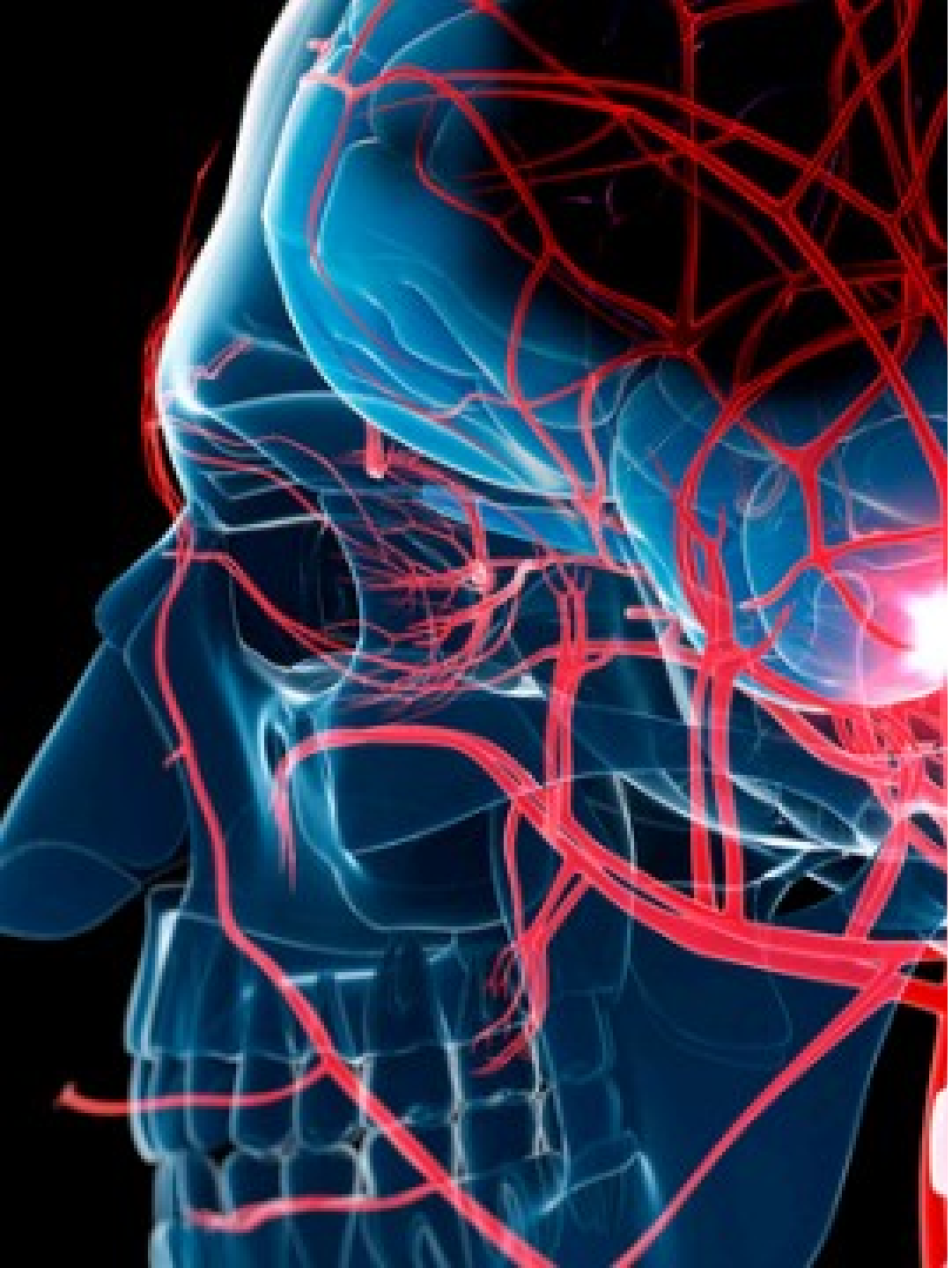


“Le patologie tempo-dipendenti: focus sullo stroke”

