



Universiteit Antwerpen
| Faculteit Geneeskunde en
Gezondheidswetenschappen

BE-SNAP advies voor een Belgisch Sepsis Nationaal Actie Plan

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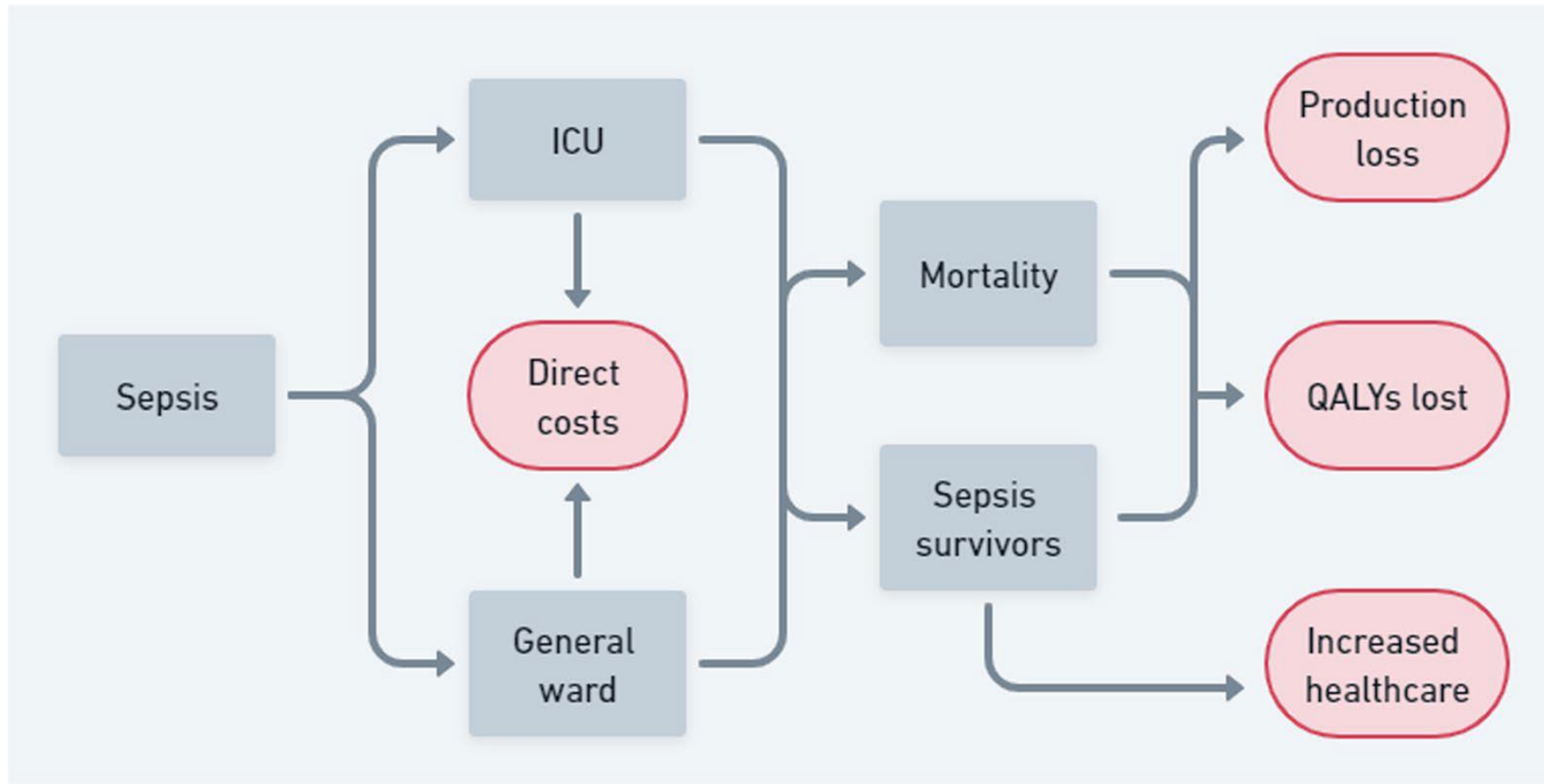


What sepsis survivors tell us...



www.sepsibel.be

The 'cost' of sepsis



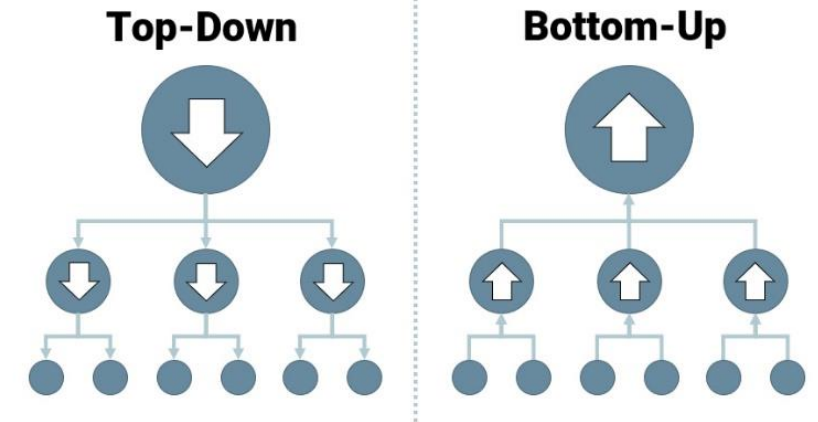
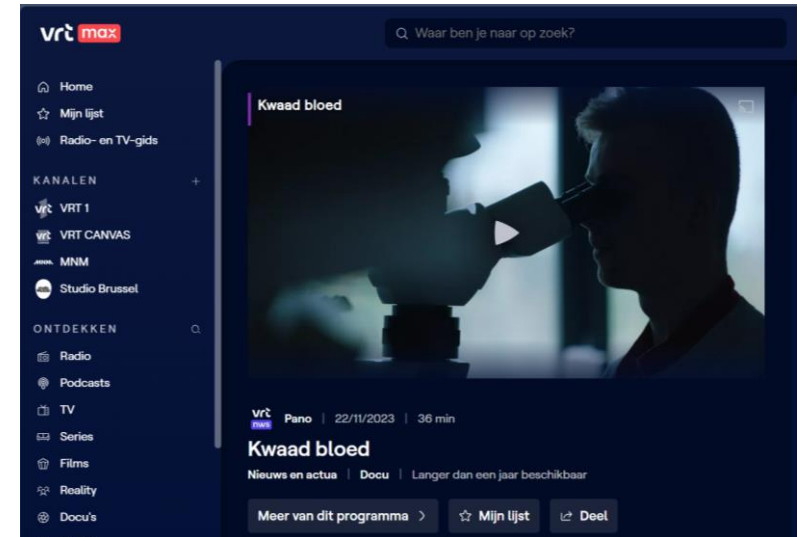
Sepsis burden in Belgium: estimates

Estimates based on the Global Burden of Diseases study and extrapolation of Dutch study data:

- **incidence of sepsis ~40,952 (95% CI 31,938 - 54,451) cases each year**
- **mortality of sepsis in Belgium of 7,675 (95% CI 6,421-9,089) premature deaths per year**
- **annual loss of 38106 QALYs (47% of which through premature mortality)**
- **annual cost between €277 million and €4.3 billion,**

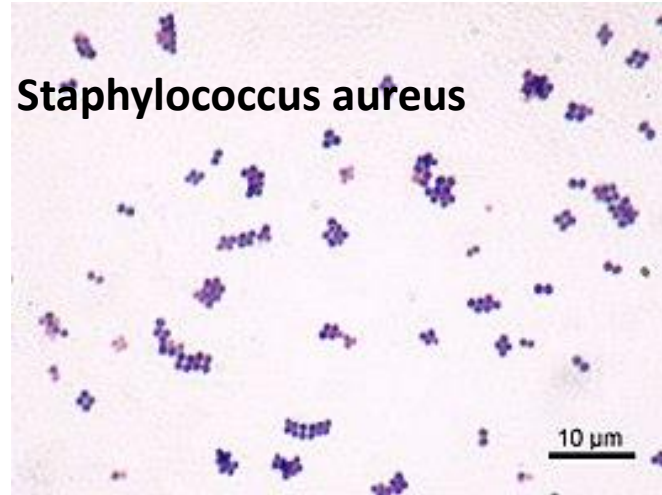
How to decrease the burden of sepsis in Belgium: towards a national action plan

