and clean – change for client Becoming more dependant on others for help with personal care – changes for client normal
ELIMINATION	Urine-Decrease or increase in urination. Pain/discomfort when passing urine. Increased urgency when needing to pass urine/open bowels Offensive smell Blood in urine, dark, cloudy etc. Change in bowel habits – constipation/diarrhoea Pain/discomfort when opening bowels Abdominal pain
COMMUNICATION	Refusing to communicate Unable to verbally communicate – change to normal presentation Unable to understand what is being said – change to normal for client Slurred speech Unable to use communication aid that the client normally uses Any changes to communication
SENSORY	The need to raise your voice so the client can hear Client asking others to read a letter/newspaper for them Squinting Complaints of headaches TV/radio on loud Distancing self from groups normally attend Unable to hear or join in because of hearing loss) Walking into furniture
MENTAL ABILITY	Changes to normal habits/hobbies – so unable to do crosswords/puzzles etc. Withdrawn Frustration Anger outbursts
BEHAVIOUR	Increased agitation Increased confusion Lack of interest/motivation Wandering – change to client's presentation Disorientated Deteriorating low mood Out of character behaviour changes Focus and fixation on death Hyperactivity compared to normal for client Paranoia Agitation Increase in obsessive behaviour – checking that door is locked/checking that they have their purse in their bag/checking the iron/cooker is turned off Increased patterns of repetitive behaviour Unable to identify people known to them Scratching self – non verbal communication of area of irritation/ pain Increased anxiety levels Visual/auditory hallucinations – change for clients presentation or increase if already experiences
SLEEPING	Change in sleep pattern – increase or decrease Increase in waking during the night which is not normal for the client Waking early hours of the morning Increase fatigue Change in sleeping arrangements – i.e. from bed to chair Change in sleeping positions to that of normal Change in level of consciousness Not responding to pain Cat napping during the day

Wessex Patient Safety Collaborative

Testing & developing 'Soft Signs of Deterioration' for use in Care Homes, learning disability and mental health care settings

Escalation pathways



Enable the system to develop and implement pathways that support the safe and appropriate escalation of care

Structured Communication

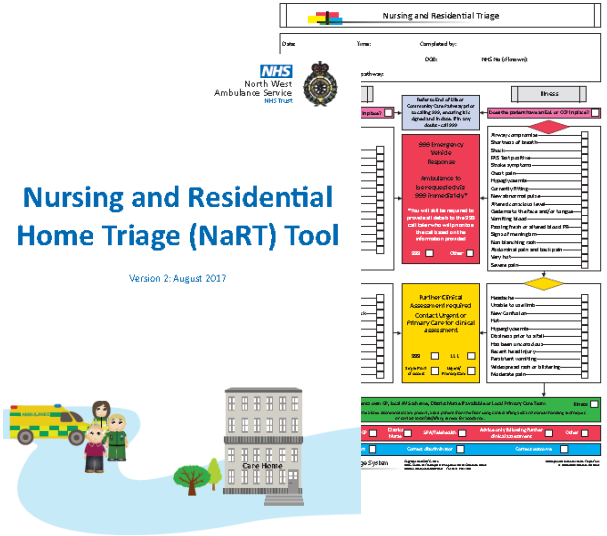






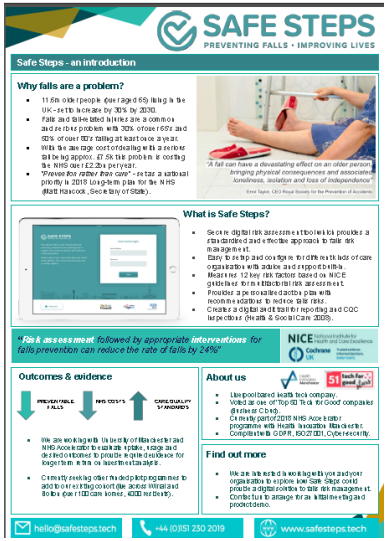
Facilitate implementation and use of structed communication to aid safer transfer of care

Good Practice Exemplars

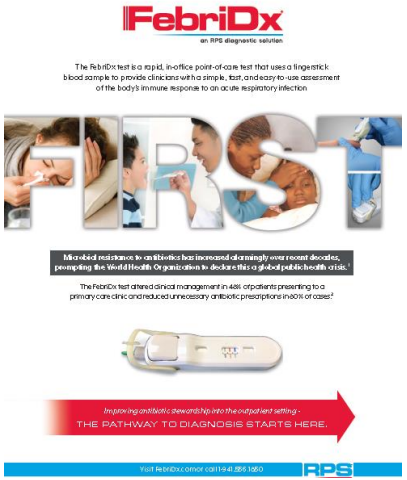


huddle

Innovations

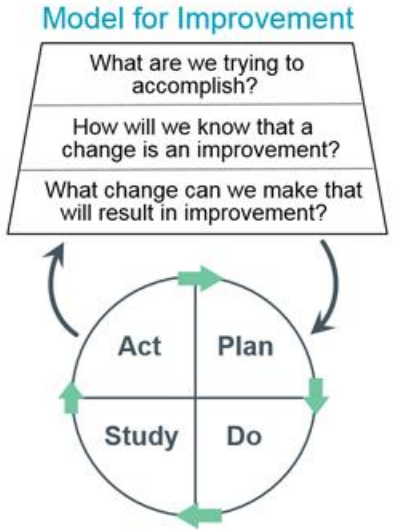






Facilitating ‘real-life’ testing of ‘innovations’ and enabling adoption and spread

QI Capability



Develop QI capability across the system and support teams with 'tests of change'

Life QI –
A global web platform where tools, people and data come together to make improvement happen.



Enable and encourage shared-learning and collaborative working across the system

Just Safety Culture



Work with teams and organisations to create a ‘just’ safety culture



TheAHSNNetwork

NHS Improvement

Opening Address

Dr Richard Preece

Executive Lead Quality and Medical Director
Greater Manchester Health and Social Care Partnership

March 2019

Greater Manchester & Eastern Cheshire
Patient Safety Collaborative

Health Innovation Manchester



Sepsis – my personal journey

Dr Jaco Nel
Psychiatrist in Elderly Mental Health
Pennine Care NHS Foundation Trust

March 2019

@Jaco_H_Nel
@UKSepsisTrust
@scarfreeworld
@PennineCareNHS
@GMEC_PSC
@AHSNNetwork
@NHSImprovement
@GM_HSC

#GMECSepsis #sepsis #stopsepsis #sepsiskills #sepsissurvivor #sepsisawareness #improvingpatienthealth #innovation #scarfreeworld #livingwithscars #loveyourscars




TheAHSNNetwork
NHS
Improvement
@GMEC_PSC



@GMEC_PSC

ICU – 48 hours





ICU – day 4

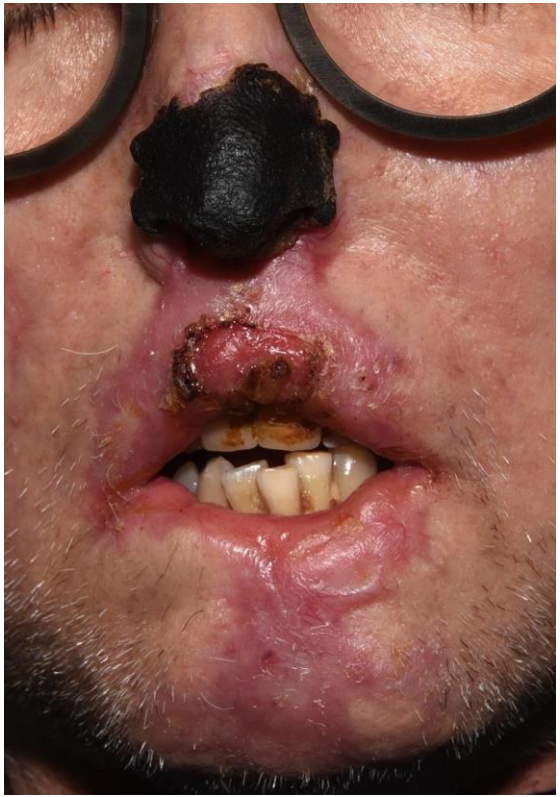





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NHS
Improvement




















Anti-Gravity Treadmill
ALTER



@GMEC_PSC





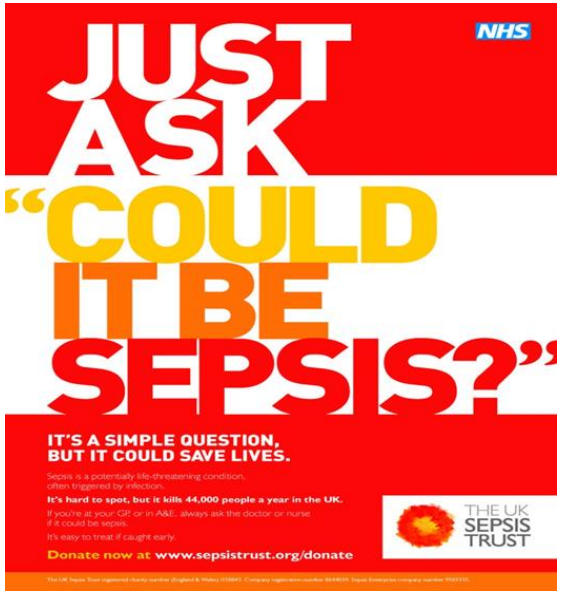
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NHS
Improvement



THE SCAR FREE FOUNDATION

MAKING A WORLD WITHOUT SCARS A REALITY

@GMEC_PSC



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NHS Improvement

Sepsis – A System Wide Challenge. The here now and the future

Dr Henry Morriss

Consultant Intensive Care and Emergency Medicine Joint Sepsis Lead MFT

March 2019

Greater Manchester & Eastern Cheshire

Patient Safety Collaborative

Health Innovation Manchester

What we know.

SEPSIS KILLS



But what is sepsis?



Niccolo Machiavelli



as the physicians say it happens in hectic fever, that in the beginning of the malady it is easy to cure but difficult to detect, but in the course of time, not having been either detected or treated in the beginning, it becomes easy to detect but difficult to cure

AZ QUOTES





2016
Big Year



SEPSIS 3.0

Host response is key

Sepsis is not simply a systemic inflammatory response
Variety of anti-inflammatory and other (mal)adaptive responses occur concurrently

Sepsis should be defined as **life-threatening** organ dysfunction due to a dysregulated host response to infection
Sepsis = really sick infection
SOFA score to characterise organ dysfunction

SOFA superior in ICU but poor on ward and ED.