Bergamo 25 maggio 2024

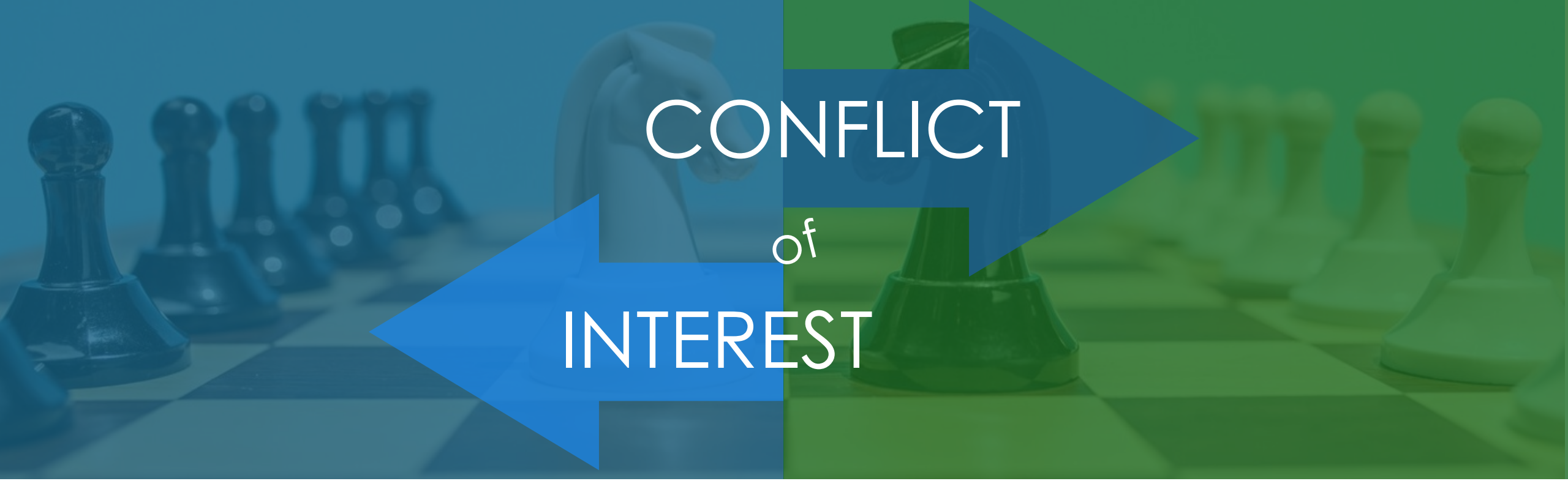
Lo stroke come patologia tempo-dipendente: il ruolo di AREU

Ospedale di Bergamo
Sistema Socio Sanitario
Regione Lombardia
ASST Papa Giovanni XXIII

Dott.ssa Serena Ruberti

AGENZIA REGIONALE EMERGENZA URGENZA

Emergenza 112 · 118 Soccorso Sanitario · 116117 Continuità Assistenziale



Disclosure

The author has no conflict of interest to disclose with respect to this presentation