- Mandate by Min Vandenbroucke 23/11/2023: *‘Can you make a scientific recommendation as a base for a national sepsis plan in 4-6 months?’*
- Establishment of working group with representation of
 - relevant scientific societies (Besedim, SIZ/SIZ-nursing, Netwerk Verpleegkunde, AFIU, VVSV, BVIKM, BVK, BVGG, Domus Medica, BICs)
 - public health actors (Sciensano, HOST, KCE, FOD)
 - other (Zorgnet ICURO, Sepsibel),...
- Building further on earlier bottom up group work (2019-2022)
- Overall aim: **to describe evidence based interventions to decrease burden (incidence and impact) of sepsis in Belgium**

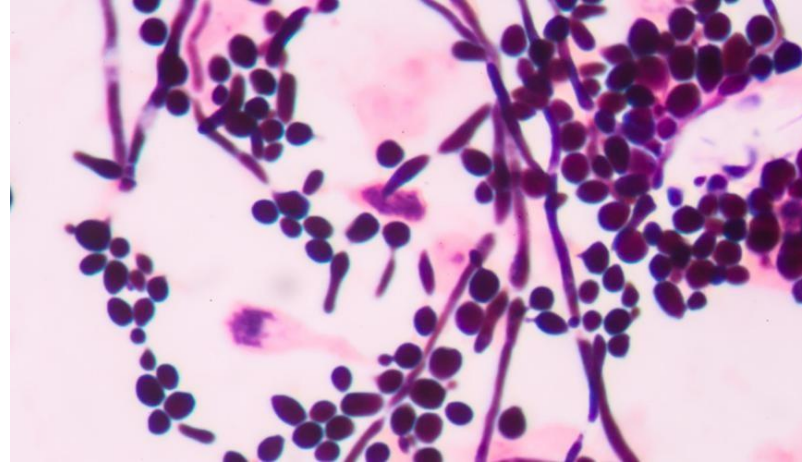


Mortality ranging between 10-40%, depending on patient, pathogen and disease

Bacterial infections



Fungal infections



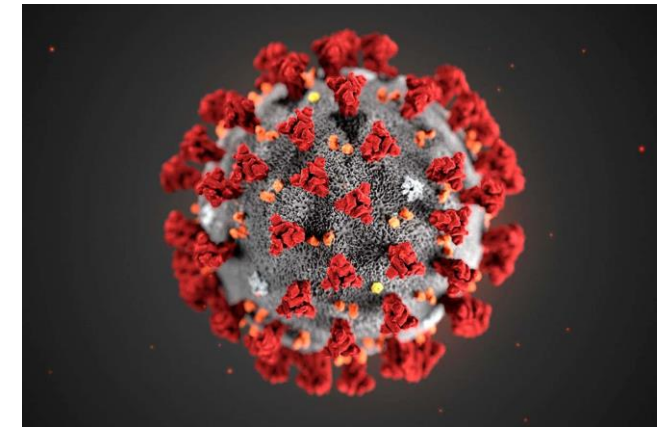
Parasitic infections



Mycobacterial infections



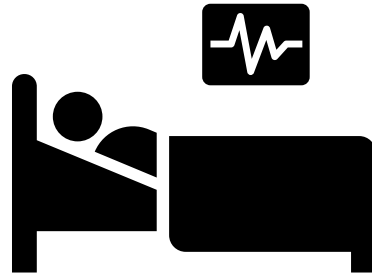
Viral infections



3 distinct settings where sepsis may occur



Home
(community-acquired)



Hospital
(health care-associated)



Long term care facility

Who is at risk for (community-acquired) sepsis?

Community-acquired sepsis	
Common infection sources	Risk groups*
skin and soft tissue infections e.g. wounds, skin abscesses	extremes of age (young children, elderly)
urinary tract infections	pregnant women
respiratory tract infections e.g. pneumonia, COVID-19	persons with underlying chronic conditions e.g. diabetes, cancer
meningitis	persons with underlying immunedepression e.g. HIV, setroids, cancer treatment,...
intra-abdominal infections e.g. appendicitis, bowel perforation	persons who recently survived earlier sepsis episodes
dental infections	persons who were recently admitted in hospital and/or have indwelling device e.g. vascular or urinary catheters
	persons with addictions and other serious mental health problems
	persons with limited education and/or difficult living contexts e.g. living in poverty, homeless, prisoners,...
	<i>* in all risk groups (except pregnant women), men appear to have a higher risk to develop sepsis</i>

What influences the burden of sepsis?

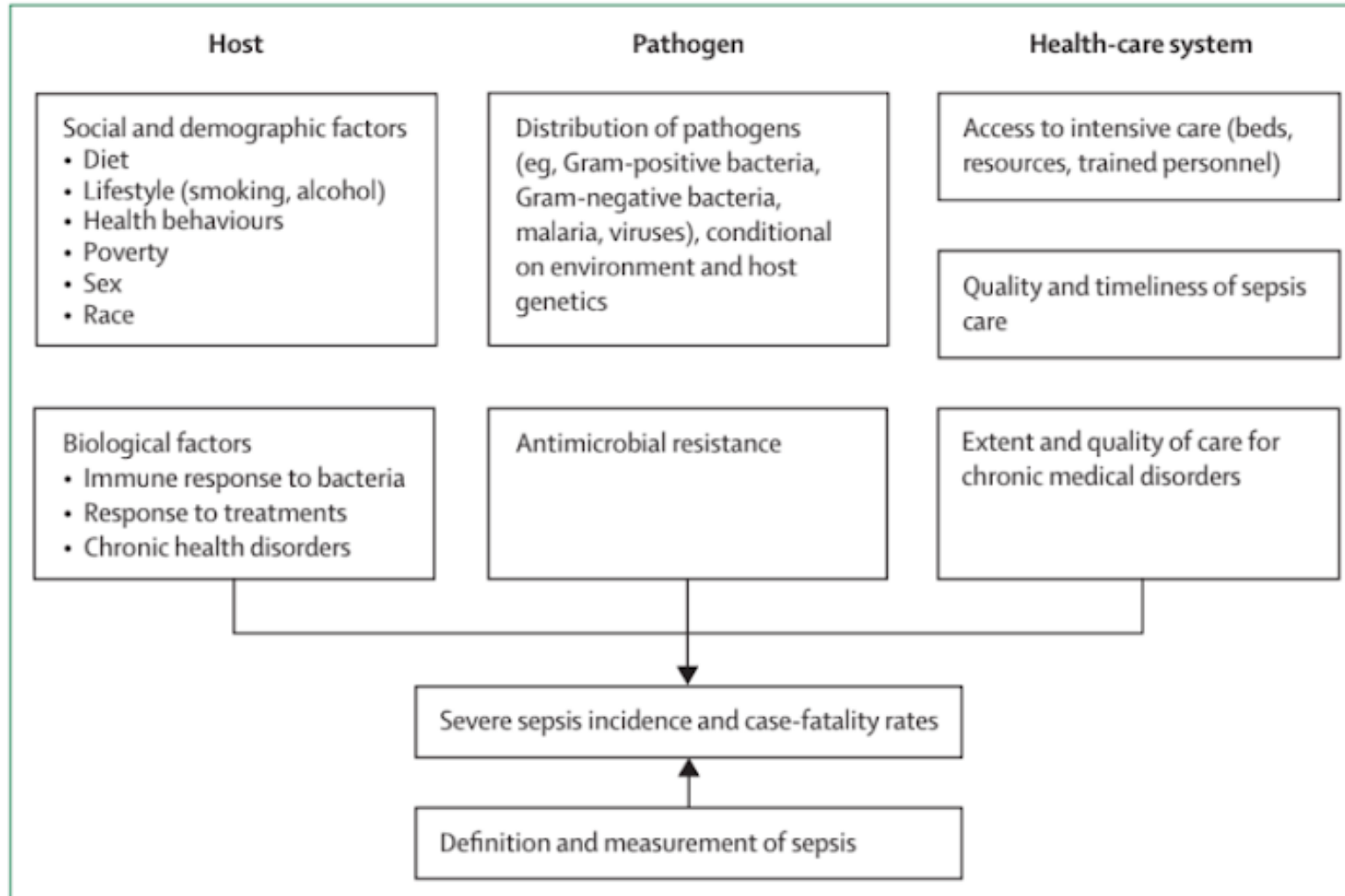


Figure 2: Factors determining the incidence and case-fatality rate of severe sepsis

Adapted from Octavia Peck-Palmer, with permission.