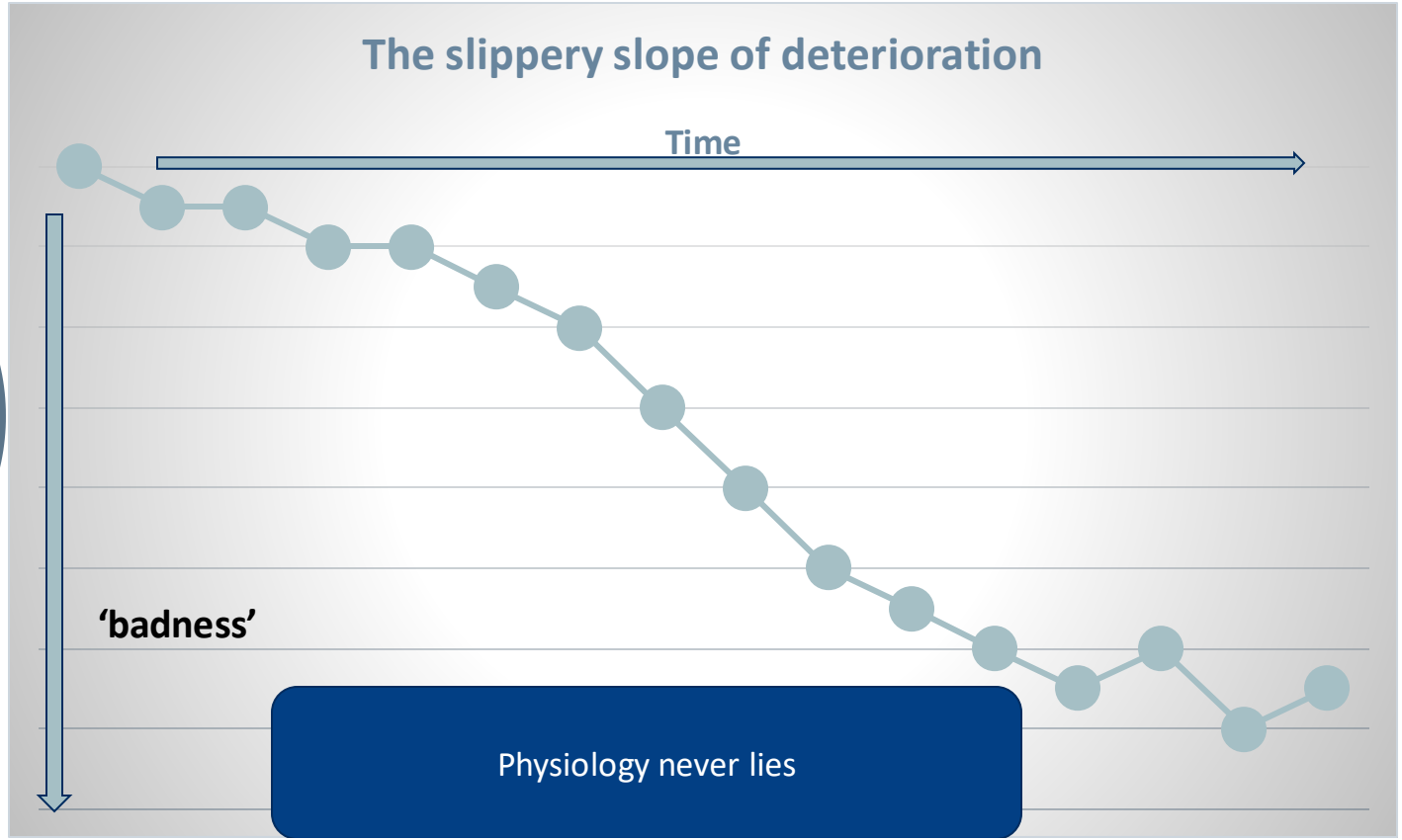
qSOFA – altered mental status, respiratory rate and systolic BP is superior on ward and ED



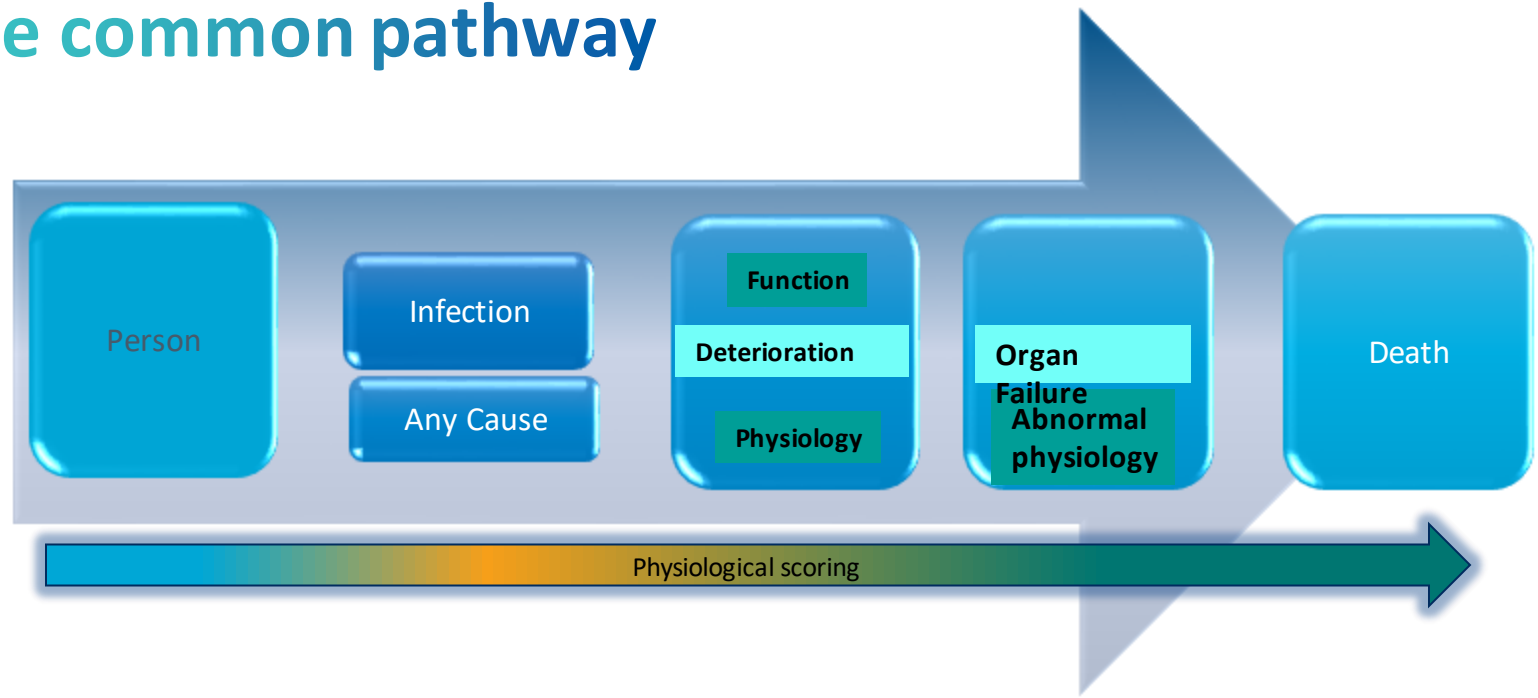
Infection with badness = sepsis

Sepsis doesn't kill

Deterioration due to infection does



The common pathway

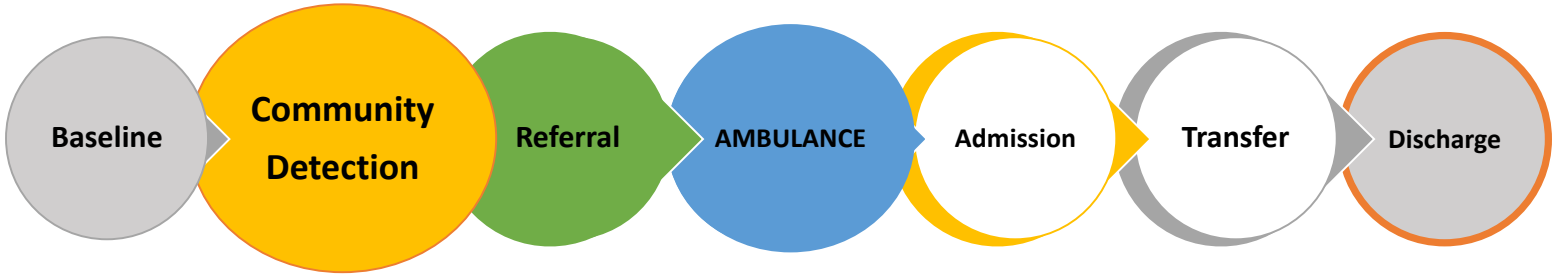


Physiological score
Risk assessment



Hypothesis: A single, standardised language and pathway for sickness will improve outcomes

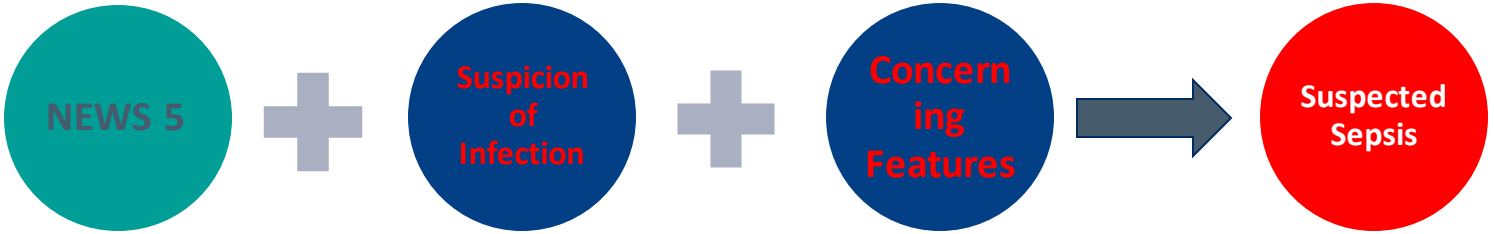
Why should the calculation of risk only start in the hospital?



	Baseline NEWS	GP NEWS	Communication NEWS	Transportation NEWS	Arrival NEWS	Track/trigger NEWS	Baseline NEWS
2010	✘	✘	✘	✘	✘	✓	✘
2013	✘	✘	✘	✘	✓	✓	✘
2016	✘	✘	✘	✘	✓	✓	✘
2019	✓	✓	✓	✓	✓	✓	✓

NEWS Identifies a sick patient, Clinical Judgement is the critical determinant





…identifies patients who are severely ill with likely organ dysfunction who need urgent review

"When accompanied by suspicion of sepsis this should prompt the senior clinical decision-maker, **using clinical judgement**, to start appropriate treatment, as indicated, within an hour of the risk being recognised."

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Opportunities

NHS Improvement

Referral NEWS	Ambulance	Disposition	Area	Mortality/ICU (est.)
0-2	TBD	AMU Clinic	Chairs	0.5-2%
3-4	TBD	AMU	Trolley	8%
5-6	TBD	ED AMU	Majors High Care	23%
7 or more	Blue Light Pre Alert	ED	Resus	30%

If we have one language, standardised protocols develop
NEWS based triage, referral and disposition

Baselineing

Quantitative research summary:

- High NEWS scores are reasonably uncommon
  - NEWS of 5+:
    - 8% of 122,000 attendances ED
    - 12% of the 21,000 community health visits
    - 18% of 1.1m ambulance conveyances
    - 32% of 23,000 seen Acute GP team triaging admissions

