



European Sepsis Report 2021



European
Sepsis
Alliance

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FOREWORD

The emergence of the SARS-CoV-2 virus in December 2019 and the COVID-19 pandemic has presented the world with the most serious health threat in living memory. The resultant pandemic has caused millions of deaths and unprecedented social and economic disruption.

The response to the pandemic has also been unprecedented: the global scientific community has come together to produce robust research evidence and novel vaccines in record time. Mass vaccination programs are now underway, and they are proving their effectiveness in combating the spread of the virus. Despite its weaknesses and some hesitation in the initial response by the member states, Europe has shown the strength of the Union and the capacity to share resources and solutions.

Europe must have the same vigorous response regarding sepsis, and here is why: sepsis is a common condition and the main cause of deaths for COVID-19 patients. 78% of COVID-19 patients treated in ICU and around 34% in the general ward¹ meet sepsis criteria: multi-organ dysfunction, including acute respiratory distress syndrome (ARDS), vasodilatory shock and other common manifestations that also characterize sepsis.

Sepsis can be caused by any infection. It is often a consequence of hospital-acquired infections (HAIs), although the vast majority of cases occur in the community. Anti-microbial resistance (AMR) hampers the treatment of sepsis in the case of bacterial infections, which cause the vast majority of sepsis cases.

Globally, sepsis affects at least 49 million people every year, causing 11 million deaths, and about half of survivors suffer long term consequences. Very similarly to long-COVID symptoms, the post-sepsis syndrome effects can be psychological, neurological but also physical, including amputations.

In Europe, the death toll is estimated to be 680,000 per year, but because of the lack of accurate records and reporting, this is certainly an underestimation. Amongst the 3.4 million cases, elderly people, neonates and children are the most affected population group.

Beside the effects on people's life, sepsis has also an indirect impact on the European economy and a direct one on health systems' budget. For example, the average treatment for a single patient in France costs about € 16,000² and in Germany sepsis treatment amounts to about 3% of the total healthcare budget (i.e., more than € 9 billion)³.

¹ Karakike E, Giamarellos-Bourboulis EJ, Kyprianou M, et al: Coronavirus Disease 2019 as a Cause of Viral Sepsis: A Systematic Review and Meta-Analysis. *Crit Care Med* 2021.

² Dupuis, C., Bouadma, L., Ruckly, S. et al. Sepsis and septic shock in France: incidences, outcomes and costs of care. *Ann. Intensive Care* 10, 145 (2020). <https://doi.org/10.1186/s13613-020-00760-x>

³ Fleischmann, C., Hartmann, M., Hartog, C. et al. Epidemiology of Sepsis in Germany: Incidence, Mortality And Associated Costs of Care 2007-2013. *ICMx* 3, A50 (2015). <https://doi.org/10.1186/2197-425X-3-S1-A50>

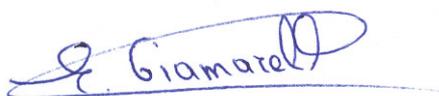
However, sepsis can be prevented and treated effectively, with infection management programs, research, awareness-raising, education and training.

In 2017 the World Health Assembly approved the Resolution 70.7 urging member states to integrate sepsis in their public health systems. Despite some remarkable progress, to date only a limited number of European countries have made significant steps in this direction.

European and national institutions, health authorities, medical professionals, patient groups and all stakeholders involved must unite and share their voices in calling for and implementing sepsis action plans.

This report showcases some of the best practices that we hope will demonstrate what practical and cost-effective measures can be undertaken by European countries, regions and hospitals. We want to inspire other countries to take action and we call on the European institutions to allocate more resources to sepsis research, education and awareness, and facilitate the exchange of best practices. If your country or region's initiatives are not displayed in this report, please reach out to us, we will be happy to include them and enhance the sharing of experiences.

The European Sepsis Alliance's vision is a Europe free of sepsis. Let's work together and make this happen.



Evangelos J. Giamarellos-Bourboulis, ESA Chair

Daniela Filipescu, ESA Vice Chair

BELGIUM

Patient-led initiatives Sepsibel, Belgium

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Starting around May 2020, Michael Clarke and Carine Nelissen, two sepsis survivors introduced through the ESA, joined forces with others with the ambition to set up a Belgian Sepsis Action Plan and a Support Group. Michael and Carine set up Sepsibel, a group with the ambition to aggregate Belgian sepsis patients, share their stories and create a national movement around sepsis. With the help of her son, Carine has set up a Sepsibel website and Facebook page. In parallel with and in support of the Sepsibel initiative, another member of the team has engaged with a group of ICU and medical specialists - a sepsis expert reflection group. One of this group then had a meeting with Belgian politicians who have shown their support for the idea of a national action plan against sepsis. As a result, two federal MPs, Robby De Caluwé and Nathalie Muylle, proposed in April 2021 a resolution for a national action plan.

A round table with experts is also being organized on 13 September by Mr De Caluwé, to build consensus around such a national sepsis action plan.

Progress is being made in populating the Sepsibel website and gaining more public attention with stories appearing on the ESA webpage and in a specialized Belgian medical review, 'De Specialiste'.

FRANCE

Contact: Prof. Djillali Annane, djillali.annane@aphp.fr

Background

It is estimated that sepsis is responsible for nearly 57,000 deaths in France each year. The average cost is around € 16,000 per hospitalisation. France launched its sepsis plan in October 2019. It develops around three domains: increasing knowledge, providing better care, increasing surveillance coverage of sepsis.