FIGURE 2

Incidence rate of bloodstream infections by age, sex, and year, southern Sweden, 2006–2019 (n = 54,498)

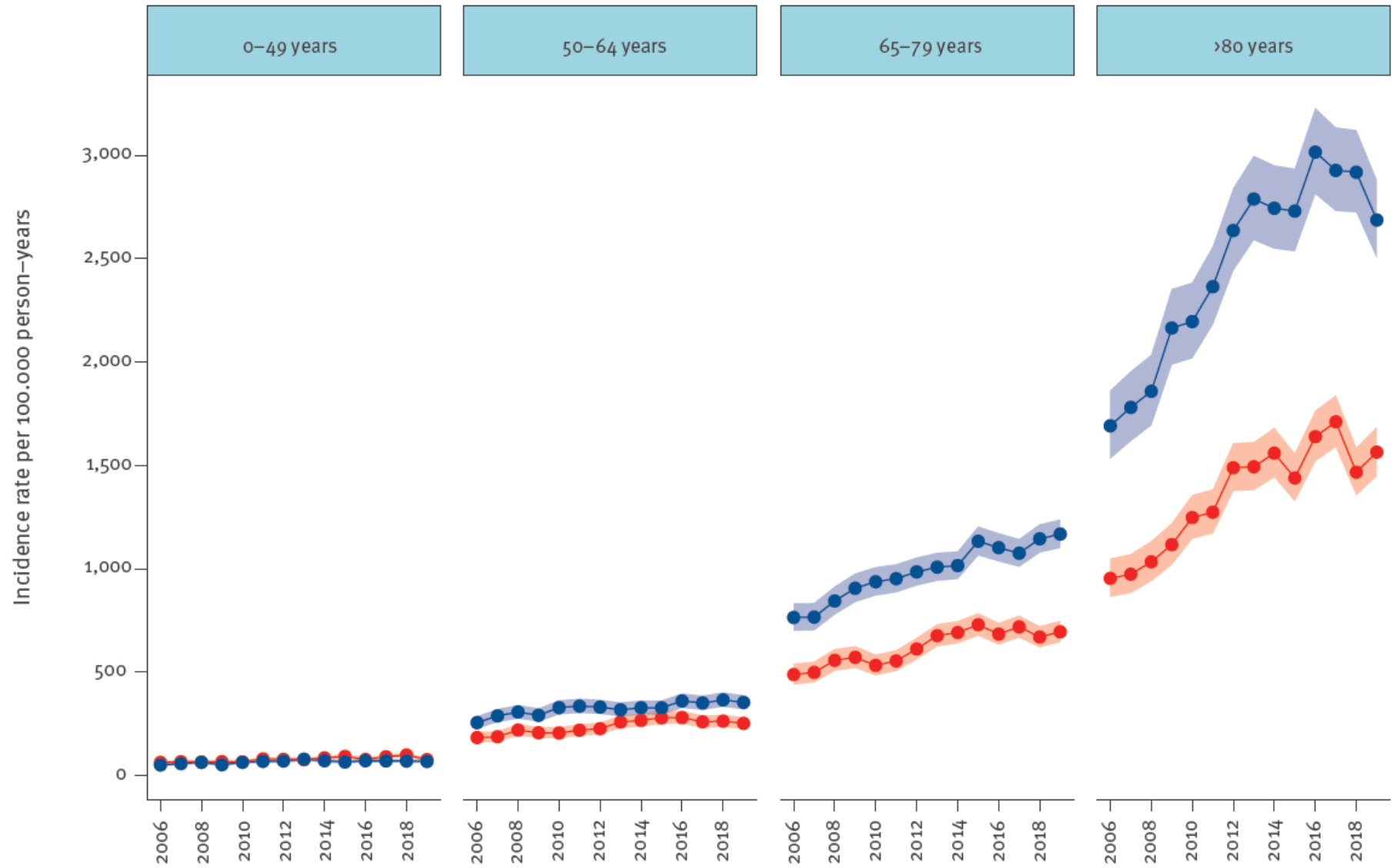
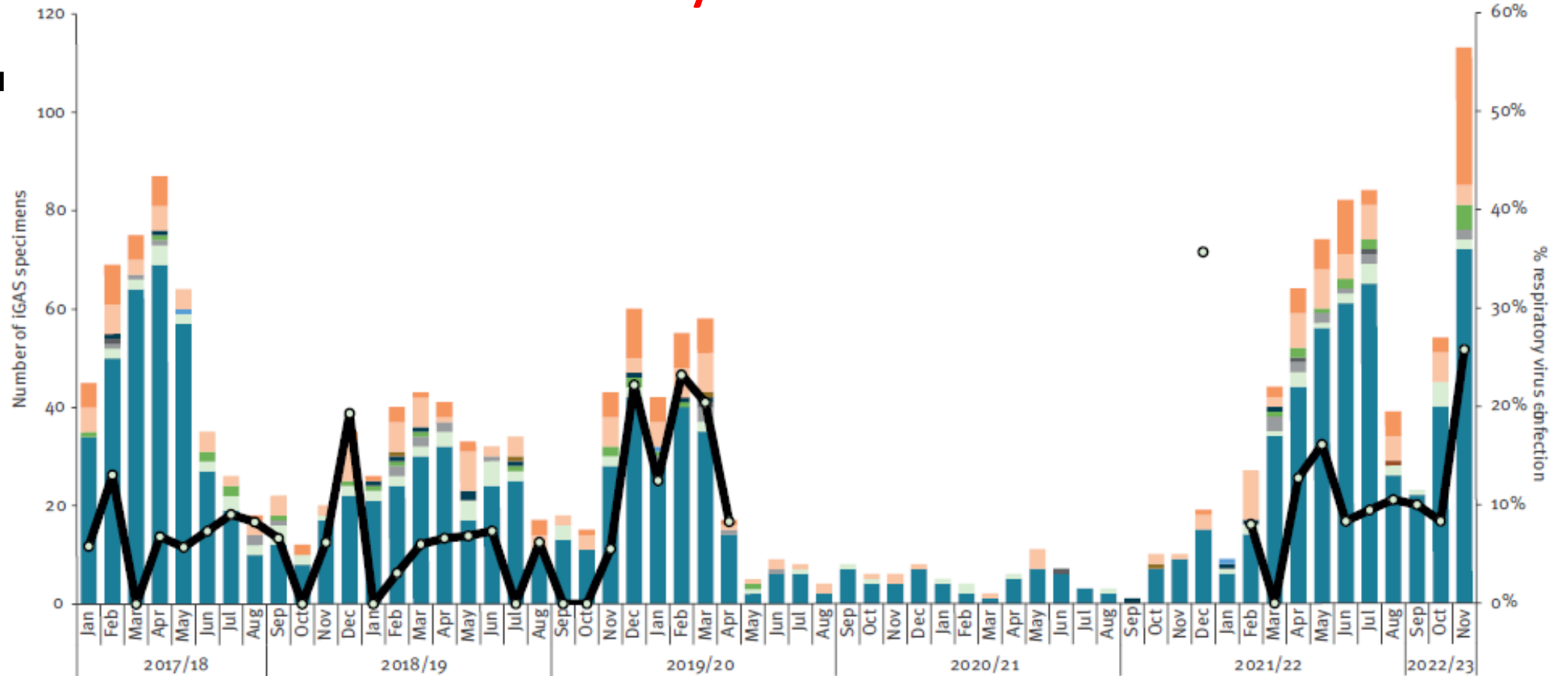