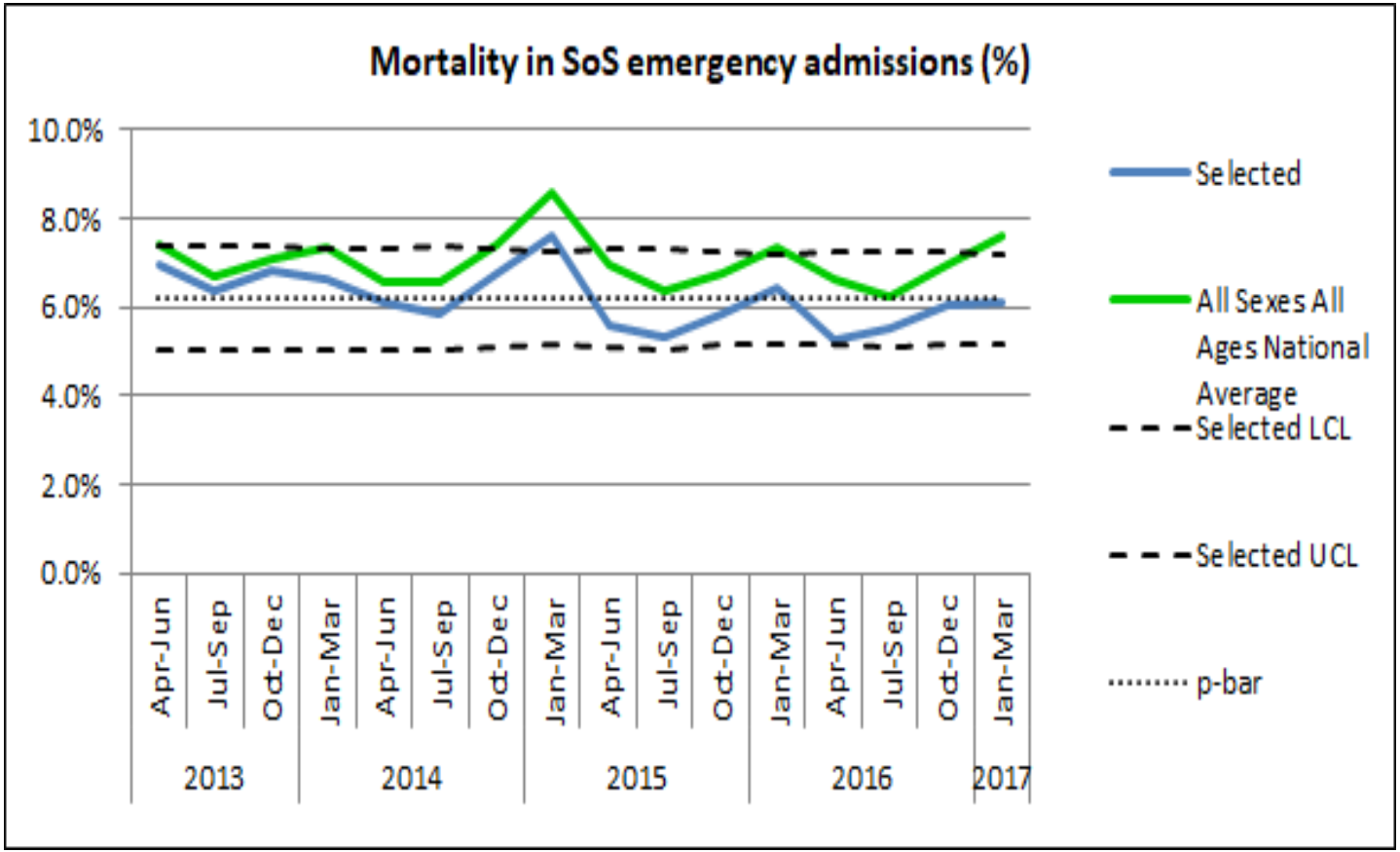
Beware if have current EWS

- NEWS scores are a reasonably good indicator of how sick a patient is:
  - As NEWS increases, time to treatment decreases
  - As NEWS increases, length of stay increases

Clinical acumen

Symptom based triage still required

NEWS 5+ fits with national recommendations screening for sepsis


Mortality in SoS emergency admissions (%)
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
Apr-Jun
Jul-Sep
Oct-Dec
Jan-Mar
Apr-Jun
Jul-Sep
Oct-Dec
Jan-Mar
Apr-Jun
Jul-Sep
Oct-Dec
Jan-Mar
Apr-Jun
Jul-Sep
Oct-Dec
Jan-Mar
2013
2014
2015
2016
2017
Selected
All Sexes All Ages National Average
Selected LCL
Selected UCL
p-bar

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EXPRESS

Home of the Daily and Sunday Express

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UK | WORLD | POLITICS | WEATHER | ROYAL | NATURE | SCIENCE | SCOTLAND | WEIRD

Soaring number of sepsis deaths

THE number of deaths from sepsis in hospitals in England has risen by more than a
in two years. It was the primary cause of 11,328 deaths in 2014-15, increasing to 1
in 2016-17.

By JEMMA CREW
PUBLISHED: 02:08, Sat, Aug 4, 2018 | UPDATED: 02:20, Sat, Aug 4, 2018

Professor Brian Jarman, who collated the data, said growing antibiotic resistanc
overcrowding may be behind the rise.

The life-threatening condition happens when the body's response to infectio
tissues and organs.

THE Sun

THE SUN, A NEWS UK COMPANY

TV & SHOWBIZ | NEWS | FABULOUS | MONEY | MOTORS | TRA

SEPSIS DEATH RISE Number of people dying in hospital from sepsis surges by a third in two years to nearly 16,000

Prof Sir Brian Jarman, from Imperial College London, says staff shortages and ward overcrowding are partly to blame

By Shaun Woollar
4th August 2018, 1:19 am | Updated: 4th August 2018, 1:21 am

HOSPITAL sepsis deaths rose by more than a third in two years, figures suggest.

Some 15,722 are thought to have died after getting it in 2016/17, up from 11,328 in 2015/16.

Prof Sir Brian Jarman, from Imperial College London, says staff shortages and ward overcrowding are partly to blame.

But health chiefs say it is likely to be due to increased awarene
diagnosis.

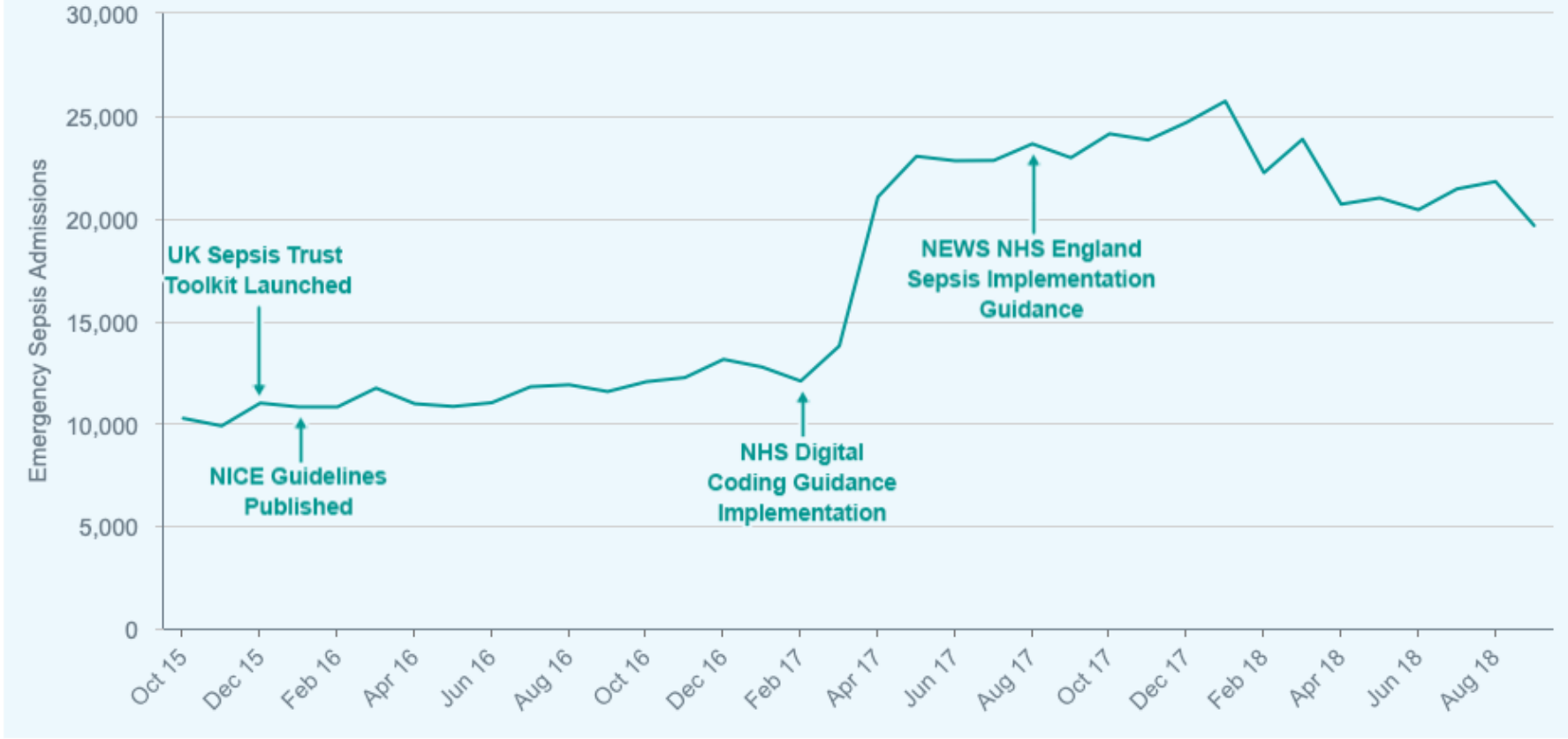
Dr Ron Daniels, from the UK
the UK — in and

Problem with sepsis numbers

- Absence of single stable sepsis definition
- Absence of gold standard test for sepsis
- Poor consistency in documentation and coding

As a consequence, attempts to measure sepsis over time have shown large swings in numbers recorded based on the variable interplay between these three factors.