What is happening

On increasing knowledge, the targets are the general public and the health professionals. For the general public France is implementing education programs for students on prevention of infections and sepsis as the main cause of death from infections. Sepsis courses are now mandatory in the curricula of nurses and medical students.

On better care, France is trying to enforce its vaccination program, having increased the number of mandatory vaccinations to 11 as a main tool to prevent infections and sepsis broadly speaking. The national health authority is developing clinical guidelines for sepsis including pre-hospital care (i.e., management by the general practitioners)

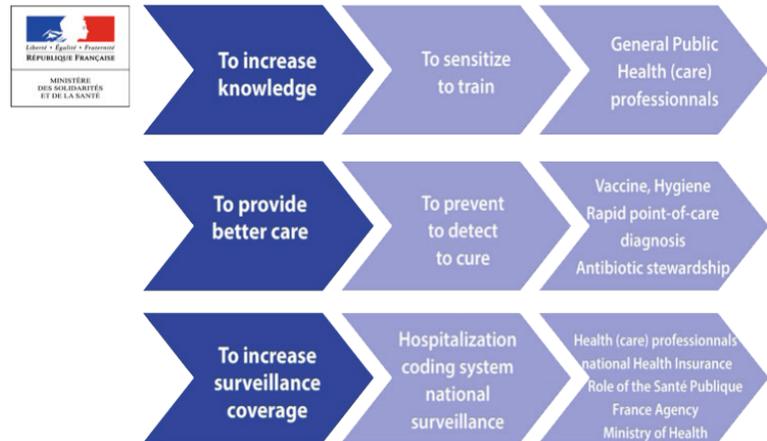
and post-acute care, until the patients resume a normal life.

To foster research, France will include sepsis as a priority in the fourth “Programme d’Investissement d’Avenir”, with subsequent substantial funding through research calls.

Results, next steps and challenges

To increase surveillance coverage of sepsis, France has revised the national rules for coding of hospitalization based on the new Sepsis 3 definition. Thereby, France will publicly release yearly national epidemiological data on sepsis as done, for example, for stroke or acute myocardial infarction.

The plan includes in total ten areas of interventions ranging from treatment, to awareness raising, education, research and follow-up.



French national plan priorities

Patient-led initiatives France Sepsis Association

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Jamila Hedjal launched the France Sepsis Association in 2020, following the death in November 2018 of her son Farès, who died after a septic shock caused by appendicitis. The France Sepsis Association is for patients and relatives affected by sepsis. It has the objective to support them in the after-care follow-up, and it carries their voices in different instances to improve their comfort, and the quality and safety of care. Many people are becoming involved, mostly relatives of sepsis patients, as well as resuscitation and healthcare professionals.

Jamila has established fruitful contacts with French authorities, scientific societies and media, contributing to raise awareness about sepsis amongst policy makers and the general public in France.



Launch event of France Sepsis Association



Jamila Hedjal

Background

Hospital mortality in Germany seems to be higher compared to other high-income countries, such as the US, Australia, and the United Kingdom. The hospital mortality of patients with sepsis in Germany is higher and the decline over time is less. In Germany between 2009- 2014 hospital mortality decreased from 47.8% to 41.7% against 34% to 24% in the US. Between 2000 and 2012 hospital mortality decreased from 35.0% to 18.4% in Australia and from 45.5% to 32.1%, in the United Kingdom. (Fleischmann-Struzek, Intensive Care Med 2018). Therefore in 2013 the German Sepsis Foundation initiated a memorandum for a National Sepsis Plan, which is supported by a high number of professional medical societies, the presidents from prestigious national institutions such as the National Academy of Science and the Robert Koch Institute, and advocate groups such as the Coalition for Patient Safety. Despite the fact that in 2017 Germany was a driving force in initiating the WHA resolution on sepsis, until now there is no commitment by the German Ministry of Health to coordinate or to implement a National Sepsis Plan due to differences in interpreting responsibilities between federal and state levels.

What is happening

In 2018, based on a request by the patient representative in the highest decision making body in the German healthcare system, the Joint Federal Committee (G-BA) decided to launch a quality assurance process to develop quality indicators for sepsis prevention, early recognition and sepsis management. However, such processes usually take about eight years until they become mandatory and implemented for all hospitals. Lately, the political debate on the need for action on the federal level was rekindled by inquiries on sepsis by both left- and right-wing political parties to the Federal government. Furthermore, the Head of the Federal Chancellery Helge Braun, who as a former intensive care physician knows what sepsis is, publicly declared that the COVID-19 pandemic fosters the understanding that also viruses may cause sepsis.

Results, next steps and challenges

In February 2021, there was an expert meeting in the Health Policy Committee of the German Parliament including experts of the German Sepsis Foundation and the German Patient Safety Coalition. Part of the discussion were the dimension of the problem for patients, families and civil society, the shortcomings of the German healthcare system contributing to the high sepsis mortality and the high number of patients with sepsis sequelae in Germany, and the need for action.