OVERVIEW

Lo stroke come patologia tempo dipendente: il ruolo di AREU

1

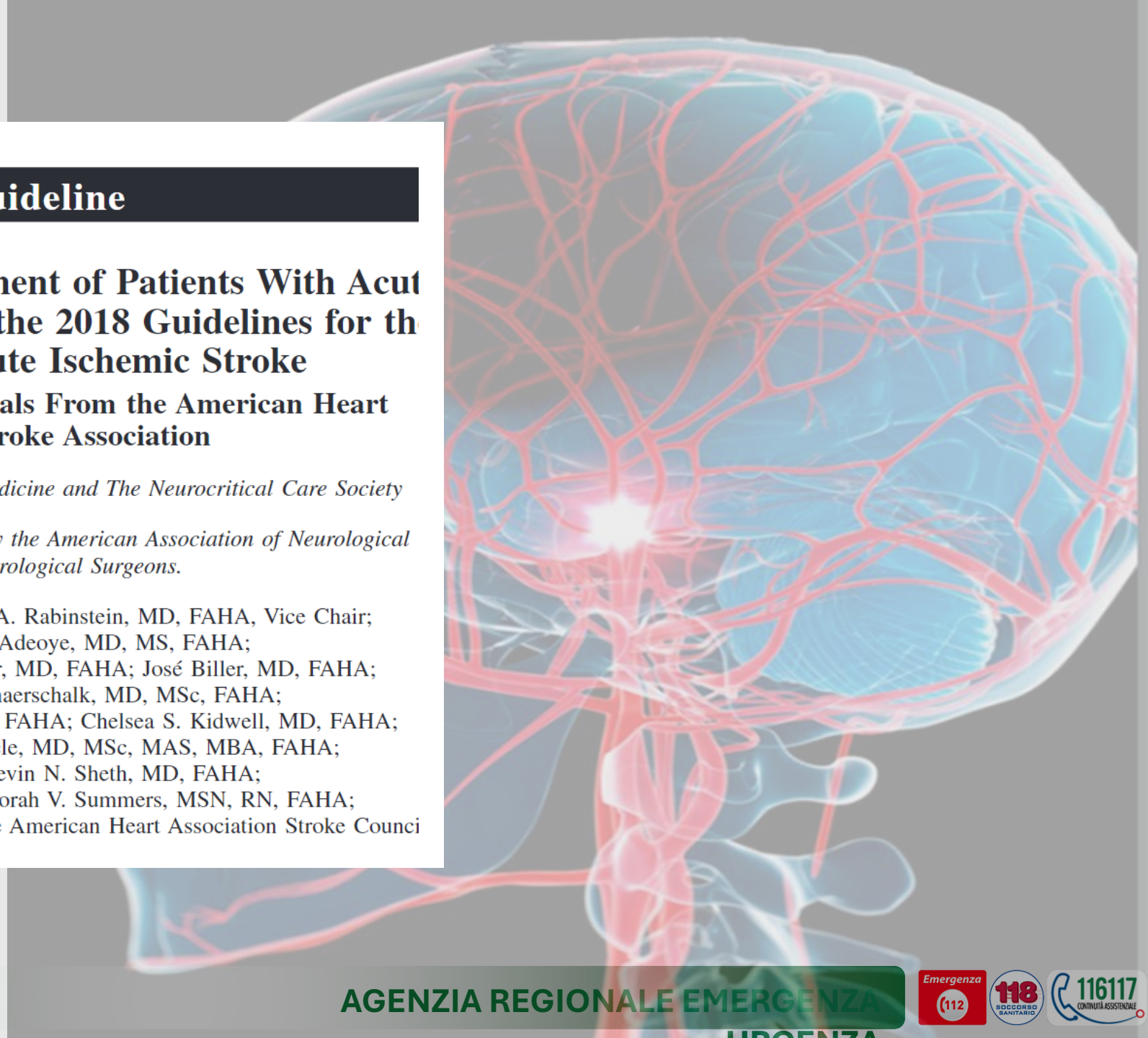
Letteratura Internazionale

2

DGR Regione Lombardia

3

Gestione del Soccorso



AHA/ASA Guideline

Guidelines for the Early Management of Patients With Acut Ischemic Stroke: 2019 Update to the 2018 Guidelines for th Early Management of Acute Ischemic Stroke

A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association

Endorsed by the Society for Academic Emergency Medicine and The Neurocritical Care Society

Reviewed for evidence-based integrity and endorsed by the American Association of Neurological Surgeons and Congress of Neurological Surgeons.