FIGURE 3

Monthly number of iGAS infections in <15-year-olds by specimen type and percentage with respiratory virus co-infection^{ab} (within +/- 1 day), England, January 2018^c–November 2022 (n = 1,830)

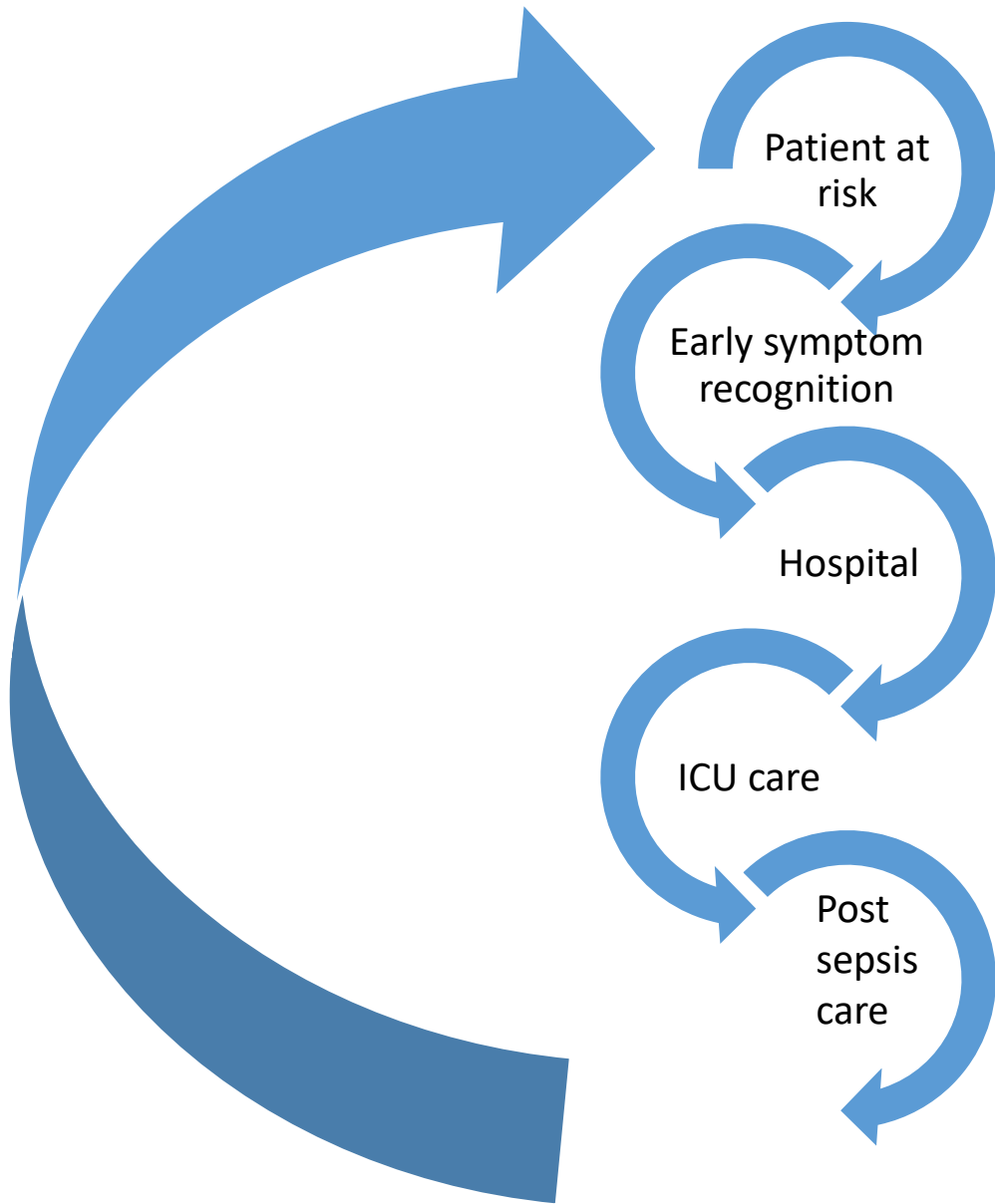
Mortality 5-8%!

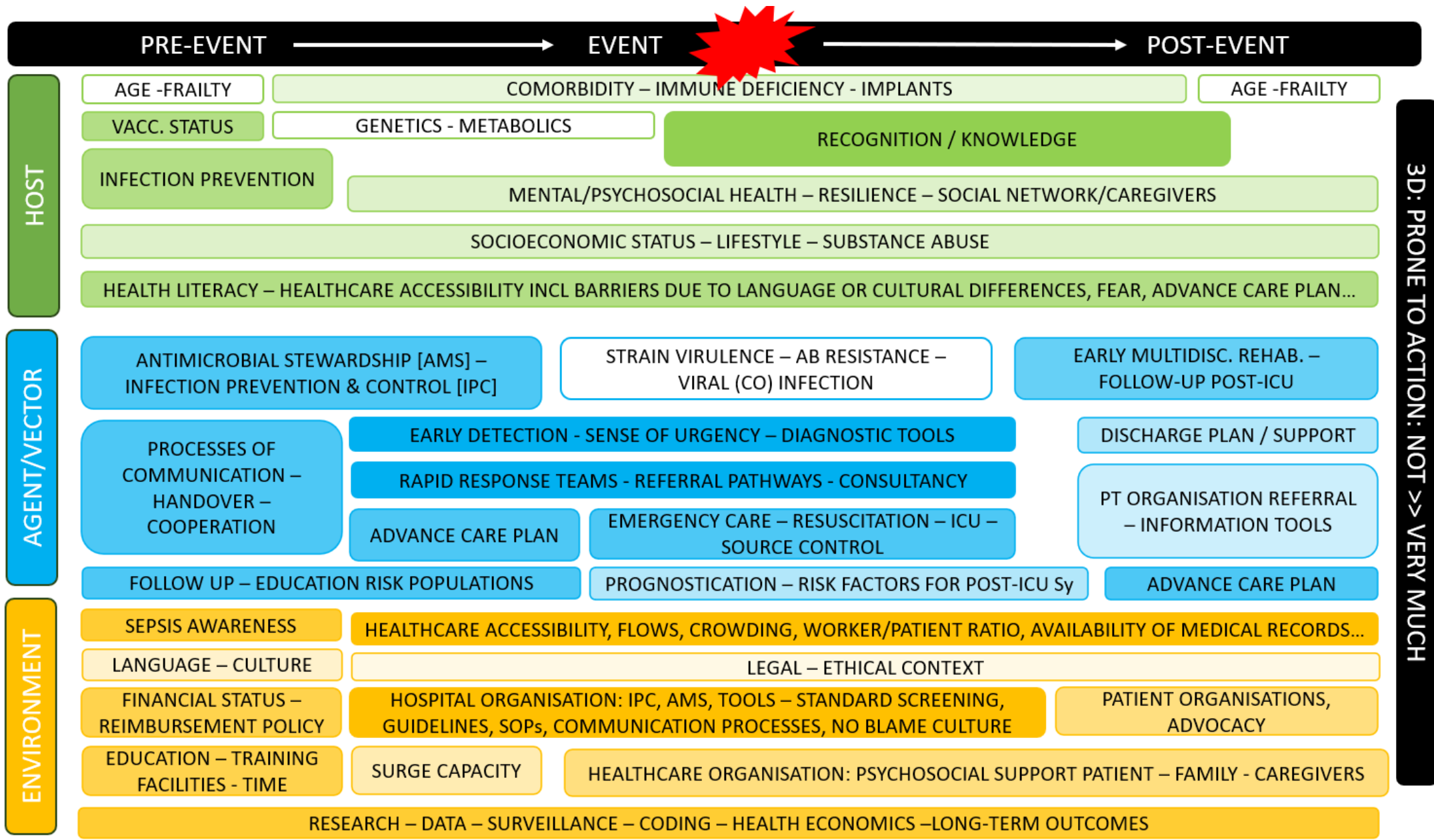


Working principles

- Multidisciplinary
- Includes all steps in the patient itinerary
- As much as possible buy-in and ownership of relevant scientific societies
- Strengthen interface with existing plans and activities (strengthen, expand, implement, 'make it happen',...)
 - NAP-AMR, HOST
 - IGGI
 - www.mijnoudedag.be







7 domains with potential impact on sepsis burden (incidence + outcome)

1. Awareness and education of public, patients, HCW
2. Prevention of sepsis and safeguarding treatment options (IPC and AMS)
3. Early warning & rapid response systems
4. Early effective treatment
5. Post-sepsis care trajectory
6. Advanced care planning
7. Surveillance, registration and research

Proces

- December-March 2024: literature review (systematic reviews, guidelines,...)
- January-March 2024: recommendations by working group
- February -April 2024: 2 plenary sessions → joint set of recommendations
- 31/5/24: Manuscript to Minister
- June 2024:
 - external reviewers
 - discussion at RMG
- July
 - Discussion FOD & cabinet Vandenbroucke → connection with Bapcoc
 - ... to be continued...