Sepsis Coded Emergency Admissions Over Time



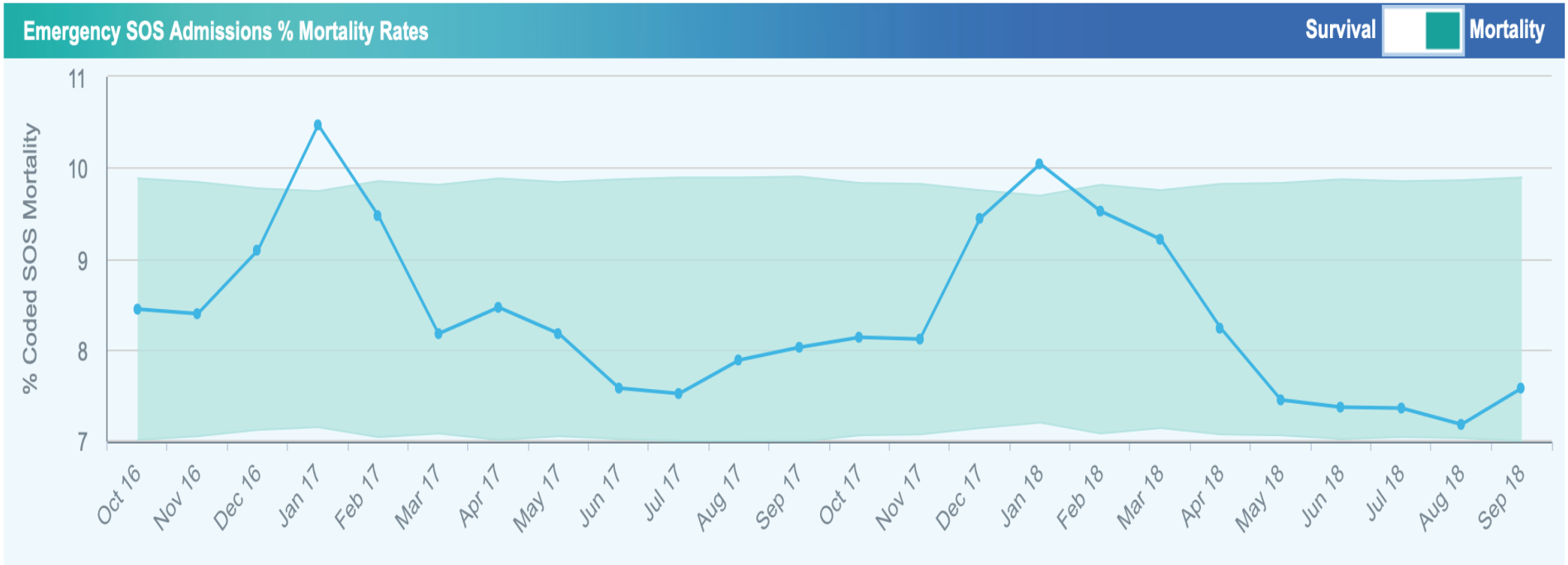


#SuspicionOfSepsis

TheAHSNNetwork

NHS Improvement

Emergency SOS Admissions % Mortality Rates



#SuspicionOfSepsis


Phew!
No need to
see a doctor!
HOSPITAL
300 KM
SUVAAL
-2017-





#SOS



Describing Badness





The AHSN Network

NHS Improvement

NEWS2 and Sepsis – What A System-wide Response Looks like

Greater Manchester & Eastern Cheshire

Patient Safety Collaborative

Health Innovation Manchester

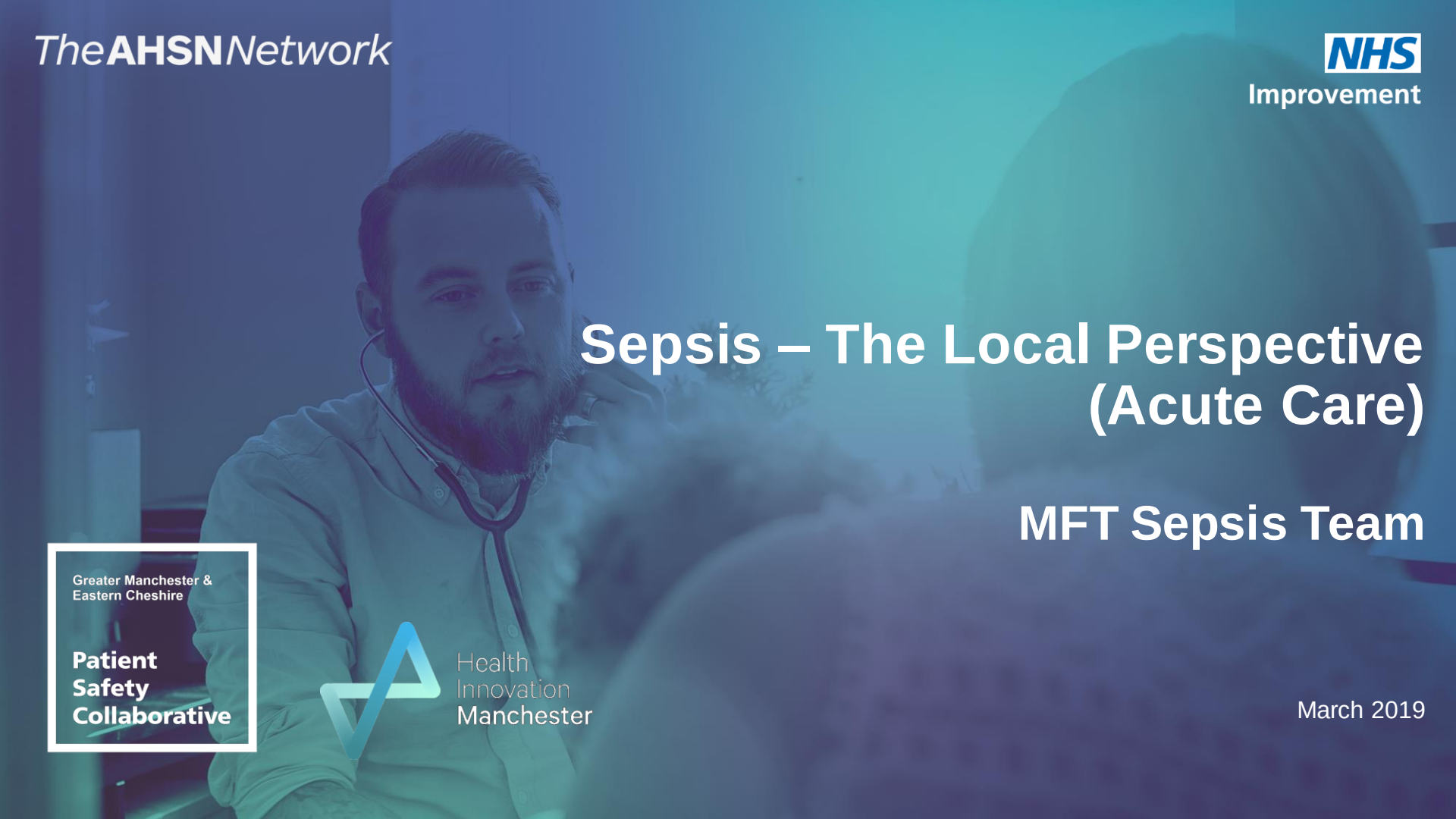
March 2019



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Coffee Break – 15 minutes





The AHSN Network

NHS Improvement

Sepsis – The Local Perspective (Acute Care)

MFT Sepsis Team

Greater Manchester & Eastern Cheshire

Patient Safety Collaborative

Health Innovation Manchester

March 2019

Initial data -2015

Standard	Compliance (%)
Receive the Sepsis 6 care bundle within one hour	10%
Receive high flow oxygen within one hour	11%
Blood cultures taken within one hour	30%
Receive antibiotics within one hour	60%
Receive IV fluid resuscitation within one hour	46%
Have lactate measured within one hour	63%
Fluid balance chart completed +/- catheterisation within one hour	27%

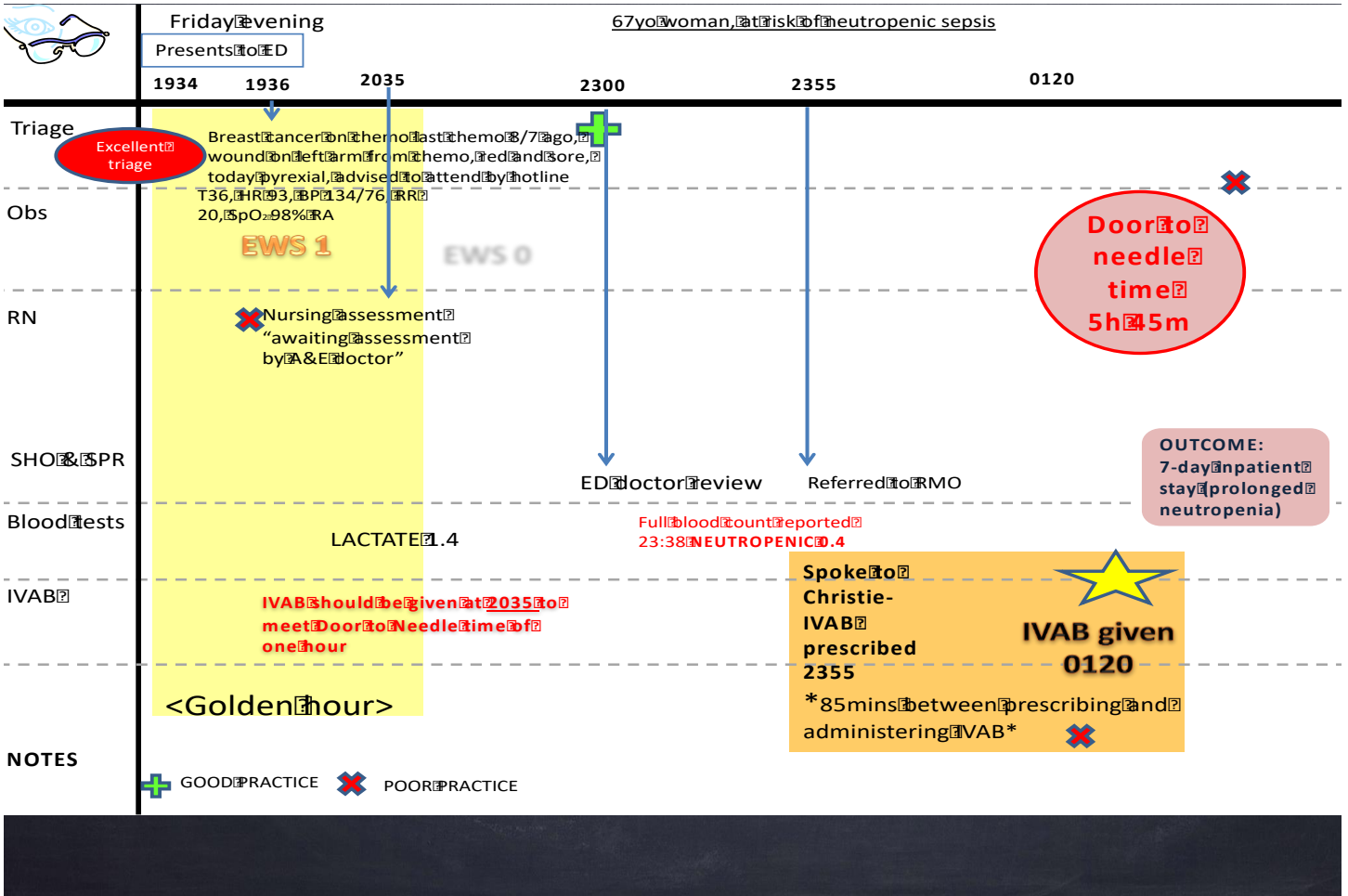
Only 7% of patients received the sepsis six within one hour

Average length of stay = 11.1 days

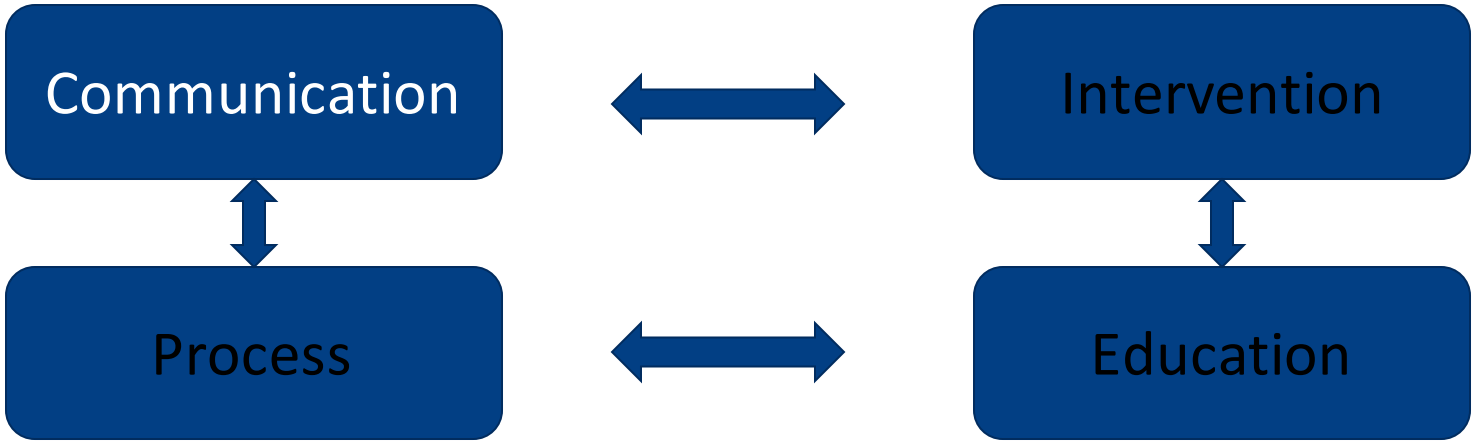
30 day Mortality = 40%


The Health Foundation
Inspiring Improvement
Safer Clinical Systems
Warwick Medical School
PEARLS of WISDOM
WELCOME!
you'll be learning from each other:
BEING POSITIVE & LOOKING FORWARD
ESTABLISH THE FACTS
Don't make assumptions
ENGAGEMENT
Measures
MANCHESTER
EAST KENT
PEOPLE WANT TO SEE THE CHANGES, NOT JUST DATA
DUMFRIES & GALLOWAY
SALFORD
NOTTINGHAM
IT AIN'T THE TOOLS
IT'S WHO USES THEM
ENGAGE PEOPLE WITH WHAT MATTERS TO THEM
BIRMINGHAM CHILDRENS
BATH
BRISTOL
MEASUREMENTS & COMMUNICATION
SAFETY CULTURE INDEX
CULTURE CHANGE
SAFE & IN CONTROL
2016
SPREAD OUR SUCCESS
KEEP THE MOMENTUM GOING
WHAT WILL WE BE LIKE IN THE FUTURE
REDUCED Risk
ADAPTING TOOLS USED BY OTHER INDUSTRIES
You cannot be SAFE unless you know what your risks are
I can't imagine a more complex system than the NHS
IT IS A HIGHLY HIGH RISK INDUSTRY
HOW DO WE IDENTIFY RISK?
IT'S SUBJECTIVE!
WE NEED TO BE PROACTIVE NOT REACTIVE
80
SCALE
Shared Understanding
PEOPLE
DESTINATION
TIME TO PLAN & REFLECT
WHERE ARE WE ON THIS ROAD?
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Friday evening
Presents to ED
67yo woman, at risk of neutropenic sepsis
1934
1936
2035
2300
2355
0120
Triage
Excellent triage
Breast cancer on chemo last chemo 8/7 ago, wound on left arm from chemo, red and sore, today pyrexial, advised to attend by hotline
T36, HR 93, BP 134/76 RR 20, SpO2 98% RA
Obs
EWS 1
EWS 0
Door to needle time 5h 45m
RN
Nursing assessment "awaiting assessment by A&E doctor"
SHO & SPR
ED doctor review
Referred to RMO
OUTCOME: 7-day inpatient stay (prolonged neutropenia)
Blood tests
LACTATE 1.4
Full blood count reported 23:38 NEUTROPENIC 0.4
IVAB
IVAB should be given at 2035 to meet Door to Needle time of one hour
Spoke to Christie- IVAB prescribed 2355
IVAB given 0120
85mins between prescribing and administering IVAB
<Golden hour>
NOTES
GOOD PRACTICE
POOR PRACTICE

State of the Art Interventions?