In addition, the initiative "Germany recognizes sepsis" was launched also in February under the umbrella of the German Patient Safety Coalition and its partners, the Sepsis Dialog from Greifswald, the German Sepsis Aid and the Sepsis Foundation. Notably, this initiative is supported by a € 1.2 million grant by the German Ministry of Health and it is also sponsored by insurance companies and a few corporations from the health sector. It will be expanded into a Germany-wide campaign in the coming year. In June the

Sepsis Foundation conducted its first Sepsis-Forum, on sepsis and COVID-19 sequelae. This online meeting was also supported by a grant of the German Ministry of Health and by opening remarks of the Head of the Federal Chancellery. Since January 2021 the Sepsis Dialog offers a monthly Sepsis Academy on various sepsis-related topics for different target groups.

IRELAND

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Background

Following a significant sepsis related patient safety incident in Ireland, the National Sepsis Steering Group (NSSG) was established by the Health Service Executive (HSE) in July 2013. The Group was tasked with using existing databases to quantify the burden of sepsis in Ireland. The Hospital Inpatient Enquiry system (HIPE) was used for this purpose. The resulting data showed that 60% of all in-hospital deaths had a sepsis or infection diagnosis; 42% of all in-hospital beds were occupied with a sepsis or infection code. In-hospital mortality rate was 28.8%.

As a result, the Department of Health prioritised the development of a National Clinical Guideline on Sepsis Management.

What is happening

The HSE established the National Sepsis Programme (NSP) to develop and implement this guideline. The NSP was granted permission by the Surviving Sepsis Campaign (SSC) to adapt the SSC Sepsis Guidelines for the Irish context and in 2014, the first National Clinical Guideline (NCG) on Sepsis Management was published.

This publication was accompanied by an implementation program and a series of on-site visits took place in all hospitals across Ireland. Sepsis education and awareness presentations were held including all clinical grades and hospital management. Early recognition and early management were the main focus so acute settings, where patients present or deteriorate were targeted first i.e., Emergency Departments (EDs), acute medical assessment units (AMAU), acute surgical assessment units (ASAU) and medical and surgical wards. The NSP supported acute hospitals to establish local sepsis committees with multidisciplinary membership representing all specialties, to oversee implementation of the NCG in their hospital. The NSP provides clinical decision support tools (Sepsis Forms and Algorithms) that prompt clinicians to complete the 'Sepsis-6' bundle within the first hour of recognising the signs and symptoms of sepsis, i.e., Take 3: Blood cultures, Blood tests and Assessment of urinary output and Give 3: Antimicrobials, Fluids if required and Supplementary oxygen if required.

The aim of the NCG is to reduce unnecessary variations in practice and provide an evidence base for the most appropriate healthcare to optimize patient survival from sepsis. The NSP monitors this aim in two ways:

1. Audit of implementation of the NCG (Clinical audit/Process audit) with immediate feedback to clinical sites to Inform ongoing education and quality Improvement efforts.
2. Audit of outcomes resulting from implementation of the NCG (National Sepsis Report). The Annual Sepsis Reports can be found on the Irish Health Services web site.

Public awareness is an important aspect of Improving outcomes from sepsis and the NSP engages a variety of methods to advance this, e.g., posters, social media campaigns, support of high-profile personalities and sepsis awareness events such as conferences and study days.

Results, next steps and challenges

Thanks to this structured response, the number of documented sepsis cases has doubled since the initial reported data, and the sepsis associated mortality rate has decreased by 26.7% (26.8% - 2011 vs 19.4% - 2019). The NSP has updated the NCG and includes guidance for sepsis in pregnancy. In addition, with permission from the SSC the SSC paediatric sepsis guideline was adopted in totality and an implementation plan is currently being rolled out nationally.

An education programme has been developed to support the National Sepsis Guideline and has been recently updated incorporating a maternal sepsis scenario. A paediatric animated video has also been developed to aid recognition of sepsis in children to support parents to recognise sepsis and seek medical assistance/advice. As part of the community awareness campaign, the Irish National Ambulance Service fleet of ambulances displays the signs and symptoms of sepsis.

A number of barriers hampered the change, including an overuse of antibiotics, a denial and blame culture, controversy within the same expert community on the definition of sepsis, poor morale and overwhelmed workforce.



Raising awareness on Irish ambulances

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Giulio Toccafondi, toccafondig@aou-careggi.toscana.it**

Background

The Italian healthcare system is a federal one and resources are managed independently by each regional healthcare service. There are ongoing activities at regional level to develop a comprehensive strategy to tackle sepsis.

What is happening

The Italian Society of Anesthesia and Intensive Care (SIAARTI) is working on different fronts. The annual World Sepsis Day celebration in collaboration with the main Italian railway company (Trenitalia) and with the regional healthcare services, media campaigns and the implementation of specific programs in national curricula are the main examples of SIAARTI's awareness raising efforts. SIAARTI also provides an educational program including distance education, basic courses, a masterclass, internships and professional certification. SIAARTI's Guidelines on Good Clinical Practice for the management of sepsis in adults stress on the commonly 'unrecognized' criteria for hospitalization for septic patients (level 2-3) and on hospital minimal resources to manage a septic patient in acute care setting. In January 2020, with the support of the Italian National Institute of Health, SIAARTI launched national multi-disciplinary guidelines on sepsis management, as a first step for a national plan.

In 2019 the Italian Ministry of Health adopted the National Plan for contrasting Antimicrobial Resistance and HAIs - healthcare-acquired infections (PNCAR). The Tuscany and Lombardy regional programs include actions explicitly addressing the KPIs of the PNCAR.