1. Improving awareness and knowledge

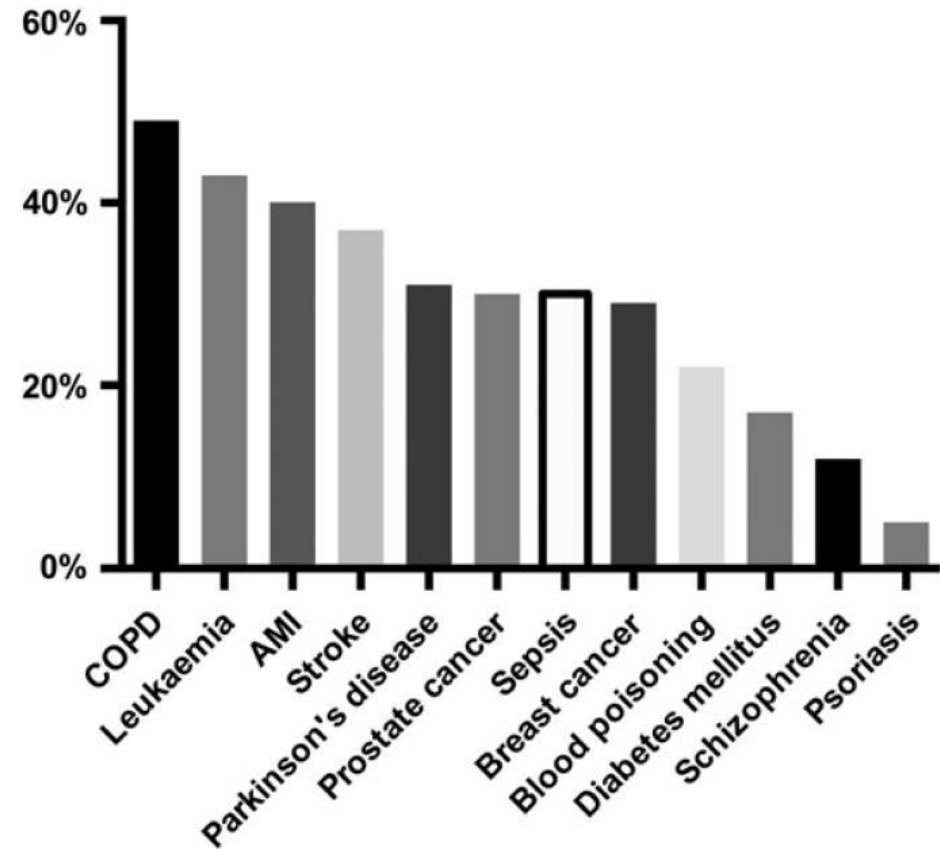
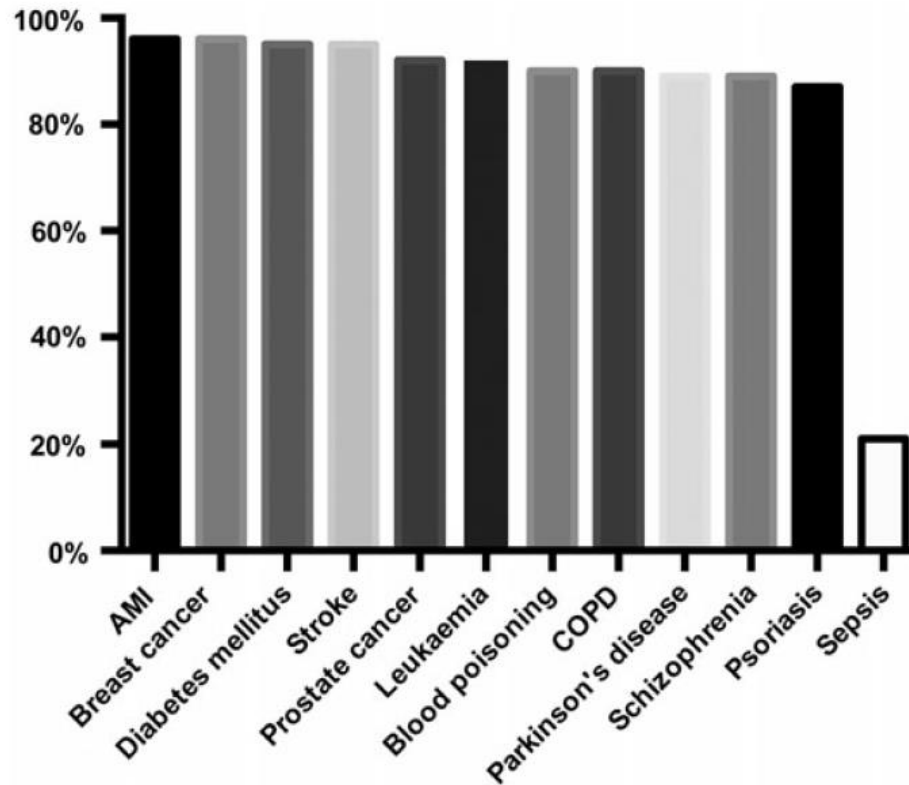


Figure 2. Respondents' estimation of mortality (mean) of the listed conditions. Only those who have heard of each condition estimated the mortality. Abbreviations: AMI, acute myocardial infarction; COPD, chronic obstructive pulmonary disease.

From abstract concept to concrete situations

Could it be
sepsis?

People with sepsis
get very sick, very
quickly and need
medical help fast.



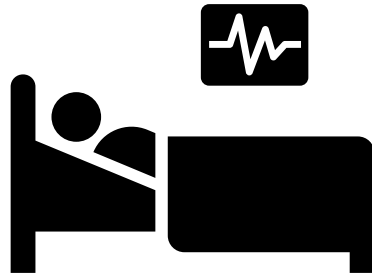
Could it be
sepsis?

Sepsis makes kids
very sick, very quickly.
Know the symptoms.
Get help fast.