Sepsis Trust chair @SepsisUK says ^survivorship is 'not about investing in expensive equipment, it's about communication+education #sepsis

Safer Sepsis

Sepsis Team

- Multiple disciplines
- Student hub
- Expanding across sites

Education

- Bespoke ward teaching
- All nursing and medical inductions
- ACE days
- Mandatory training
- Annual updates

Public awareness

- Awareness days
- Patient information leaflet
- Outpatient awareness video

Screening tool

- Launched into all divisions
- Bespoke pathways
- Electronically implemented

Collaborating

- Pharmacy
- Microbiology
- NWAS
- Sexual Health Network
- Health Innovation Manchester

Data collection

- Honest data
- Monthly feedback
- Annual review
- Sharing with local organisations
- CQUIN submitted

@GMEC_PSC

2018-2019 Data

Standard	2015	2018
Receive the Sepsis 6 care bundle within one hour	10%	44%
Receive high flow oxygen within one hour	11%	94%
Blood cultures taken within one hour	30%	76%
Receive antibiotics within one hour	60%	75%
Receive IV fluid resuscitation within one hour	46%	87%
Have lactate measured within one hour	63%	86%
Fluid balance chart completed +/- catheterisation within one hour	27%	39%

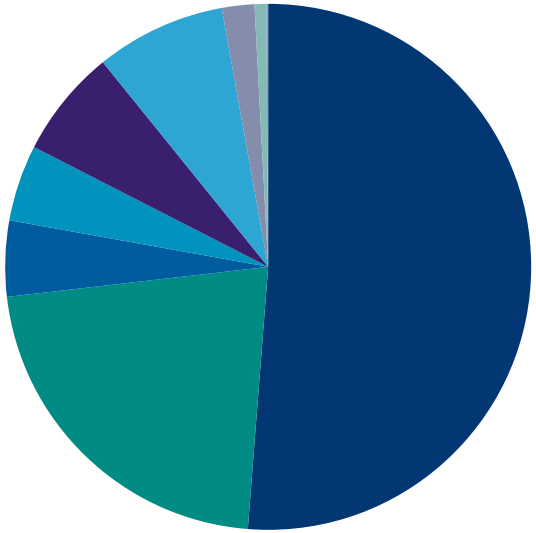
Now 44% of patients received the sepsis six within one hour

Average length of stay = 9.6 days

30 day Mortality = 9.3%

@GMEC_PSC

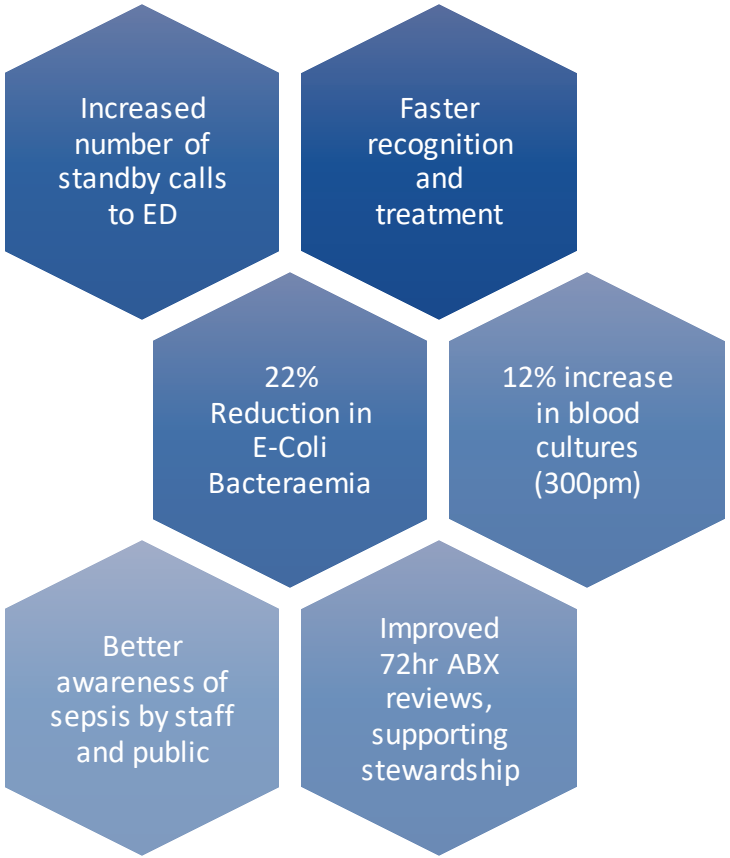
Source control



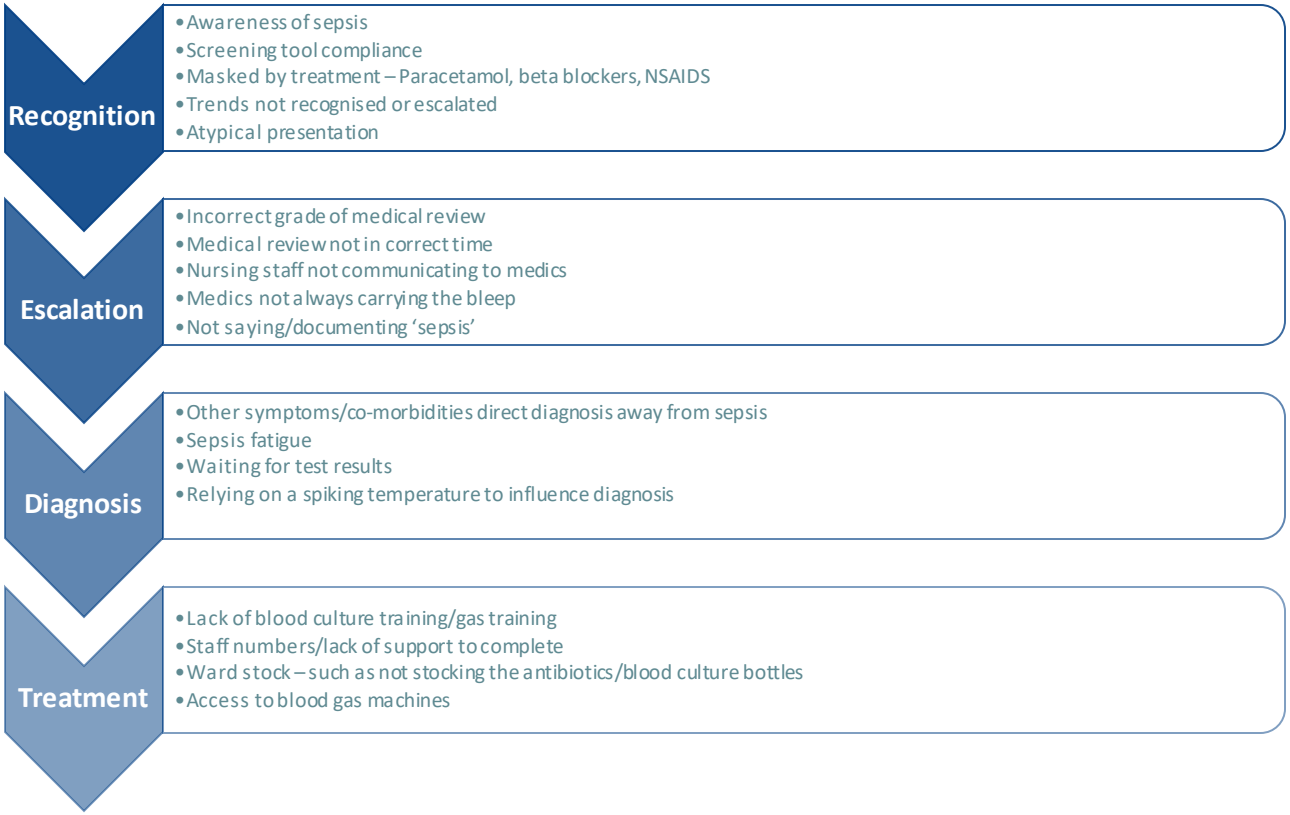
- Urinary
- Chest
- Intra-abdominal

Escherichia Coli	408
Other specified bacterial agents	95
Staphylococcus Aureus	83
Klebsiella Pneumoniae	69
Group D Streptococcus	50
Pseudomonas (Aeruginosa)	38
Other Staphylococcus	31
Proteus (mirabilis)(morganii)	24
Other Streptococcus	17
Staphylococcus, unspecified	11
Group B Streptococcus	10
Group A Streptococcus	6
Streptococcus, unspecified	5
Mycoplasma Pneumoniae	3
Streptococcus pneumoniae	3
Clostridium perfringens	2
Bacillus fragilis	1
Haemophilus Influenzae	1