Lombardy

The Quality Improvement Program (QIP) of Lombardy started in 2012. A regional Multi-disciplinary Advisory Committee (MAC) was set up and with the objective to define an organizational model to implement the guidelines into clinical practice. This target was developed through regional decrees on the management of adult and maternal sepsis aimed at promoting an early simplified bundle for detection, risk stratification and care in the management of septic patients out of ICU. To implement its capillary diffusion educational courses (developed centrally by the MAC) were mandatory for hospital personnel of all the regional hospitals. The QIP has been associated with improved compliance to simplified sepsis bundles and a lower in-hospital mortality in septic patients. A survey in all hospitals on clinical-organizational resources to face sepsis was developed by the MAC and the Regional Patient Safety and Risk Management Center to identify and tackle barriers to implementation (submitted to publication in 2021). A centralized regional system of automatic extraction of sepsis cases through AHRQ and ANGUS algorithms from administrative data (specificity >90%, sensitivity 50-70%) was developed by Lombardy Regional Welfare Center to

give a trimestral reporting of sepsis cases for all hospitals. Periodical external audit of sepsis cases (extracted centrally) are in use to monitor compliance to sepsis care guidelines in Lombardy.

Tuscany

Tuscany regional healthcare services started to promote action to contain and reduce the impact of sepsis since 2012. In 2016 an interdisciplinary and multidisciplinary group was nominated. The group of experts coordinated by the patient safety and risk management center produced the report “Call to action” in 2019.

The report is a collection of recommendations, best practice and guidelines based on the state of the art. It provides a practical guidance for the settlement and maintenance of the comprehensive sepsis pathway addressing the connections of the several sectors and disciplines involved in emergency and community care, hospital care and critical care. The report provided the local authorities with a common ground scheme for implementing early identification and management of sepsis and antimicrobial stewardship.

In 2021 the Sepsis group’s activity is part of the healthcare regional program AID 2021-2022 to reduce antimicrobial resistance and HAIs. The plan addresses infection prevention and control, antibiotic stewardship and sepsis management.

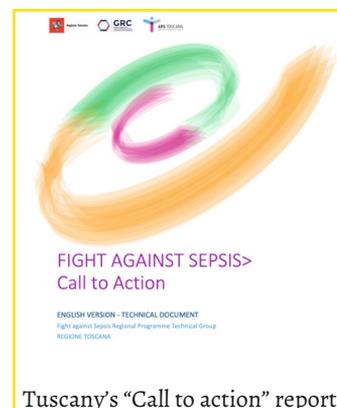
Results, next steps and challenges

In the light of the regional experiences of Lombardy and Tuscany, AGENAS (the national agency of healthcare services) has launched a research project with the following objectives:

1. define a case review form (CRF) to be used as a tool to:
 - a. evaluate the diagnosis of HAIs or sepsis and septic shock
 - b. retrospectively analyze the clinical-assistance and organizational path of the patient with HAIs, sepsis or septic shock
2. assess the sensitivity and specificity of known algorithms for identifying/ extracting cases of infections possibly related to sepsis/septic shock, starting from administrative data.

The evaluation will use as a reference the clinical diagnosis formulated retrospectively based on the medical records, according to the Sepsis-2 and Sepsis-3 criteria and through the use of a CRF by external reviewers. The cases identified according to the reference algorithms will allow to assess the burden of sepsis in Italy. The project is focused on the quality improvement in the early identification and management of sepsis. The retrospective analysis of sepsis cases will trigger local audit coordinated by patient safety and quality improvement hospital teams. The project is endorsed by the national network of clinical risk managers of the Ministry of Health.

SIAARTI is going to run between October 2021 and March 2022 a national survey on clinical-organizational resources to manage sepsis patient (in particular in ED and wards) in more than 500 Italian hospitals. The survey has the objective to investigate the current state of sepsis management at national level.



THE NETHERLANDS

Patient-led initiatives Sepsis en daarna, the Netherlands

Contact: Idelette Nutma, nutma@sepsis-en-daarna.nl

Sepsis en daarna is a patient group initiated by former patient and nurse Idelette Nutma. In 2016 Idelette published a book 'Sepsis and afterwards' which is a guide for survivors, and other communication materials including, articles, posters and videos with the intention to inform as many people as possible about sepsis and its consequences. Every year since 2018 an annual Sepsis Peer Meeting is being organized.

In 2018 the petition 'SOS voor sepsis' was offered to the House of Representative, resulting in three meetings with the Ministry of Health, who eventually has given its support for:

- A Sepsis Network, SepsisNet, was launched in September 2020 with the aim to enhance awareness. Its board consists of four medical specialists, a general practitioner and a former patient.
- Funding for implementing and extending the new Dutch Sepsis Guideline, to be published in autumn 2021. Patient representatives were involved in the process. The guideline is about ICU and non ICU patients. Furthermore the Dutch guideline 'Sepsis in Children' was published in June 2021. Both guidelines address the need for communication about sepsis and good aftercare.
- Organizing a sepsis congress, that so far has been postponed due to the pandemic.

Sepsis en daarna also set up a Facebook group in 2017, which is providing valuable support. Meanwhile the organization continues cooperating with experts and professionals via a number of initiatives to raise awareness, to provide the patient perspective and to emphasize that sepsis can have a huge impact also on non-ICU patients.