2. Prevention of sepsis

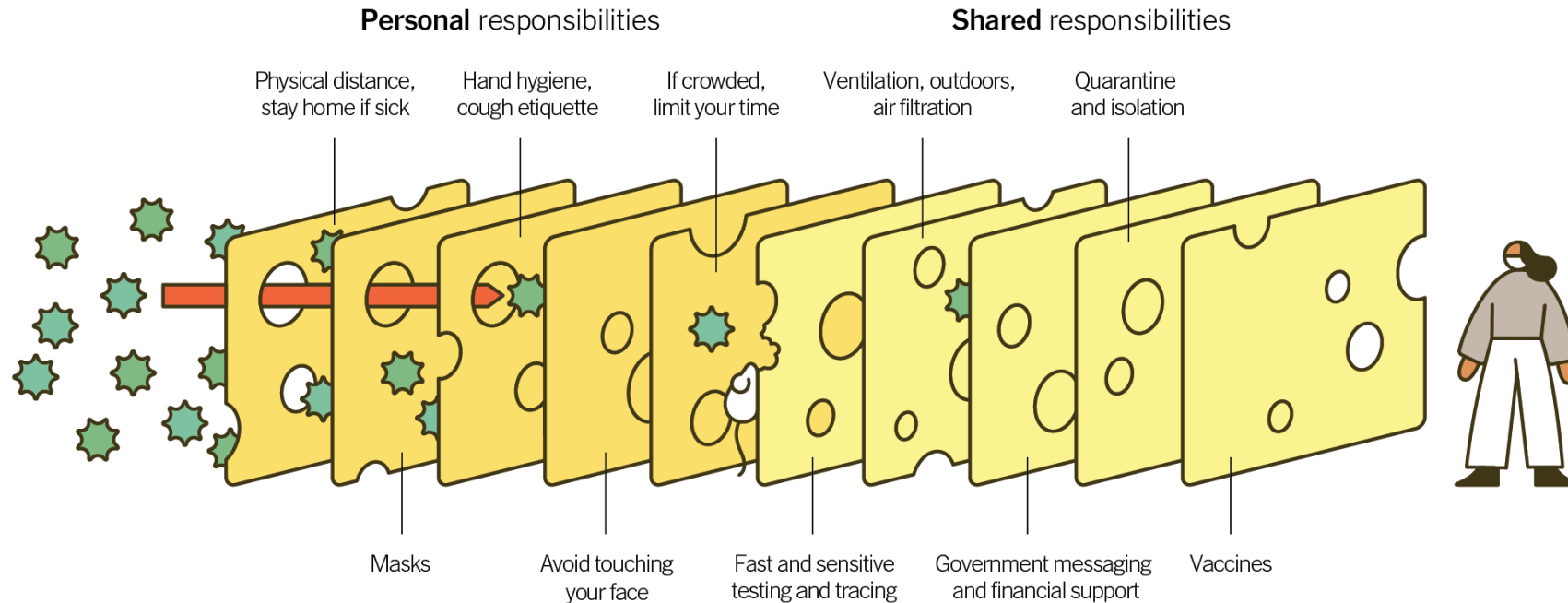
- In the community
- In the acute health care setting
- In the long term care facility



Prevention is combining layers of Swiss cheese!

Multiple Layers Improve Success

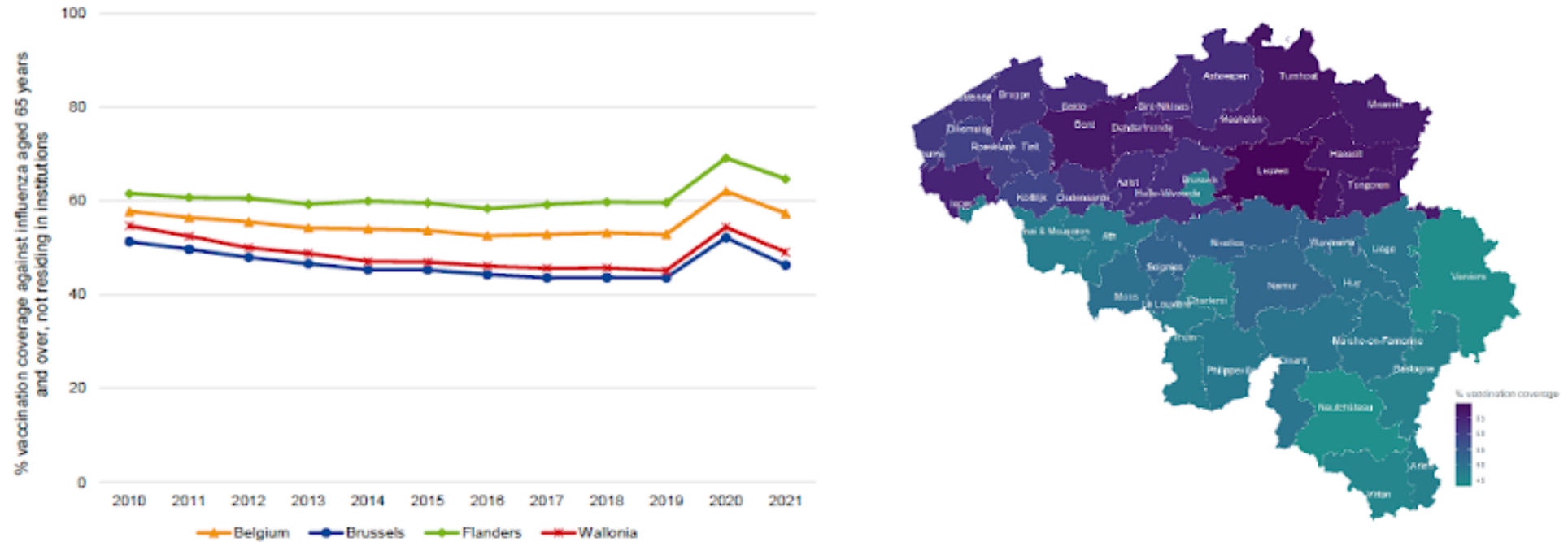
The Swiss Cheese Respiratory Pandemic Defense recognizes that no single intervention is perfect at preventing the spread of the coronavirus. Each intervention (layer) has holes.



Source: Adapted from Ian M. Mackay (virologydownunder.com) and James T. Reason. Illustration by Rose Wong

Increase vaccination status and vaccination confidence

Figure 1 – Coverage of vaccination against influenza in people aged 65 years and over, by region (2010-2021) and by district (2021)



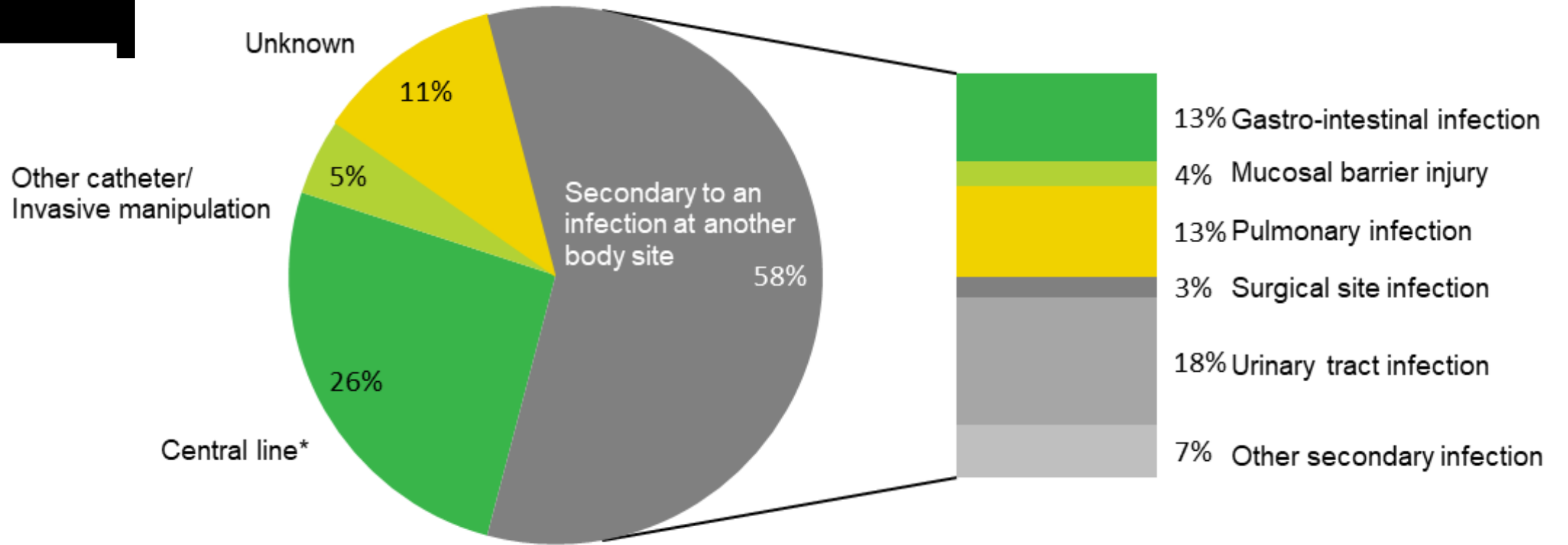
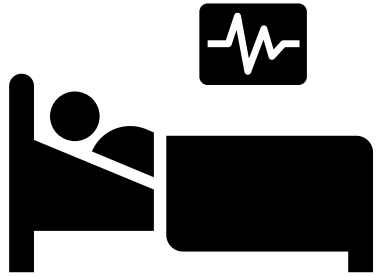


Figure 4: Source of hospital-associated bloodstream infections, Belgium 2021 (* Includes 'confirmed', 'probable' and 'possible' central line associated bloodstream infection)

In other words, the WHO multimodal improvement strategy addresses these five areas:



1. Build it (system change)



- What infrastructures, equipment, supplies and other resources (including human) are required to implement the intervention?
- Does the physical environment influence health worker behaviour? How can ergonomics and human factors approaches facilitate adoption of the intervention?
- Are certain types of health workers needed to implement the intervention?
- Practical example: when implementing hand hygiene interventions, ease of access to handrubs at the point of care and the availability of WASH infrastructures (including water and soap) are important considerations. Are these available, affordable and easily accessible in the workplace? If not, action is needed.