A change in culture

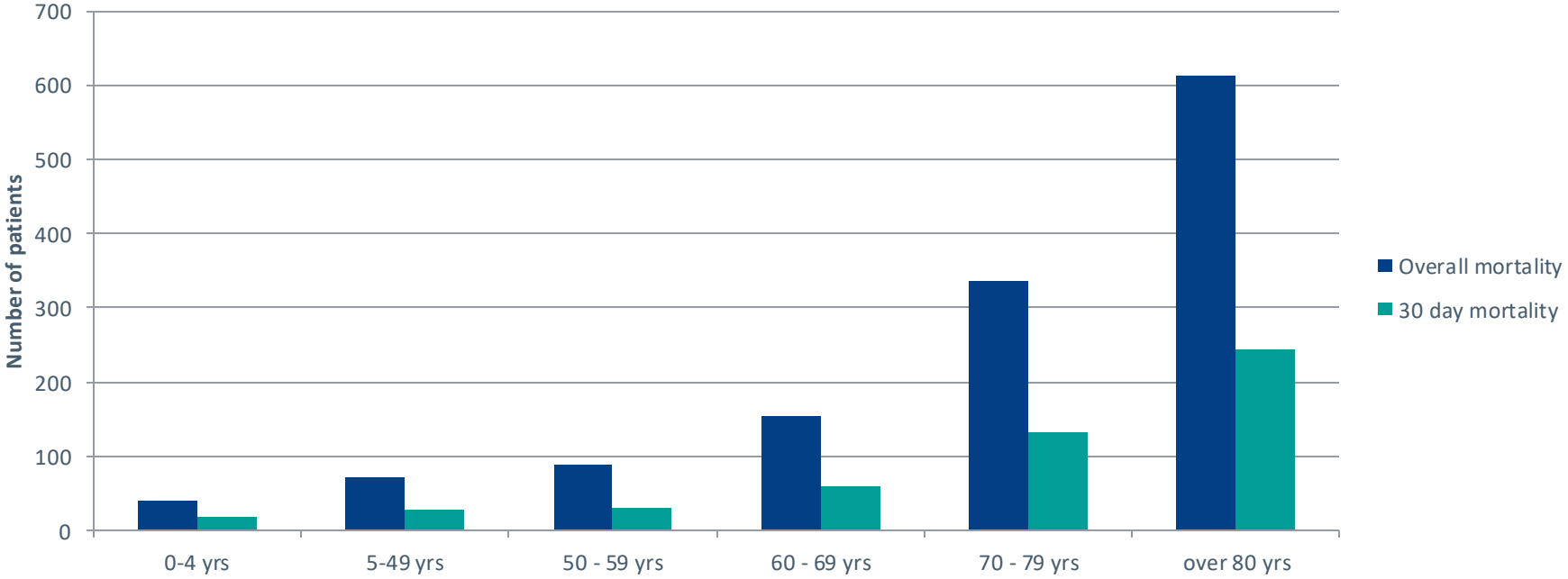


Barriers

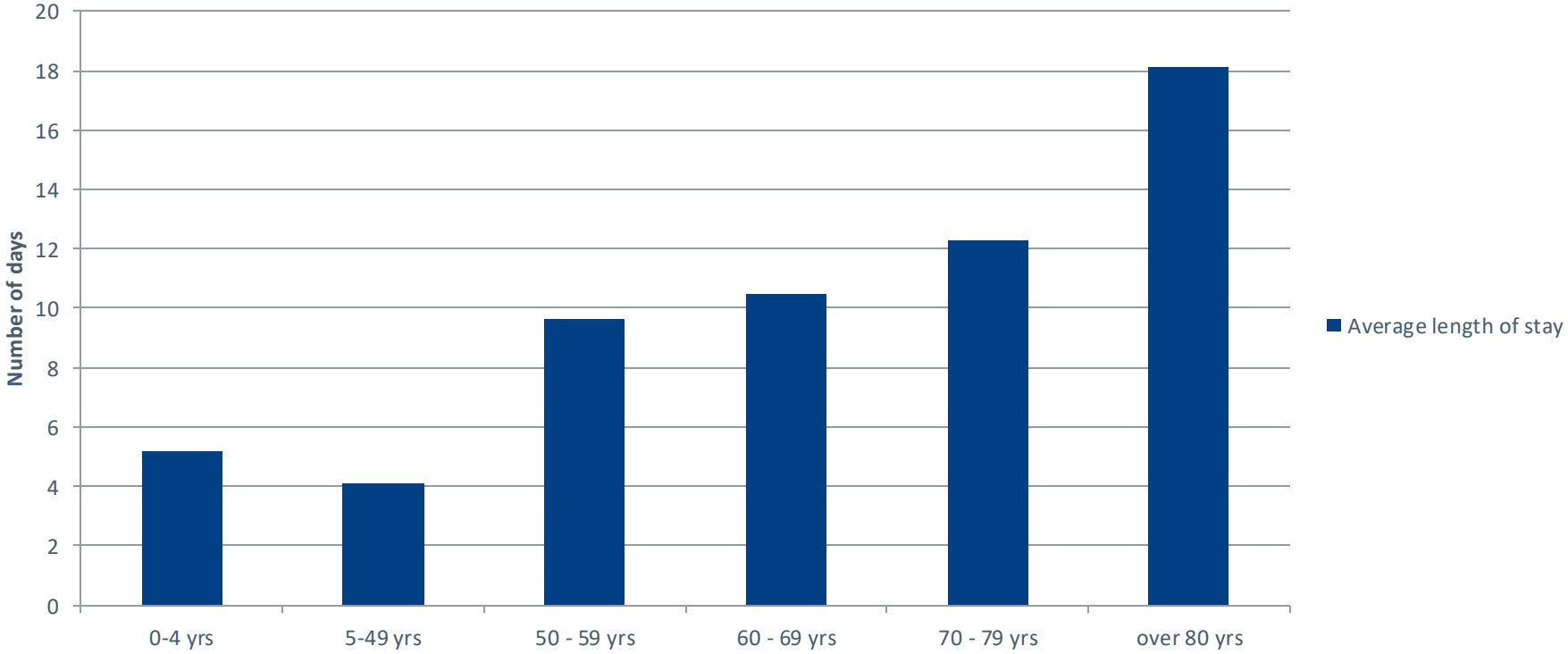

Recognition
•Awareness of sepsis
•Screening tool compliance
•Masked by treatment – Paracetamol, beta blockers, NSAIDS
•Trends not recognised or escalated
•Atypical presentation
Escalation
•Incorrect grade of medical review
•Medical review not in correct time
•Nursing staff not communicating to medics
•Medics not always carrying the bleep
•Not saying/documenting 'sepsis'
Diagnosis
•Other symptoms/co-morbidities direct diagnosis away from sepsis
•Sepsis fatigue
•Waiting for test results
•Relying on a spiking temperature to influence diagnosis
Treatment
•Lack of blood culture training/gas training
•Staff numbers/lack of support to complete
•Ward stock – such as not stocking the antibiotics/blood culture bottles
•Access to blood gas machines

Suspicion of Sepsis Data – 2018				
Age range	Total Number of Patients	Average LoS	Overall Mortality	30 Day Mortality
0-4	2961	5.15	41 deaths (1.4%)	19 deaths (0.6%)
5-49	6431	4.61	71 deaths (1.1%)	29 deaths (0.4%)
50-59	1406	9.89	89 deaths (6.2%)	31 deaths (2.2%)
60-69	1596	11.3	153 deaths (9.3%)	60 deaths (3.6%)
70-79	1942	12.3	336 deaths (17.2%)	132 deaths (6.7%)
80+	2177	18.4	613 deaths (28.1%)	245 deaths (11.3%)

Mortality


Number of patients
700
600
500
400
300
200
100
0
0-4 yrs
5-49 yrs
50 - 59 yrs
60 - 69 yrs
70 - 79 yrs
over 80 yrs
Overall mortality
30 day mortality

Average length of stay




Share lessons
Common GM language
GM SOS target areas and populations
Challenges now CQUIN no more
Data Data Data



The AHSN Network

NHS Improvement

Sepsis – The Local Perspective (Primary Care)

Dr Claire Lake

GP Clinical Lead for Sepsis

March 2019

Greater Manchester & Eastern Cheshire

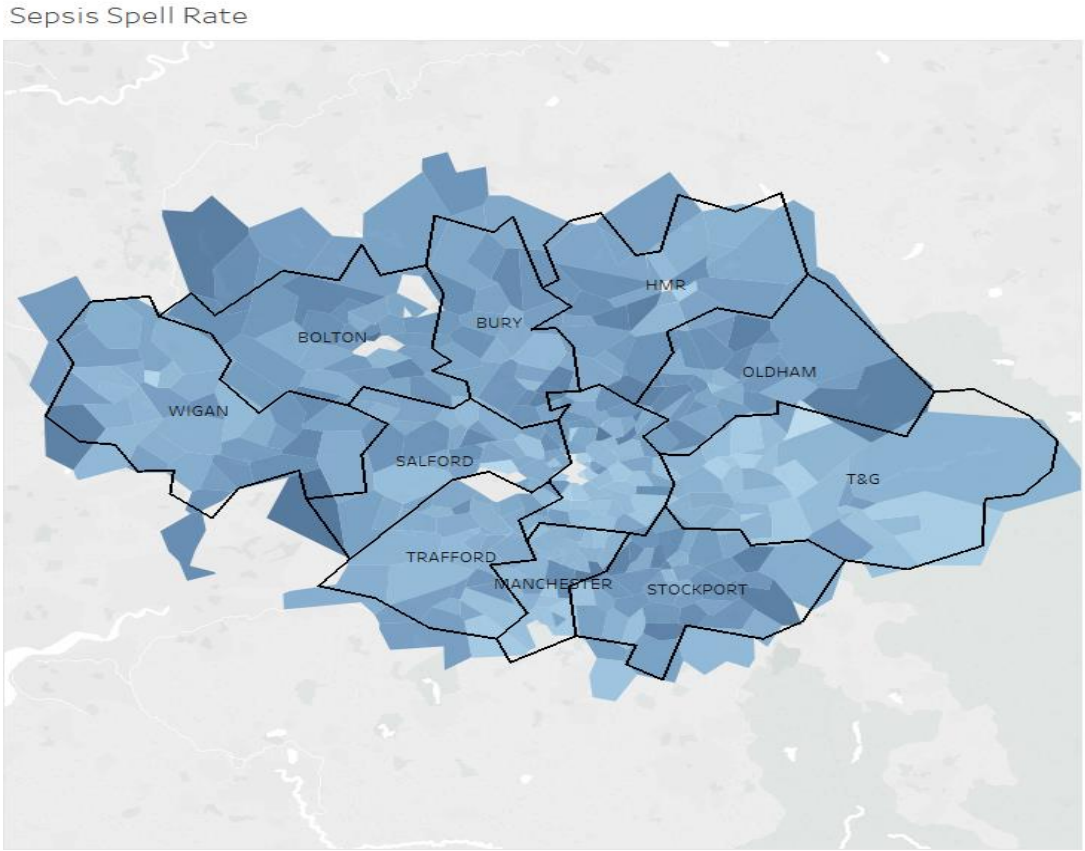
Patient Safety Collaborative

Health Innovation Manchester

Introductions

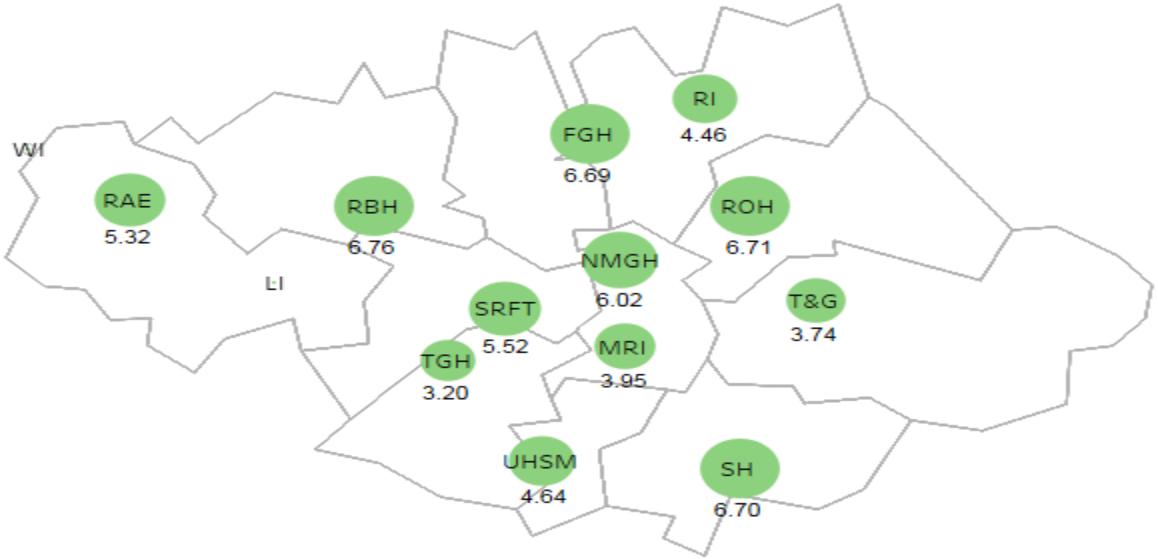
Dr Claire Lake
GP
Clinical Lead for Sepsis for Manchester Health and Care Commissioning
GMHSP Sepsis Collaborative
Claire.lake@nhs.net

GM Sepsis Rates by Post Code



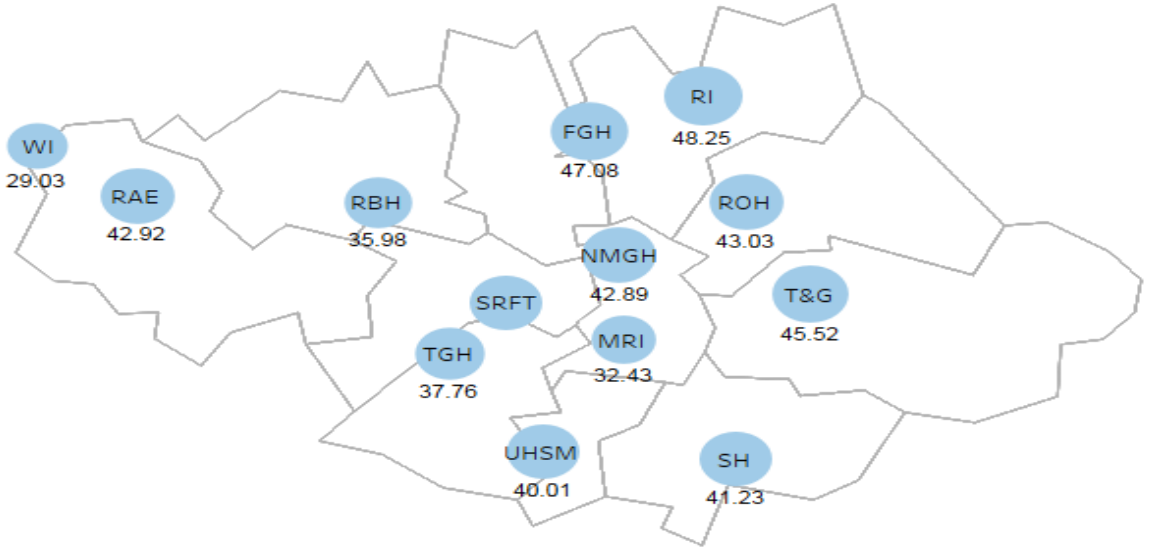
2018 rate of discharges per 100 with sepsis coding