Presentation of the petition 'SOS Sepsis' to the Standing Committee on Public Health.

NORWAY

Contact: Prof. Erik Solligård, erik.solligard@ntnu.no

Background

The work to fight sepsis started in 2016-17 through a national inspection initiated by the government. A team visited all hospitals in Norway and each hospital was visited and reviewed three times. The reviewers looked at how long it took patients to receive antibiotics and processes (i.e., triage, time until the doctor visit, blood culture, lactate measurement...). The results showed that many patients did not get antibiotics as soon as they should. Besides there was a lack of coordination and leadership in the hospitals. This inspection generated a number of local initiatives that lead to an increase in survival rates and a decrease in the length of stay of sepsis patients.

What is happening

This was followed by a governmental program focusing on early recognition of sepsis in the ED and at the ward. Big focus was on education (brochures, folders, e-learning, training, monitoring...). This has been implemented on EDs in all hospitals in Norway and it is on the way to be implemented in all wards. Other measures include a survey involving 120.000 people that will be followed for 20 years.

Results, next steps and challenges

One of the main challenges is the unrecognized burden of sepsis in Norway: there is no agreement and official numbers are based on ICD coding. A sepsis incidence study using Rudd's et al definition is ongoing. Lack of awareness in the population is also a burden. For the last 5-6 years there has been also an attempt to set up a national antibiotic guideline for sepsis that eventually should be finalized by the end of 2021. There is currently political will to move towards a national action plan, but due to the pandemic, the process has been set on hold.

In autumn 2021, the Swedish Sepsisfonden will launch a co-operative trust in Norway, under the same brand. The objective is to raise awareness about sepsis amongst the general public and provide support to the healthcare system.

In 2021 a patient organization named LHL-Sepsis was launched, with the objectives to strengthen patients and their relatives' rights and raise awareness.

SPAIN (CATALUNYA)

Contact: Prof. Antonio Artigas, aartigas@tauli.cat

Background

The main objective of the plan in Catalunya was to create a hospital emergency code for sepsis. The elements that pushed for a structured plan were a continued increase of the incidence of sepsis in the region, delay in the antibiotic treatment therapy and

delay in transfer to ICU.

What is happening

The journey started in 2008 with local experiences which progressively led the Parliament of Catalunya to declare sepsis a public health problem in 2015 and requested the creation of a strategic plan for early detection and treatment of sepsis. A multi-disciplinary advisory committee was set up, early detection parameters were identified together with initial treatment, according to the degree of care of hospitals in the network (i.e., primary, secondary or tertiary care). Hospitals were mapped and clustered according to what kind of sepsis patients they would be ready to treat.

Training, analysis and feedback mechanisms were developed, including “Radar sepsis”, a system that provides a continued screen of cases and that helps analyse data and give feedback to different hospitals. The project Sepsis Training Audit and Feedback (STAF), supported by a grant of TV3 telethon, is developed in 3 phases:

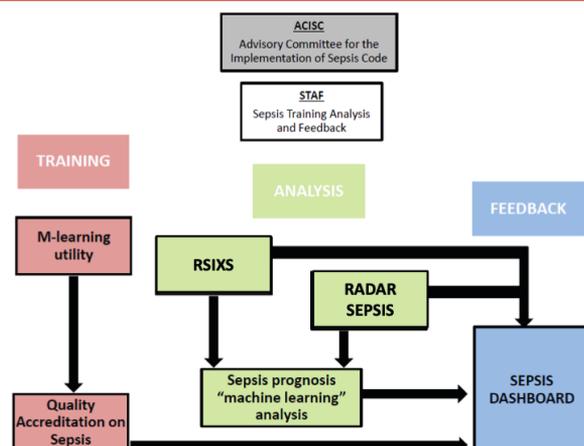
1. Two mobile learning minicourses based on early warning score for technicians of pre-hospital care systems and for hospital personnel.
2. Development of a RSIXS platform for sepsis and septic shock to register the key performance indicators (KPI) for antibiotic administration, resuscitation, infection source control and time of ICU admission. This platform is in the portal of the Health Department (Catalut).
3. Development of the RADAR-Sepsis platform for automatic register of administrative data related to sepsis.

Results, next steps and challenges

The recommendations coming out of this experience:

- Protocol for sepsis detection should be developed for all healthcare workers
- Patients who don't respond to initial treatment should be placed in ICU
- Antibiotic administration should be done on time as well as normalization of hemodynamic parameters
- Quality control systems should be in place and be included in the annual budget of the hospital.
- To create a control panel with automatized clinical information to compare data of training (number of people with minicourses), indicators of activities, KPI and indicators of clinical and economic results.

And now, how will we implement Codi Sèpsia?? 



Catalunya sepsis plan's flow chart

Contact: Prof. Kristoffer Strålin, kristoffer.stralin@sll.se

Background

The Swedish government set up 20 different program committees and asked them to suggest diagnoses upon which to build up structured healthcare processes. The project started in 2019 and will last three years, with a budget of € 90 million. The infectious diseases group proposed sepsis, which was selected with ten others diagnoses in 2019.

What is happening

A multidisciplinary sepsis group has built up an algorithm on how to detect severe sepsis in emergency departments (ED) in Sweden. Based on patient history and the ED triage score determined by the ED nurse, a sepsis alert is triggered and gives the patient high priority and a structured healthcare process. The group has also built up a patient follow-up process after discharge, in which patients with severe sepsis will be routinely followed-up with a telephone call with structured questions about the condition of the patient. The process also includes process follow-up with quality indicators, such as survival and hospital-free days within three months from admission. The healthcare process is presented here (in Swedish).