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Nicholas C. Bambakidis, MD, FAHA; Kyra Becker, MD, FAHA; José Biller, MD, FAHA;
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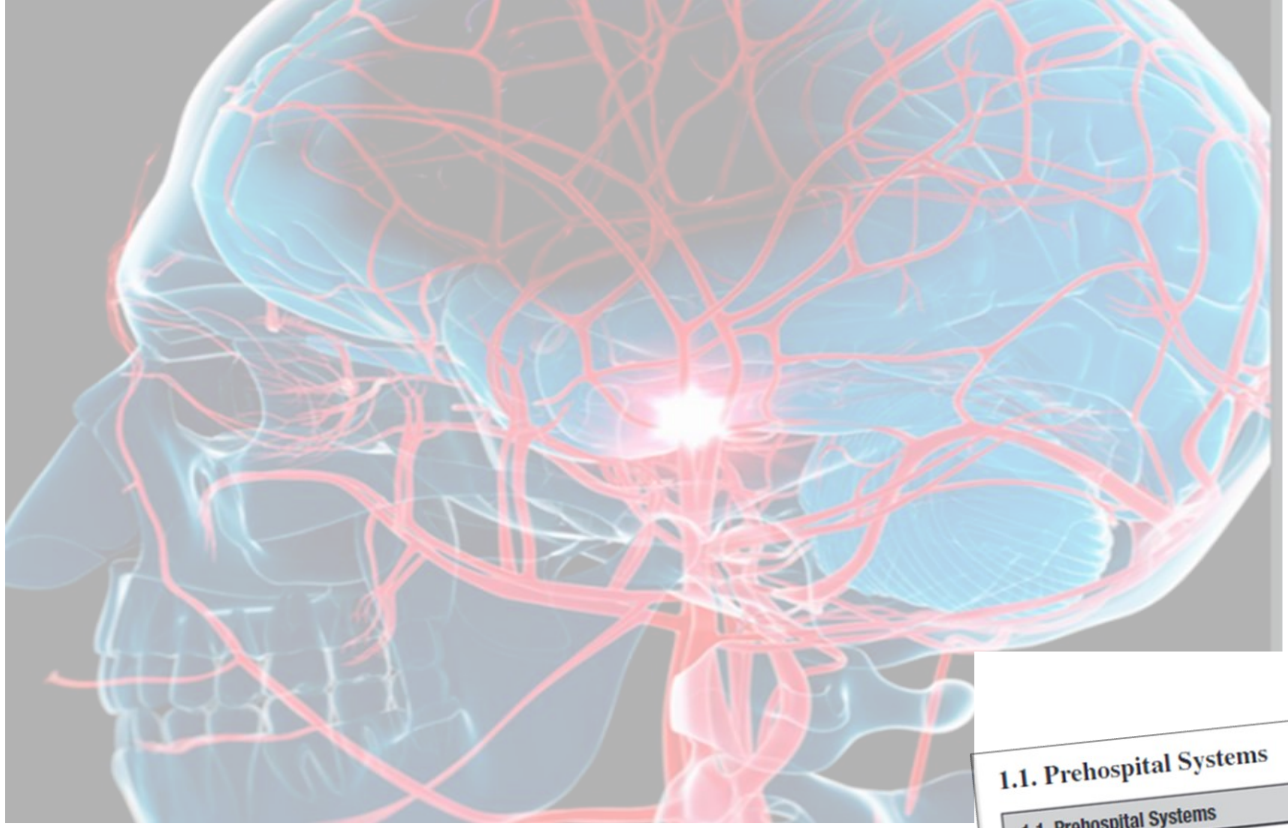
Andrew M. Southerland, MD, MSc, FAHA; Deborah V. Summers, MSN, RN, FAHA;
David L. Tirschwell, MD, MSc, FAHA; on behalf of the American Heart Association Stroke Counci