GM Sepsis Rates by Hospital



Provider	Sepsis Rate/100 discharges
TGH	3.2
T&G	3.7
MRI	4.0
RI	4.5
UHSM	4.6
RAE	5.3
SRFT	5.5
NMGH	6.0
FGH	6.7
SH	6.7
ROH	6.7
RBH	6.8
GM Avg	5.5

GM SoS Rates by Hospital



Provider	SoS Rate/100 discharges
MRI	32.4
RBH	36.0
TGH	37.8
SRFT	39.5
UHSM	40.0
SH	41.2
NMGH	42.9
RAE	42.9
ROH	43.0
T&G	45.5
FGH	47.1
RI	48.2
GM Avg	40.2

Greater Manchester Sepsis Collaborative

- Each of the 10 GM localities represented
- Report to Greater Manchester Health and Social Care Partnership
- Shared goals:

1) Sepsis Education amongst health care professionals
2) Introduction NEWs2 across whole health economy
3) Improve sepsis data flow across GM

SEPSIS: General Practice Perspective

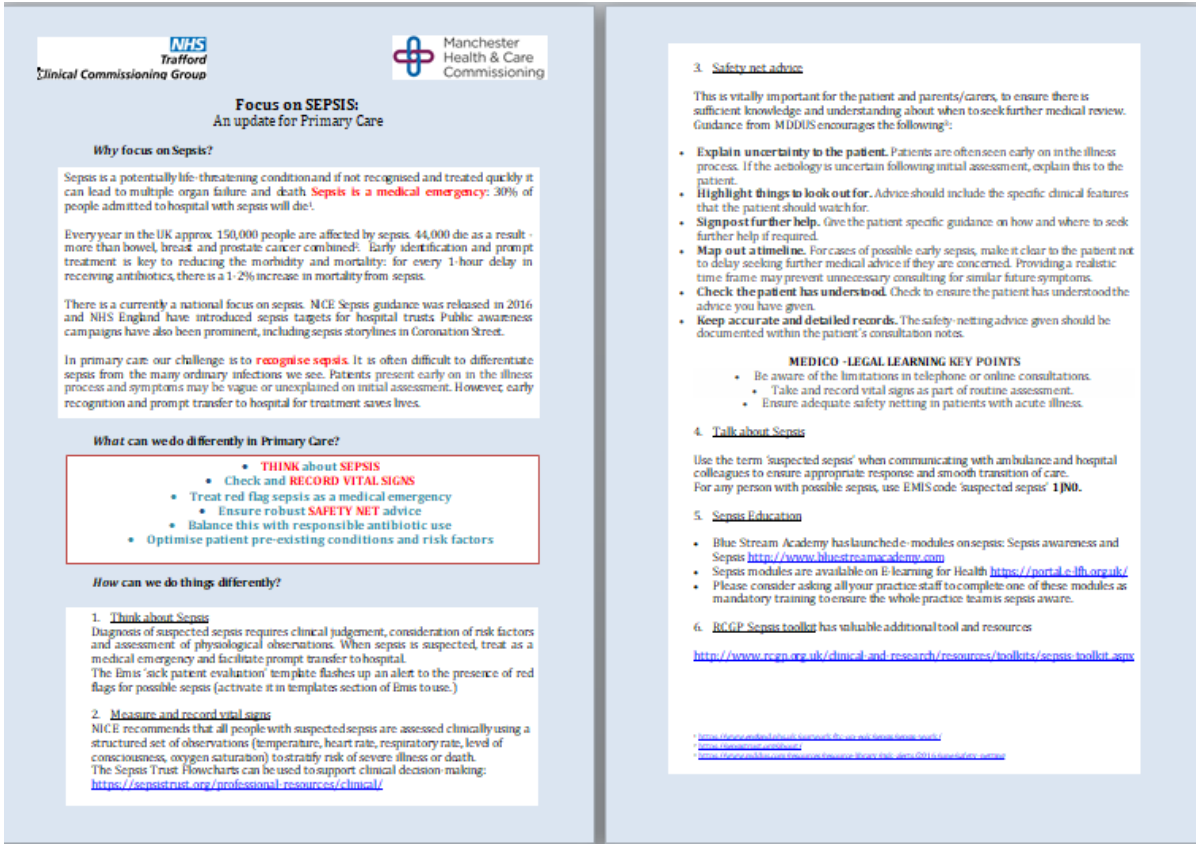
- Key aim is ***earlier detection*** of Sepsis in Primary Care
- 70% cases arise in the community

- **Challenges**:
- GP's see many people with infections, only a small number of these will have Sepsis
- Initial presentation may be with nonspecific symptoms
- 10min consultation/ 'snapshot'
- Antimicrobial stewardship
- BUT… GP's worry about 'missing' sepsis


Think Sepsis - Awareness
Antimicrobial Stewardshhip
Physical observations
Sepsis in Primary Care
Infection prevention
Treat as a medical emergency
Effective Safety net advice

Opportunities - Education

- Primary care education
- GM sepsis collaborative
  - Focus on sepsis leaflet
  - Primary care CQUIN
  - Salford Standards
- National eLearning modules
- GP Update and Hot Topics courses



NHS Trafford Clinical Commissioning Group

Manchester Health & Care Commissioning

Focus on SEPSIS:
An update for Primary Care

***Why* focus on Sepsis?**

Sepsis is a potentially life-threatening condition and if not recognised and treated quickly it can lead to multiple organ failure and death. **Sepsis is a medical emergency:** 30% of people admitted to hospital with sepsis will die[1].

Every year in the UK approx. 150,000 people are affected by sepsis. 44,000 die as a result - more than bowel, breast and prostate cancer combined[2]. Early identification and prompt treatment is key to reducing the morbidity and mortality: for every 1-hour delay in receiving antibiotics, there is a 1-2% increase in mortality from sepsis.

There is a currently a national focus on sepsis. NICE Sepsis guidance was released in 2016 and NHS England have introduced sepsis targets for hospital trusts. Public awareness campaigns have also been prominent, including sepsis storylines in Coronation Street.

In primary care our challenge is to **recognise sepsis**. It is often difficult to differentiate sepsis from the many ordinary infections we see. Patients present early on in the illness process and symptoms may be vague or unexplained on initial assessment. However, early recognition and prompt transfer to hospital for treatment saves lives.

***What* can we do differently in Primary Care?**

- **THINK** about **SEPSIS**
- Check and **RECORD VITAL SIGNS**
- Treat red flag sepsis as a medical emergency
- Ensure robust **SAFETY NET** advice
- Balance this with responsible antibiotic use
- Optimise patient pre-existing conditions and risk factors

***How* can we do things differently?**

1. Think about Sepsis

Diagnosis of suspected sepsis requires clinical judgement, consideration of risk factors and assessment of physiological observations. When sepsis is suspected, treat as a medical emergency and facilitate prompt transfer to hospital.
The Emis 'sick patient evaluation' template flashes up an alert to the presence of red flags for possible sepsis (activate it in templates section of Emis to use.)

2. Measure and record vital signs

NICE recommends that all people with suspected sepsis are assessed clinically using a structured set of observations (temperature, heart rate, respiratory rate, level of consciousness, oxygen saturation) to stratify risk of severe illness or death.
The Sepsis Trust Flowcharts can be used to support clinical decision-making:
https://sepsistrust.org/professional-resources/clinical/

3. Safety net advice

This is vitally important for the patient and parents/carers, to ensure there is sufficient knowledge and understanding about when to seek further medical review. Guidance from MDDUS encourages the following[3]:

- **Explain uncertainty to the patient.** Patients are often seen early on in the illness process. If the aetiology is uncertain following initial assessment, explain this to the patient.
- **Highlight things to look out for.** Advice should include the specific clinical features that the patient should watch for.
- **Signpost further help.** Give the patient specific guidance on how and where to seek further help if required.
- **Map out a timeline.** For cases of possible early sepsis, make it clear to the patient not to delay seeking further medical advice if they are concerned. Providing a realistic time frame may prevent unnecessary consulting for similar future symptoms.
- **Check the patient has understood.** Check to ensure the patient has understood the advice you have given.
- **Keep accurate and detailed records.** The safety-netting advice given should be documented within the patient's consultation notes.

MEDICO -LEGAL LEARNING KEY POINTS

- Be aware of the limitations in telephone or online consultations.
- Take and record vital signs as part of routine assessment.
- Ensure adequate safety netting in patients with acute illness.

4. Talk about Sepsis

Use the term 'suspected sepsis' when communicating with ambulance and hospital colleagues to ensure appropriate response and smooth transition of care.
For any person with possible sepsis, use EMIS code 'suspected sepsis' **1JN0.**

5. Sepsis Education

- Blue Stream Academy has launched e-modules on sepsis: Sepsis awareness and Sepsis http://www.bluestreamacademy.com
- Sepsis modules are available on E-learning for Health https://portal.e-lfh.org.uk/
- Please consider asking all your practice staff to complete one of these modules as mandatory training to ensure the whole practice team is sepsis aware.

6. RCGP Sepsis toolkit has valuable additional tool and resources

http://www.rcgp.org.uk/clinical-and-research/resources/toolkits/sepsis-toolkit.aspx

[1] https://www.england.nhs.uk/ourwork/tsd/ec-imp-sepsis/sepsis-work/
[2] https://sepsistrust.org/about/
[3] https://www.mddus.com/resources/resource-library/risk-alerts/2016/general/safety-netting/

Opportunities – NEWS2

- Introduction of Early Warning Score
- Improved documentation of physical observations
- Detection high and low risk patients
- Identification of a deteriorating patient
- Common language for health care professionals
- Advanced Care Planning