A consequence analysis including a health-economic analysis of the national sepsis healthcare process has been developed. We expect the healthcare process to improve sepsis care quality and improve outcome. According to the health-economic analysis, the increased costs of more staff involvement during sepsis alerts as well as of the routine patient-follow up will be offset by shorter hospital stay and reduced readmission frequency.

Based on the healthcare process and the consequence analysis, the directors of the Swedish healthcare regions approved the national sepsis healthcare process on 21 May 2021.

Results, next steps and challenges

The Swedish healthcare regions are now supposed to implement the national sepsis healthcare process with sepsis alert and patient follow-up into clinical practice.

The healthcare region Stockholm-Gotland has received the mission to build up an electronic system aimed at monitoring the sepsis care process and its quality indicators. In order to be able to identify the sepsis cohort electronically, an automatic SOFA-score calculator has been implemented into the electronic record system of the region.

After this electronic system has been built up in the Stockholm-Gotland region, the aim is to implement it in the other regions in Sweden.

Sweden



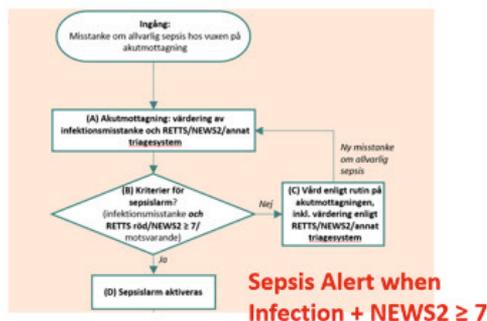
Regeringskansliet
Socialdepartementet

Sveriges
Kommuner
och Landsting

Standardized Health Care Processes
(for several diagnoses)
€ 90 000 000 for 2019-2021
from the Swedish Government

Sepsis selected as one of ten
diagnoses for 2019-2020

Process algorithm



Clinical follow-up

Telephone contact after
discharge

Process follow-up

- Automatic detection of sepsis (infection + SOFA score increase)
- Automatic quality indicators (outcome and process)

Consequence analysis

- Positive:
 - Improved quality and outcome
 - Shorter hospital stay
 - Less readmissions
- Negative:
 - Cost of staff at sepsis alerts and clinical follow-up
 - Cost of electronic follow-up system
- Health-economic analysis: The healthcare process is cost-effective

Nationellt system för kunskapsstyrning
Hälso- och sjukvård
SVERIGES REGIONER I SAMVERKAN

Summary slide, June 2021

Other initiatives Sepsisfonden, Sweden

Contact: Ulrika Knutsson, ulrika@sepsisfonden.se

Raising awareness

In March 2020 Sepsisfonden launched a national awareness campaign in Sweden, with the purpose to raise awareness around sepsis in the general public. This work has continued in different smaller campaigns and events during the past year. Sepsisfonden has since the start in 2015 conducted awareness surveys every other year. In 2015 21% of the Swedish population knew what sepsis was. In 2017 it was 30% and in 2019 43%. In May we launched the fourth survey, and the result shows that today every other Swede knows what sepsis is (49%). This is obviously still far too low, but it shows a positive trend, and it's interesting to note that the survey shows that awareness of other common diseases has during the same period gone down in Sweden. The numbers also show that the awareness work is something that will have to continue for a long time, and that it takes time to make a permanent shift in the general public's knowledge. It's also interesting to note that there is a big difference between men and woman in Sweden, when it comes to knowledge of sepsis. Women's awareness has gone from 51% in 2019 to 59% in 2021. In the same period no change is seen in men's awareness, it is still on 35%, the same as in 2019.

Sepsisfonden's contribution to the national action plan

Sepsisfonden has also continued to work closely with the national program for the new standardized course of medical care for sepsis, that will be implemented throughout

all emergency hospitals in Sweden in 2021. Sepsisfonden has provided the program with information that will be handed to all sepsis patients after being discharged from the hospital.

Launching Sepsisfonden in Norway

Our dialogue with partners in Norway has now led to concrete plans for Sepsisfonden in Sweden to launch a co-operative trust in Norway, under the same brand, during the autumn of 2021. This will furthermore strengthen our goals to increase awareness around sepsis all around Scandinavia.

Patient-led initiatives Sepsis Foreningen

Contact: Kristina Bjorkqvist, kristina.bjorkqvist@sepsisforeningen.se

With the support of Sepsisfonden, in 2020 a group of patients founded Sepsisföreningen. The organisation has elected a board and counts now approximately 90 members, mainly survivors and family members, but also researchers. Sepsisföreningen provides information and support to patients and family members and plans to expand its activities as it grows. It has obtained some visibility by being invited on a national morning tv show, talking about long term effects of sepsis. It has also been involved in the development of the national program for the treatment of sepsis patient (see above).



Kristina Bjorkqvist, Sepsisvorenigen, and ESA Patient and Family WG member, on national TV morning show to talk about sepsis.