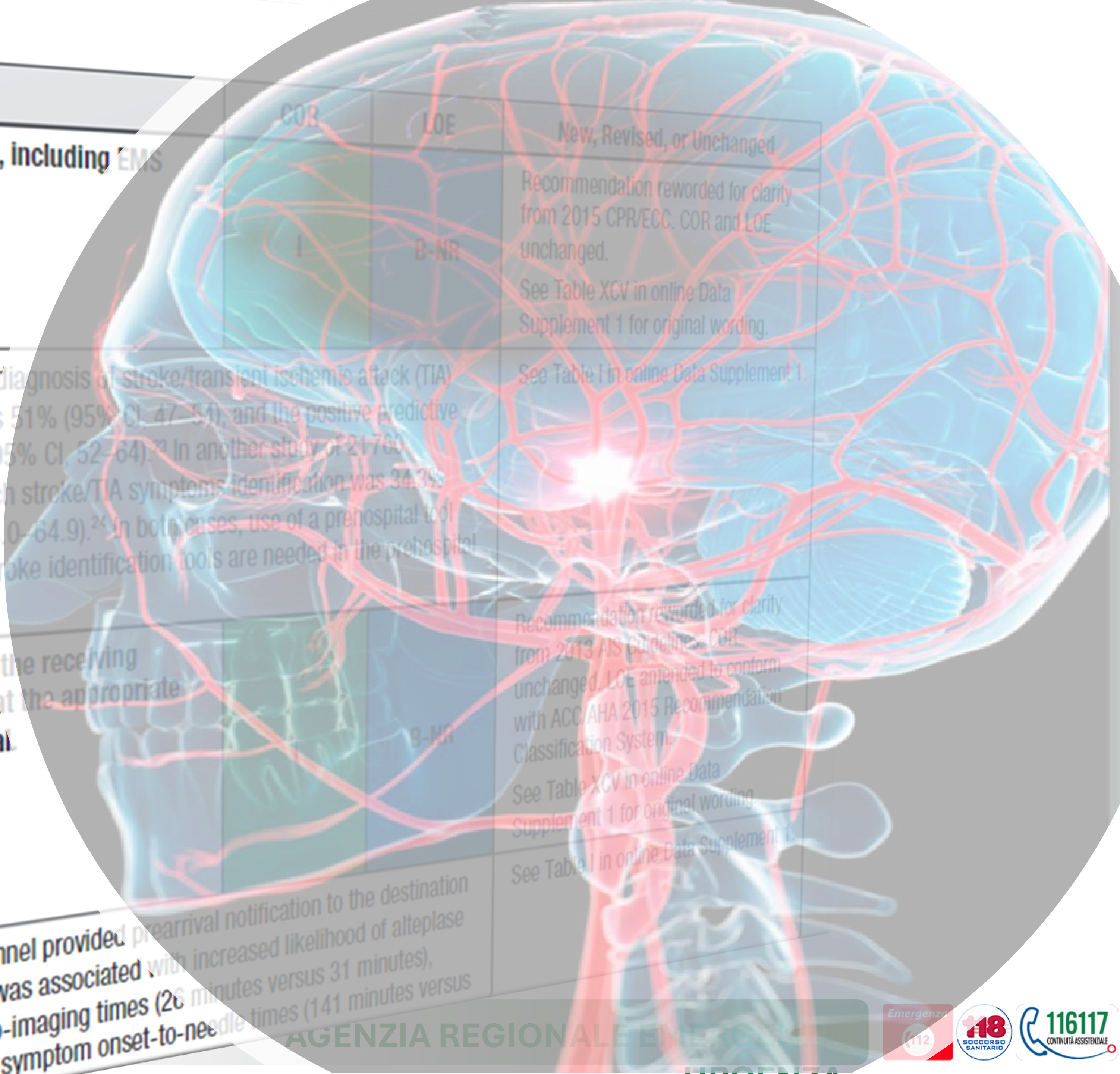
1.1. Prehospital Systems

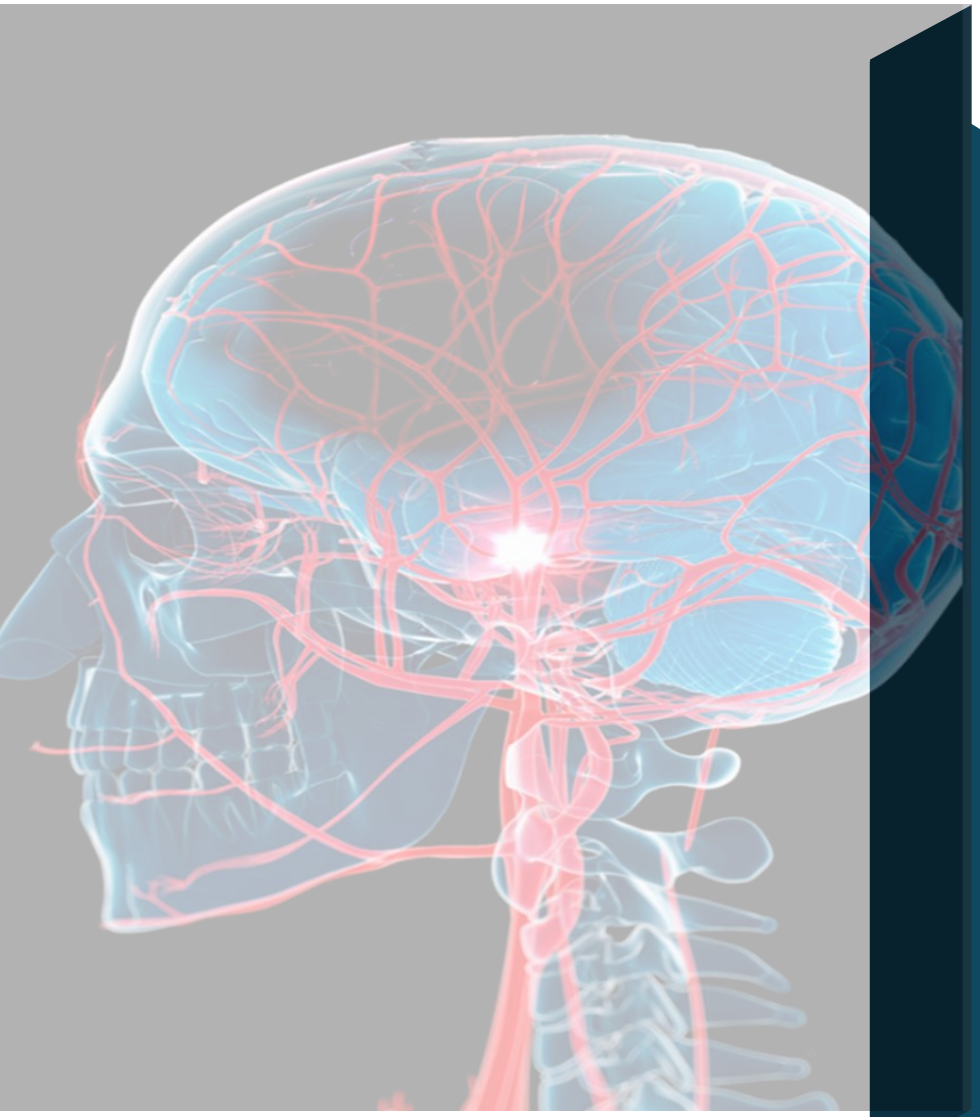
1.1. Prehospital Systems	COR	LOE	New, Revised, or Unchanged
1. Public health leaders, along with medical professionals and others, should design and implement public education programs focused on stroke systems and the need to seek emergency care (by calling 9-1-1) in a rapid manner. These programs should be sustained over time and designed to reach racially/ethnically, age, and sex diverse populations.	I	B-NR	Recommendation revised from 2013 Stroke Systems of Care. COR and LOE added.
2. Such educational programs should be designed to specifically target the public, physicians, hospital personnel, and emergency medical services (EMS) personnel to increase use of the 9-1-1 EMS system, to decrease stroke onset to emergency department (ED) arrival times, and to increase timely use of thrombolysis and thrombectomy.	I	C-EO	New recommendation.
Early stroke symptom recognition is essential for seeking timely care. Unfortunately, knowledge of stroke warning signs and risk factors in the United States remains poor. Blacks and Hispanics particularly have lower stroke awareness than the general population and are at increased risk of prehospital delays in seeking care.[20] These factors may contribute to the disparities in stroke outcomes. Available evidence suggests that public awareness interventions are variably effective by age, sex, and racial/ethnic minority status.[21] Thus, stroke education campaigns should be designed in a targeted manner to optimize their effectiveness.[21]			See Tables I and II in online Data Supplement 1.
3. Activation of the 9-1-1 system by patients or other members of the public is strongly recommended. 9-1-1 dispatchers should make stroke a priority dispatch, and transport times should be minimized.	I	B-NR	Recommendation and COR unchanged from 2013 AIS Guidelines. LOE amended to conform with ACC/AHA 2015 Recommendation Classification System.
EMS use by stroke patients has been independently associated with earlier ED arrival (onset-to-door time ≤3 hours; adjusted odds ratio [OR], 2.00 [95% CI, 1.93–2.08]), quicker ED evaluation (more patients with door-to-imaging [OR], 2.00 [95% CI, 1.78–2.00]), more rapid treatment (more patients with door-to-needle [DTN]			See Table I in online Data Supplement 1.