2. Teach it (training & education)



- Who needs to be trained? What type of training should be used to ensure that the intervention will be implemented in line with evidence-based policies and how frequently?
- Does the facility have trainers, training aids, and the necessary equipment?
- Practical example: when implementing injection safety interventions, timely training of those responsible for administering safe injections, including carers and community workers, are important considerations, as well as adequate disposal methods.

3. Check it (monitoring & feedback)



- How can you identify the gaps in IPC practices or other indicators in your setting to allow you to prioritize your intervention?
- How can you be sure that the intervention is being implemented correctly and safely, including at the bedside? For example, are there methods in place to observe or track practices?
- How and when will feedback be given to the target audience and managers? How can patients also be informed?
- Practical example: when implementing surgical site infection interventions, the use of key tools are important considerations, such as surveillance data collection forms and the WHO checklist (adapted to local conditions).

4. Sell it (reminders & communication)



- How are you promoting an intervention to ensure that there are cues to action at the point of care and messages are reinforced to health workers and patients?
- Do you have capacity/funding to develop promotional messages and materials?
- Practical example: when implementing interventions to reduce catheter-associated bloodstream infection, the use of visual cues to action, promotional/reinforcing messages, and planning for periodic campaigns are important considerations.

5. Live it (culture change)



- Is there demonstrable support for the intervention at every level of the health system? For example, do senior managers provide funding for equipment and other resources? Are they willing to be champions and role models for IPC improvement?
- Are teams involved in co-developing or adapting the intervention? Are they empowered and do they feel ownership and the need for accountability?
- Practical example: when implementing hand hygiene interventions, the way that a health facility approaches this as part of safety and quality improvement and the value placed on hand hygiene improvement as part of the clinical workflow are important considerations.

3. Early warning systems

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	

NEWS2 score
National early warning score

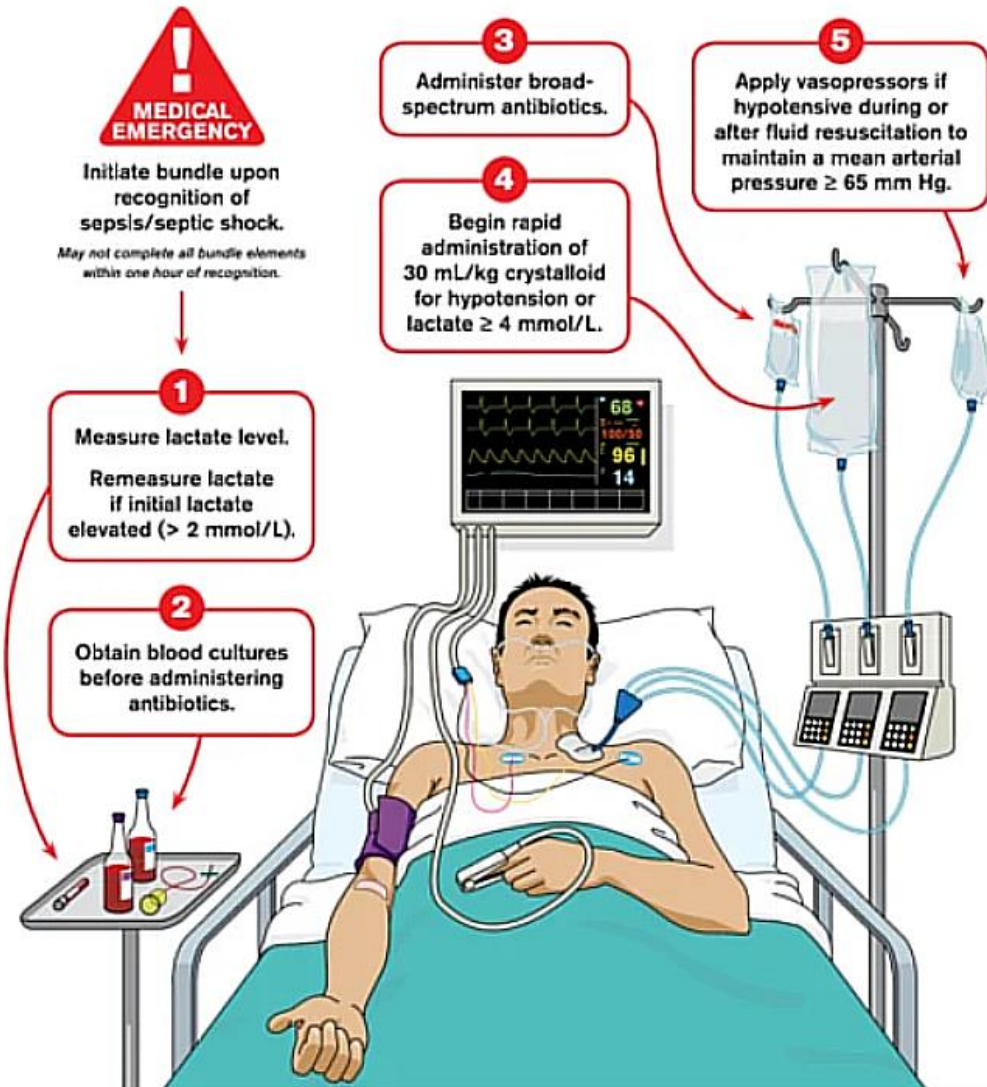
Mobile/digital NEWS-screening



Hour-1 Bundle

Initial Resuscitation for Sepsis and Septic Shock

Surviving Sepsis Campaign



4. Balance early effective treatment with AMS

WWW.SEPSISTRUST.ORG
DESIGN BY HUGO BEAUMONT

THE SEPSIS SIX

1. GIVE O₂ TO KEEP SATS ABOVE 94%
2. TAKE BLOOD CULTURES
3. GIVE IV ANTIBIOTICS
4. GIVE A FLUID CHALLENGE
5. MEASURE LACTATE
6. MEASURE URINE OUTPUT

THE UK SEPSIS TRUST

Empiric Broad-Spectrum Therapy, Risk for Driving Resistance and The Need for De-escalation