UNITED KINGDOM

Contact: Ron Daniels, ron@sepsistrust.org

Background

When the WHO resolution came out in 2017, the UK government was already writing its national action plan and it is now running its 3rd action plan. The UK Sepsis Trust works with NHS England and other statutory bodies to operate an intercollegiate Cross System Programme Board on Sepsis. Prior to the pandemic, this was integrated with other work streams into a Cross System Deterioration Board.

The pandemic has brought significant challenges in implementing direct action on sepsis at a governmental level and, though recognition and treatment of sepsis is now part of the standard contract for English hospitals, reporting has been suspended. Whilst the Deterioration Board has met recently for the first time since 2019, the UK Sepsis Trust has in the interim focused on raising public awareness through partnerships, and setting the scene for improving outcomes through working with other agencies.

What is happening

In 2015, the UK Sepsis Trust (UKST) developed an operational tool called Red Flag Sepsis to empower junior professionals to act. This followed the development in 2007 of the Sepsis 6: a simplified care bundle including source control and antibiotics, escalation to critical care where needed, and treatment coordinated by senior clinician. The bundle is used now in 99% of British hospitals. In 2019, the UK's recommendations and approvals agency NICE provided, for the first time, formal endorsement of UKST's care pathways incorporating Red Flag Sepsis and the Sepsis 6. These are now available across all facets of healthcare including in hospices, care homes, general practice, the ambulance service and in hospitals.

In April 2020, UKST recognized that recovery from COVID-19 was likely to bear stark similarity to post sepsis syndrome (PSS). It was also recognized that not only could SARS-CoV-2 infection cause sepsis, but also that survivors of COVID-19 would be at increased risk of developing sepsis. As a result, the charity launched its Blurred Lines campaign as well as opening its Support Nurse services to people who have survived COVID-19.

Raising public awareness of sepsis in general is also an important part of the strategy. UKST has launched its Sepsis Savvy strategy to work with major corporates to educate their staff and (in some cases) clients around sepsis.

Results, next steps and challenges

Due to a suspension in reporting, it is not currently known how reliable the recognition and management of sepsis is within the UK. It is likely that the situation has slipped from that prior to the pandemic, in which English hospitals were recognizing and treating sepsis within one hour with antimicrobials and supportive therapy in 82% of patients. This requires addressing with urgency as we emerge from the pandemic. UKST's Blurred Lines campaign received pro bono donation of marketing space across multiple national media outlets, including national newspapers (e.g., The Times), glossy magazines (e.g., Vogue) and on large format city centre advertising (over a 13 day period appearing on 56 screens across four cities: London, Birmingham, Edinburgh and Glasgow with over 9 million potential views). UKST's Support Nurses have to date provided direct support to almost 7,000 survivors of COVID-19, with the condition now accounting for almost 40% of their caseload.

Sepsis Savvy was launched in February 2020, comprising an online educational game together with an instructional video and online resources. It's been adopted by over 100 corporates, as diverse as the Direct Line Group (major insurance company who've sent the resources to their 3 million customers), Five Guys (a chain of fast-food outlets who have undertaken relay races across the country between their stores), Burger King, Microsoft UK, and Iceland Foods (a major food retail company with over 960 stores in the UK).

UKST's relationship with Iceland Foods has resulted in raising awareness of sepsis on milk cartons - by June 2021, almost 10 million breakfast tables across the UK have seen sepsis messaging in this way.

UKST is now in the process of re-engaging with HM Government, with statutory bodies and with other stakeholders to reprioritize the recognition and management of sepsis in the post-pandemic era.

The charity is working with NHS England's Your COVID Recovery group to disseminate knowledge of its support services.

Through 2022, UKST will continue and grow its strategy of engaging members of the public through partnership working, particularly through the Sepsis Savvy campaign, and will target schools and educational facilities. It is conducting a public awareness survey examining knowledge of and attitudes to sepsis, AMR and diagnostics across five European countries (UK, France, Spain, Sweden, Italy) during 2021, with results expected late summer.

SEPSIS SCREENING TOOL ACUTE ASSESSMENT **AGE 12+**

PATIENT DETAILS: DATE: TIME: NAME: DESIGNATION: SIGNATURE:

01 START THIS CHART IF THE PATIENT LOOKS UNWELL OR NEWS2 IS 5 OR ABOVE

RISK FACTORS FOR SEPSIS INCLUDE:

- Age > 75
- Impaired immunity (e.g. diabetes, steroids, chemotherapy)
- Recent trauma / surgery / invasive procedure
- Indwelling lines / IVDU / broken skin

02 COULD THIS BE DUE TO AN INFECTION?

LIKELY SOURCE:

- Respiratory
- Urine
- Skin / joint / wound
- Indwelling device
- Brain
- Surgical
- Other

03 ANY RED FLAG PRESENT?

- Objective evidence of new or altered mental state
- Systolic BP ≤ 90 mmHg (or drop of >40 from normal)
- Heart rate ≥ 130 per minute
- Respiratory rate ≥ 25 per minute
- Needs O₂ to keep SpO₂ $\geq 92\%$ (88% in COPD)
- Non-blanching rash / mottled / ashen / cyanotic
- Lactate ≥ 2 mmol/l
- Recent chemotherapy
- Not passed urine in 18 hours (<0.5 ml/kg/hr if catheterised)

04 ANY AMBER FLAG PRESENT?

- Relatives concerned about mental status
- Acute deterioration in functional ability
- Immunosuppressed
- Trauma / surgery / procedure in last 8 weeks
- Respiratory rate 21-24
- Systolic BP 91-100 mmHg
- Heart rate 91-130 or new dysrhythmia
- Temperature $<36^{\circ}\text{C}$
- Clinical signs of wound infection