...and Management

3.2. EMS Assessment and Management

Recommendation	COR	LOE	New, Revised, or Unchanged
1. The use of a stroke assessment tool by first aid providers, including EMS dispatch personnel, is recommended.	I	B-NR	Recommendation reworded for clarity from 2015 CPR/ECC. COR and LOE unchanged. See Table XCV in online Data Supplement 1 for original wording.
In 1 study, the positive predictive value for a hospital discharge diagnosis of stroke/transient ischemic attack (TIA) among 900 cases for which EMS dispatch suspected stroke was 51% (95% CI, 47–55), and the positive predictive value for ambulance personnel impression of stroke was 58% (95% CI, 52–64).[23] In another study of 21 760 dispatches for stroke, the positive predictive value of the dispatch stroke/TIA symptoms identification was 34.3% (95% CI, 33.7–35.0), and the sensitivity was 64.0% (95% CI, 63.0–64.9).[24] In both cases, use of a prehospital tool for stroke screening improved stroke identification, but better stroke identification tools are needed in the prehospital setting.			See Table I in online Data Supplement 1.
2. EMS personnel should provide prehospital notification to the receiving hospital that a suspected stroke patient is en route so that the appropriate hospital resources may be mobilized before patient arrival.		B-NR	Recommendation reworded for clarity from 2013 AIS Guidelines. COR unchanged. LOE amended to conform with ACC/AHA 2015 Recommendation Classification System. See Table XCV in online Data Supplement 1 for original wording.
In the AHA Get With The Guidelines (GWTG) registry, EMS personnel provided prearrival notification to the destination … transported stroke patients. EMS prenotification was associated with increased likelihood of alteplase … versus 79.2%), shorter door-to-imaging times (26 minutes versus 31 minutes), … shorter symptom onset-to-needle times (141 minutes versus …			See Table I in online Data Supplement 1.