Opportunities – Infection Prevention

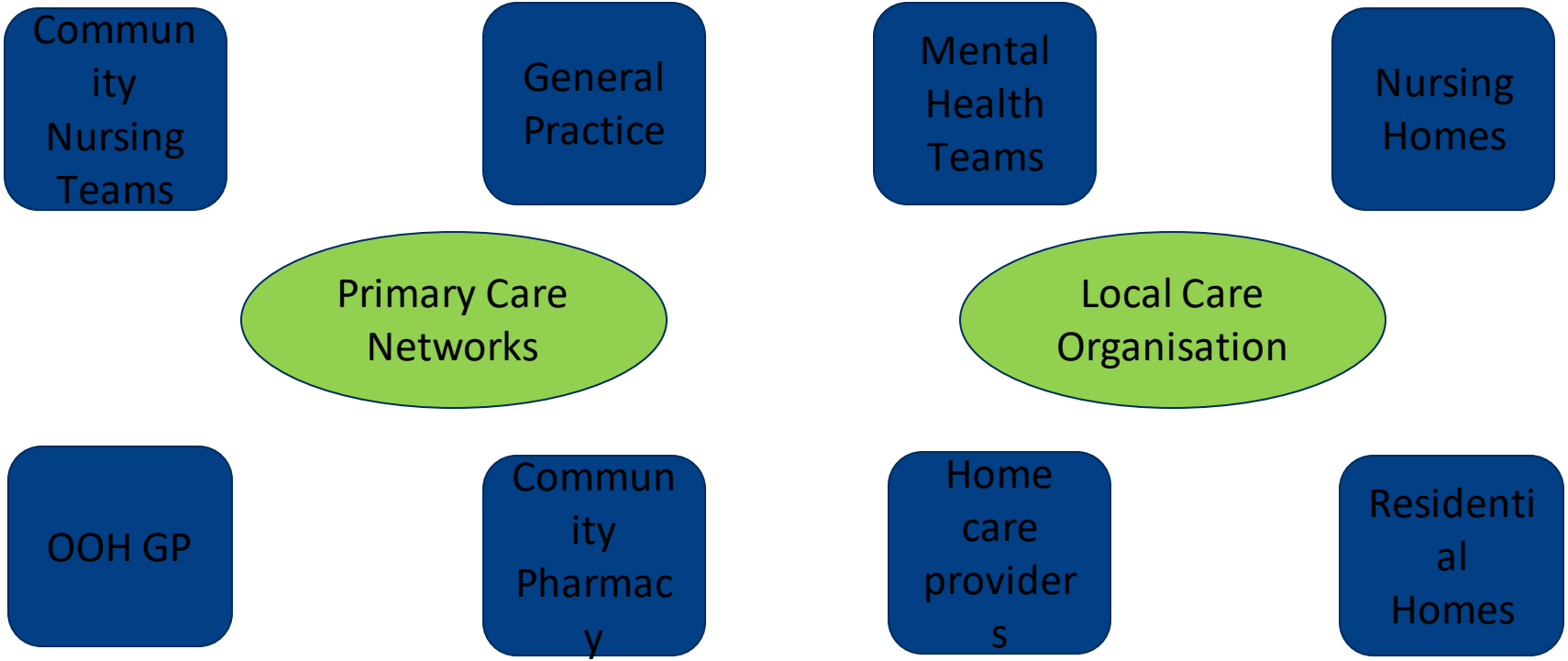
- Impact on Sepsis rates by reducing infection:
  - Gram Negative Blood Stream Infection NHSE Ambition Target
  - Antimicrobial Stewardship
- Frailty work including falls reduction and hydration and nutrition
- Optimising risk factors e.g. high quality catheter care, good diabetes control

Opportunities - Data

- Optimise primary care Sepsis data

- EMIS template for NEWS (NEWS2)
- Coding ‘suspected sepsis’
- Development of a primary care Suspicion of Sepsis dashboard

SEPSIS: Community care



Key messages

- A whole health economy approach to sepsis is needed
- Use of early warning scores in community services
    - a common language
    - prompt recognition of a deteriorating patient
- Infection prevention and antimicrobial stewardship is part of the sepsis story in primary care



The AHSN Network

NHS Improvement

Question and Answer Session

Greater Manchester & Eastern Cheshire

Patient Safety Collaborative

Health Innovation Manchester

March 2019



The AHSN Network

NHS Improvement

Danaher -

A global science and technology innovator committed to helping customers solve complex challenges and improving quality of life around the world

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March 2019



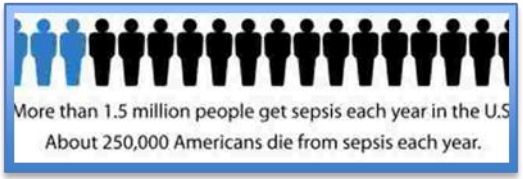


Danaher Diagnostics Sepsis Initiative

March 2019

The Pain of Sepsis

Sepsis treatment is costly ($22k/patient) and deadly (1 in 3 deaths at hospitals)



SEPSIS BY THE NUMBERS

26 MILLION people worldwide are affected by sepsis[1]

1.6 MILLION diagnoses each year in the U.S.[1]

3rd LEADING CAUSE OF DEATH claiming over 258,000 lives in the U.S. every year[2]

25-30% MORTALITY RATE Sepsis kills more individuals than prostate cancer, breast cancer, and HIV/AIDS combined[3,4]

2/3 OF SEPTIC PATIENTS enter the health system via the Emergency Department[5]

#1 CAUSE of hospital readmission in U.S.[3]

>$24 BILLION in annual costs in the U.S.[4]

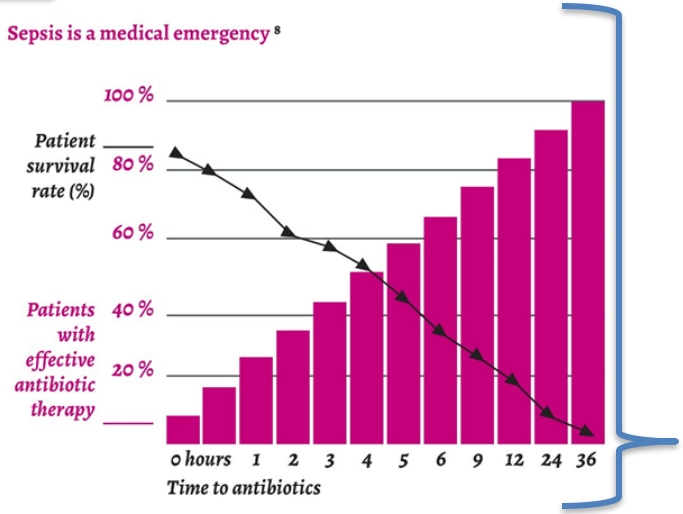
#1 COST of hospitalization in the U.S.[6]

1.5% increase in incidence of sepsis **EACH YEAR**[7]

19% of sepsis patients are rehospitalized within **30 DAYS**[8]

19% INCREASE in spending from 2011-2019[4]

ANTIBIOTIC ADMINISTRATION decreases the likelihood of death by **7.6% PER HOUR**[9]



How the Sepsis Initiative Fits Within Danaher



30+ Operating Companies
67,000+ Associates Worldwide
Shared purpose: “Realizing life’s potential”

Danaher is a global science and technology innovator committed to helping customers solve complex challenges and improving quality of life around the world. Danaher is ranked 162nd on the 2018 Fortune 500 list with trusted brands that hold unparalleled leadership positions in **diagnostics**, life sciences, dental and environmental and applied solutions.

Danaher **Diagnostics Platform** Companies

Leica BIOSYSTEMS
BECKMAN COULTER
Cepheid
RADIOMETER
HEMOCUE

Technology
Talent
Process

Sepsis Initiative



Established in 2017, the Sepsis Initiative Mission is to Solve Critical Unmet Needs in Sepsis

Sepsis Initiative Timeline

2017 ***Danaher Dx Sepsis Initiative Founded***

Realization that we have multiple companies with existing sepsis products eager to come together to make a difference in sepsis; Cross-Functional Cross-Operating Company Team Deployed

2018

A year of listening and ideating…

- talked to 100+ healthcare professionals about top unmet needs in sepsis
- Identified technologies that would move the needle on these unmet needs
- Derived solution concepts for how to leverage technologies to solve needs

2019

A year of execution….

- 5 Ongoing Sepsis Clinical Studies in 4 Countries
- 2 Sepsis Machine Learning Algorithm Pilots in US
- 3 New Sepsis Product Lines in Development
- 2 Sepsis Products Nearing FDA Approval

2020+

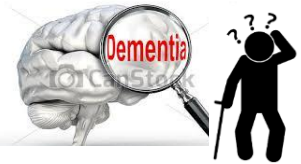
Expand on prior year activities…
scope broadening to sepsis in distributed healthcare settings outside hospital

Some Key Learnings So Far

- **Sepsis is heterogeneous**; analogous to cancer in how diverse patient subpopulations are (need a precision approach: e.g. host immune response)
  - Highly unlikely that one "Magic Bullet" Diagnostic Biomarker Exists
  - Game changing solution will be one that can "simplify the complexity" of leveraging multiple biomarkers, clinical assessments, vital signs, and comorbidities to identify sepsis faster and with higher accuracy, while promoting clear communication between hospital staff and seamlessly integrating into existing hospital workflow



- **Biggest source of pain** is difficulty to detect sepsis early in unclear clinical presentations such as where sepsis may not even be suspected (e.g. young who look robust, elderly with dementia, fever of unknown origin)

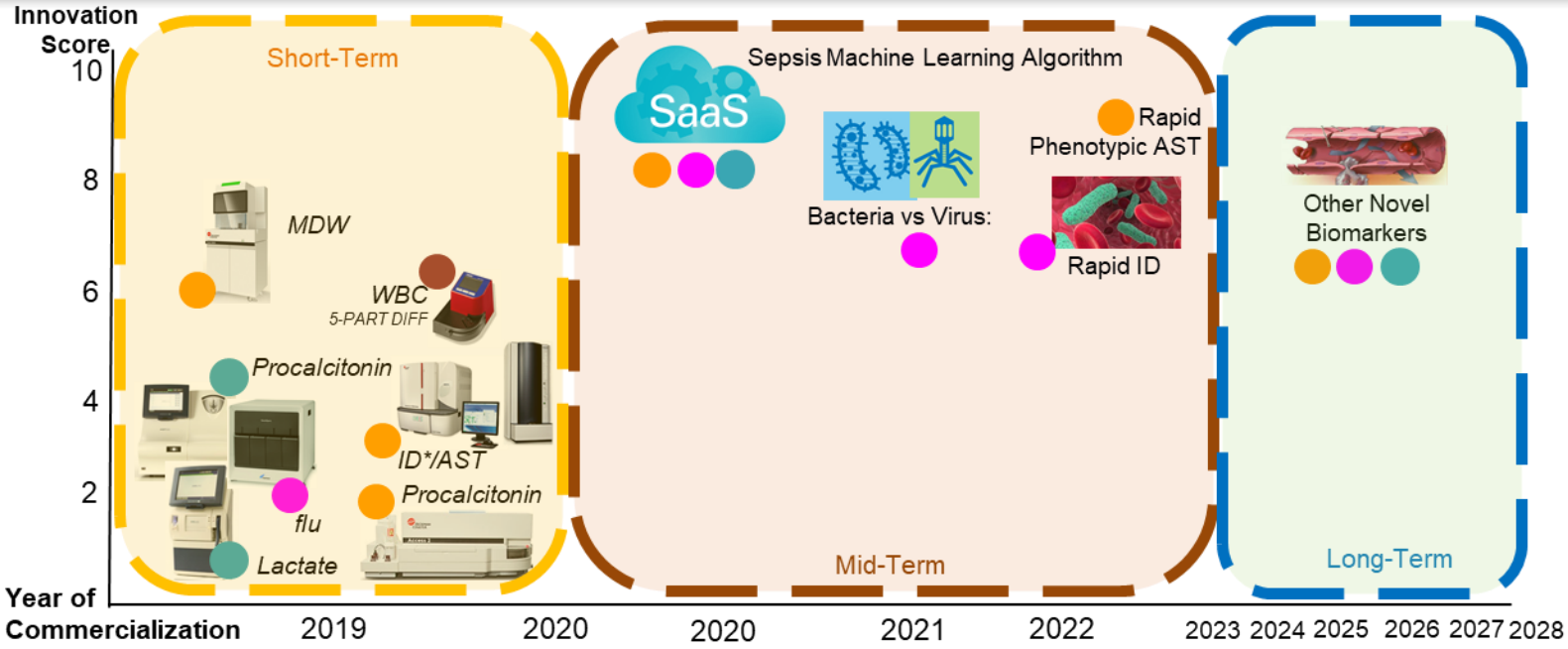


- Respiratory infection during **"flu" season** confuses suspected sepsis diagnosis and can result in Emergency Department crowding, spreading physicians thin so that less time can be spent on true high acuity patients



Drivers of clinician pain vary by geography but they often share the same "clinical pain phenotype"

Danaher Diagnostics Evolving Sepsis Portfolio (as of March 2019):



Innovation Score

≤4 Core (everyone has)

5-6 Adjacent

7-10 Transformational (game changing)

DHR Dx Operating Company

HemoCue · BEC Dx · Radiometer · Cepheid

*ID via Bruker partnership


TheAHSNNetwork
NHS
Improvement
Lunch & Networking
Greater Manchester &
Eastern Cheshire
Patient
Safety
Collaborative
Health
Innovation
Manchester
March 2019