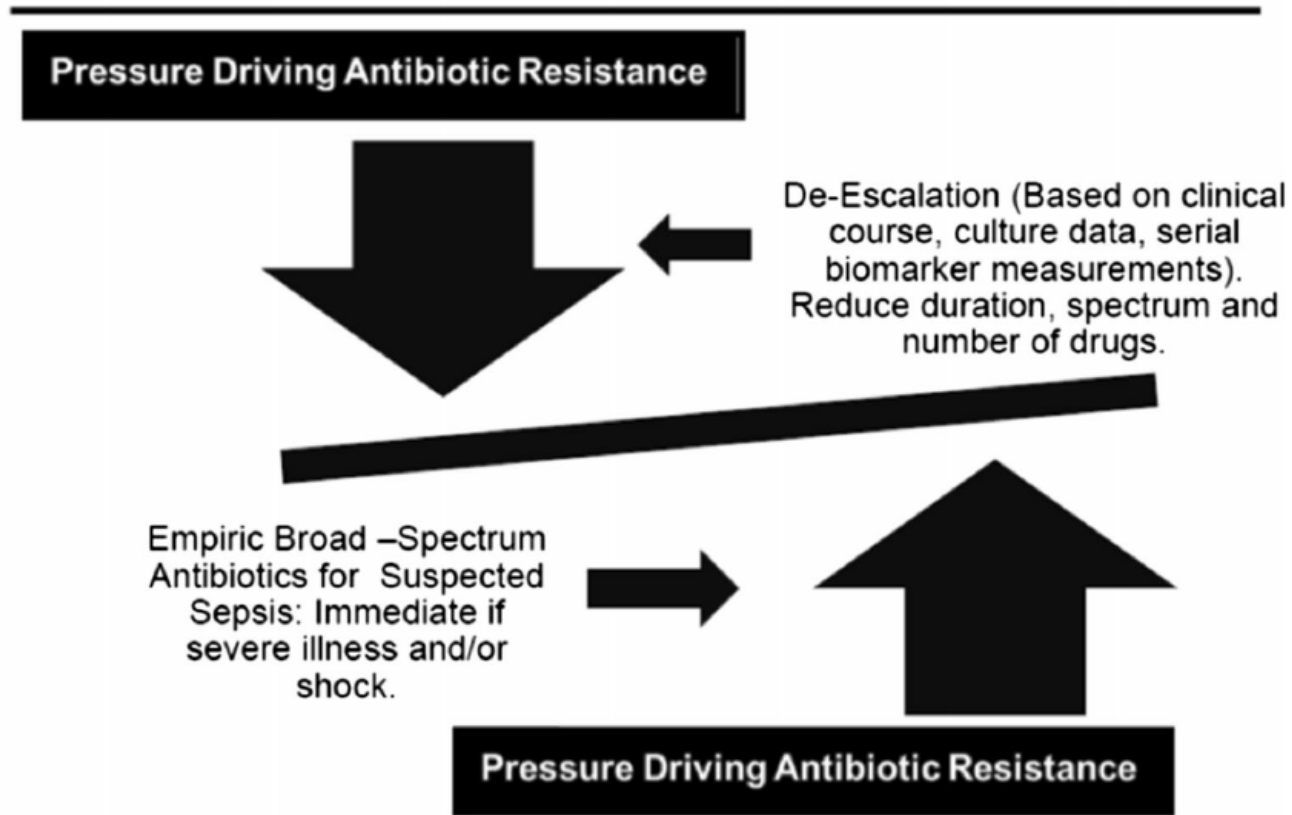


Fig. 1 The need for immediate broad-spectrum empiric antimicrobial therapy for selected patients with severe sepsis may be life-saving, but may also put pressure to overuse antibiotics and drive antibiotic resistance. Thus, this approach comes with the obligation to try to control resistance by de-escalating therapy once serial clinical, microbiologic and laboratory data become available. De-escalation can be in the form of shorter duration of therapy, less broad-spectrum agents, fewer drugs, or a combination of these interventions

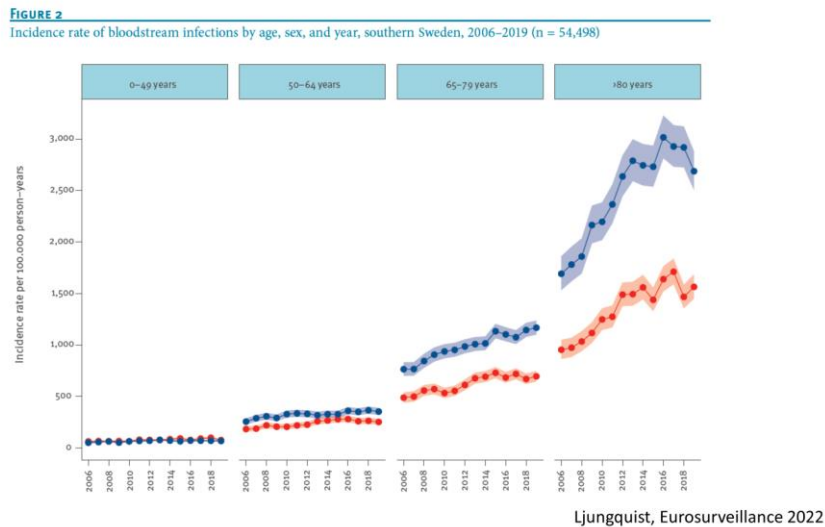
5. Organize rehabilitation of post-sepsis in a (transmural) care trajectory

- What is known on the burden and risk factors of post-sepsis sequelae (physical, mental health/wellbeing, neurocognitive functioning,..)
- How can discharge planning and transmural post-sepsis care be improved and more patient-friendly? (Includes psychosocial support (for victim, caregivers...))



6. Strengthen advanced care planning

- What are the ethical considerations at stake in prevention/management of sepsis in very frail persons, including best practices on advance care planning (a priori and ad hoc)
- *'recovery from sepsis is equal to a marathon training – could you physically still do this...? How do you see your last days?'*



ALS IK MIJN VERSTAND
VERLIES, WIL IK DAT
MIJN KEUZES
GERESPECTEERD WORDEN.

IK WIL NIET DAT MIJN
LEVEN LATER KUNSTMATIG
VERLENGD WORDT.

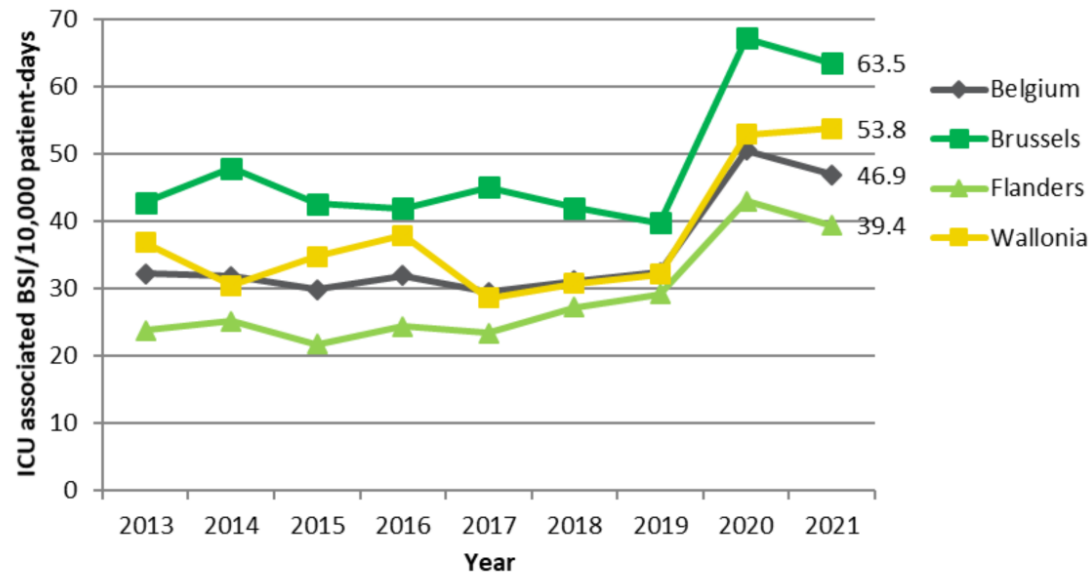
ALS HET MOMENT
DAAR IS, WIL IK THUIS
STERVEN INDIEN
MOGELIJK...

PRAAT TIJDIG OVER JE OUDE DAG

Het zijn levensbelangrijke onderwerpen.

7. Generate own data and coordinate research on sepsis in Belgium

Mean incidence of intensive care unit-associated bloodstream infections, by region, Belgium 2013-2021 (BSI, bloodstream infections; ICU, intensive care unit)



Many thanks to...

- minister Frank Vandenbroucke for offering the community of health care workers and patients the opportunity to collaborate in this new plan
- Ilse Malfait, Patrick Vandevoorde, Jan Dewaele, Ken Dewitte, Harlinde Peperstraete, Annelies Mondelaers and all participants in the working groups for their motivation and intense work, despite many other responsibilities!
- our colleagues and relatives for their patience during many hours of work at this plan
- FOD Volksgezondheid for their support, and for taking it from here!
- BD for providing a limited unrestricted educational grant

The Be-SNAP working group

30/5/2024