RED FLAG SEPSIS

START SEPSIS SIX

FURTHER REVIEW REQUIRED:

- YES - SEND BLOODS AND REVIEW RESULTS
- YES - ENSURE SENIOR CLINICAL REVIEW within 1HR
- TIME OF REVIEW:
- ANTIBIOTICS REQUIRED: Yes No

NO AMBER FLAGS = ROUTINE CARE / CONSIDER OTHER DIAGNOSIS

SEPSIS SCREENING TOOL - THE SEPSIS SIX **AGE 12+**

PATIENT DETAILS: DATE: TIME: NAME: DESIGNATION: SIGNATURE:

COMPLETE ALL ACTIONS WITHIN ONE HOUR

01 ENSURE SENIOR CLINICIAN ATTENDS

NOT ALL PATIENTS WITH RED FLAGS WILL NEED THE 'SEPSIS 6' URGENTLY. A SENIOR DECISION MAKER MAY SEEK ALTERNATIVE DIAGNOSES/ DE-ESCALATE CARE. RECORD DECISIONS BELOW

NAME: GRADE:

02 OXYGEN IF REQUIRED

START IF O₂ SATURATIONS LESS THAN 92% - AIM FOR O₂ SATURATIONS OF 94-98% IF AT RISK OF HYPERCARBIA AIM FOR SATURATIONS OF 88-92%

03 OBTAIN IV ACCESS, TAKE BLOODS

BLOOD CULTURES, BLOOD GLUCOSE, LACTATE, FBC, U&Es, CRP AND CLOTTING LUMBAR PUNCTURE IF INDICATED

04 GIVE IV ANTIBIOTICS

MAXIMUM DOSE BROAD SPECTRUM THERAPY CONSIDER: LOCAL POLICY / ALLERGY STATUS / ANTIVIRALS

05 GIVE IV FLUIDS

GIVE FLUID BOLUS OF 20 ml/kg if age <16 , 500ml if 16+ NICE RECOMMENDS USING LACTATE TO GUIDE FURTHER FLUID THERAPY

06 MONITOR

USE NEWS2. MEASURE URINARY OUTPUT. THIS MAY REQUIRE A URINARY CATHETER REPEAT LACTATE AT LEAST ONCE PER HOUR IF INITIAL LACTATE ELEVATED OR IF CLINICAL CONDITION CHANGES

RED FLAGS AFTER ONE HOUR - ESCALATE TO CONSULTANT NOW

RECORD ADDITIONAL NOTES HERE:

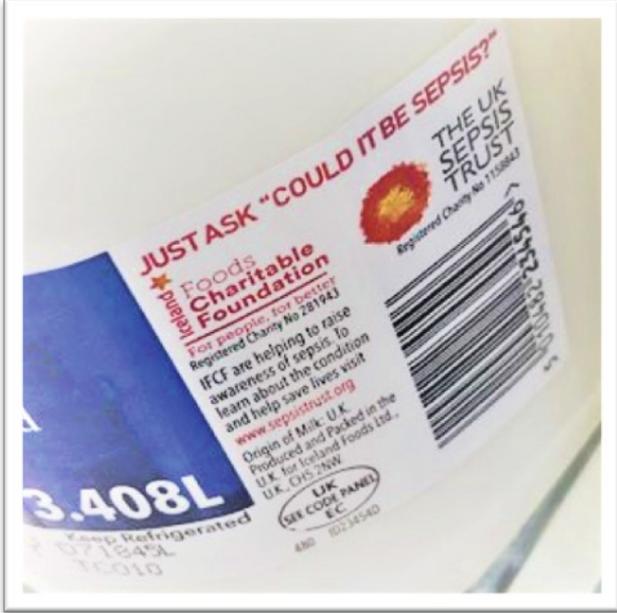
e.g. allergy status, arrival of specialist teams, de-escalation of care, delayed antimicrobial decision making, variance from Sepsis Six



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Sepsis clinical tools

Sepsis clinical tools



Raising awareness on milk bottles

14 | METRO | Thursday, June 10, 2020

SIXTY SECONDS

With Bill Bailey

THE COMEDIAN AND ACTOR, SS, ON DRIVE-INS, LOST DIDGERIDOO AND WHY HE ENDED UP DOING THE LAST GIG IN GERMANY

INTERVIEW BY JOHN STERNSON

THE LINES BETWEEN COVID-19 AND SEPSIS CAN BE BLURRED.

Did you know that sepsis can be caused by COVID-19? Or that people who survive those conditions may face similar to physical and psychological difficulties? Since 2012, the UK Sepsis Trust has helped raise awareness of sepsis through its 'Blurred Lines' campaign. **JUST ASK FOR SUPPORT**

Call 0800 0899 999 or visit www.uksepsistrust.org

THE UK SEPSIS TRUST

UKST 2020 1.3 PAGE 1 OF 2

Blurred lines campaign



Blurred lines campaign

Contact

For any query about this report, please contact the European Sepsis Alliance at esa@global-sepsis-alliance.org

Donate to our cause

The ESA is part of the Global Sepsis Alliance, an international non-profit charity organization. Please consider donating to support our cause at www.europeansepsisalliance.org/donate