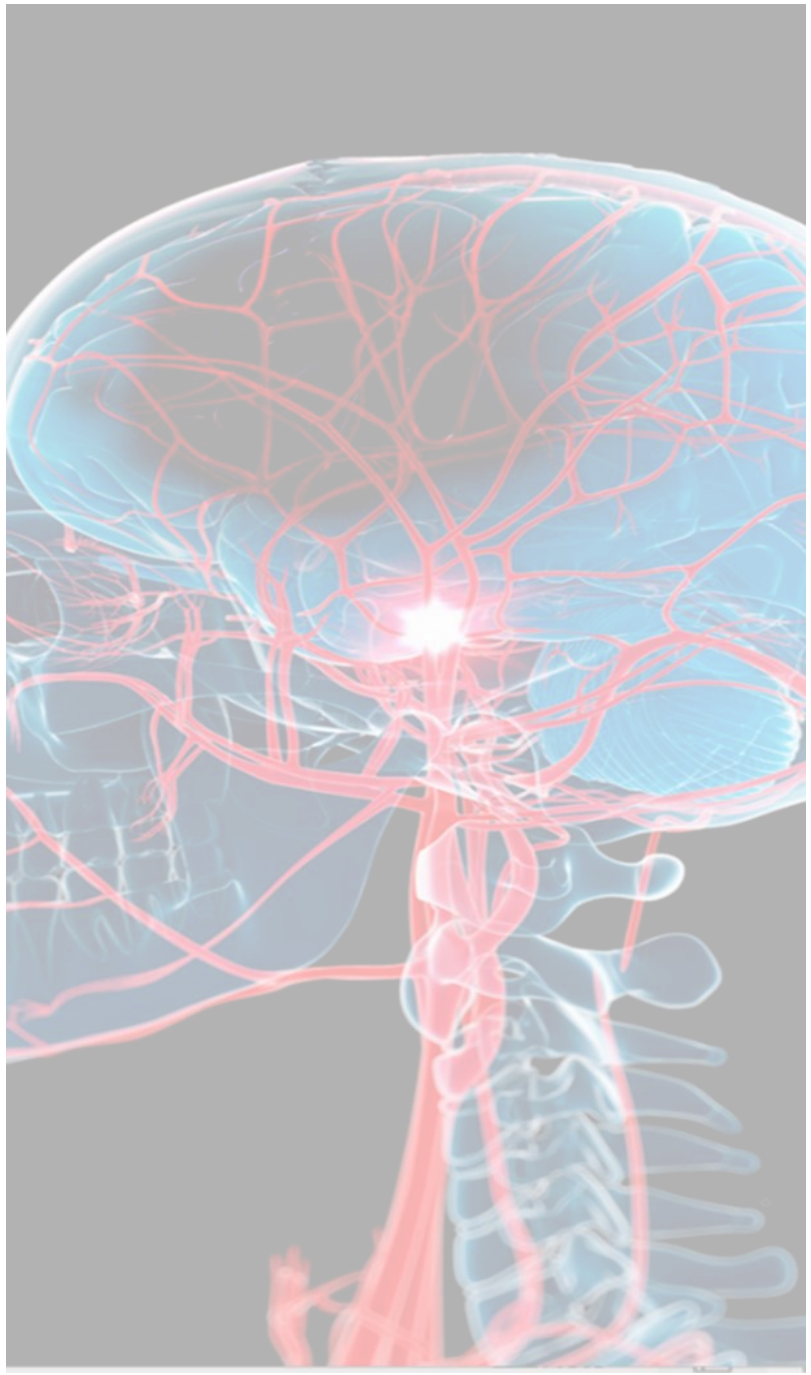


1.3. EMS Systems

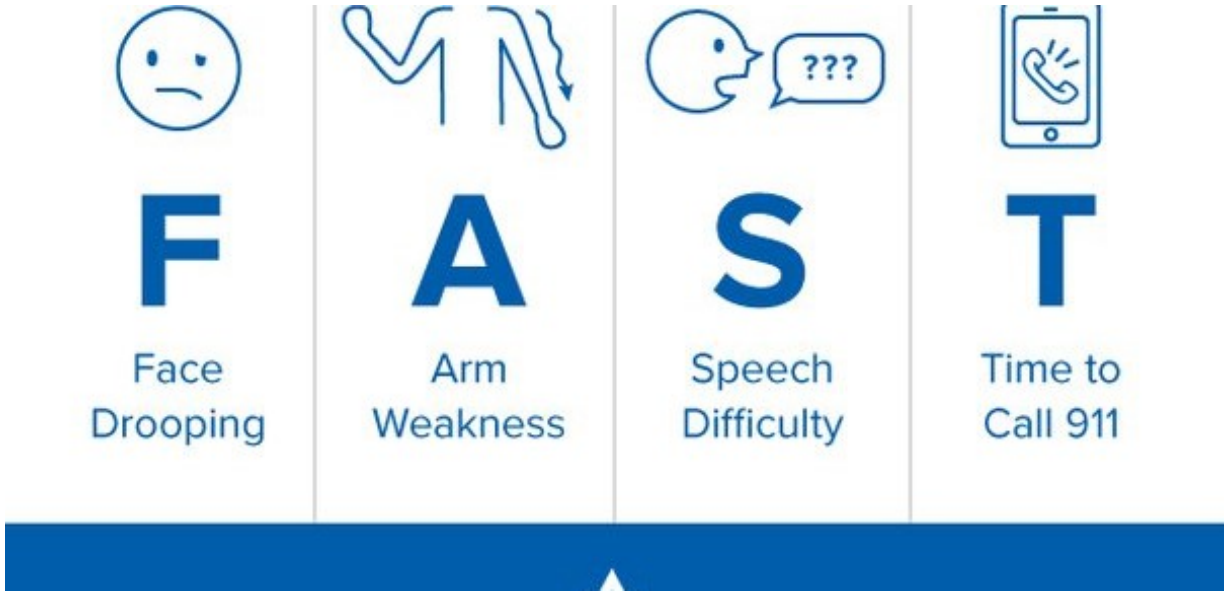
1.3. EMS Systems	COR	LOE	New, Revised, or Unchanged
1. Regional systems of stroke care should be developed. These should consist of the following: (a) healthcare facilities that provide initial emergency care, including administration of IV alteplase, and (b) centers capable of performing endovascular stroke treatment with comprehensive periprocedural care to which rapid transport can be arranged when appropriate.	I	A	Recommendation reworded for clarity from 2015 Endovascular. COR and LOE unchanged. See Table XCV in online Data Supplement 1 for original wording.
2. EMS leaders, in coordination with local, regional, and state agencies and in consultation with medical authorities and local experts, should develop triage paradigms and protocols to ensure that patients with a known or suspected stroke are rapidly identified and assessed by use of a validated and standardized tool for stroke screening.	I	B-NR	Recommendation reworded for clarity from 2013 Stroke Systems of Care. COR and LOE added to conform with ACC/AHA 2015 Recommendation Classification System. See Table XCV in online Data Supplement 1 for original wording.

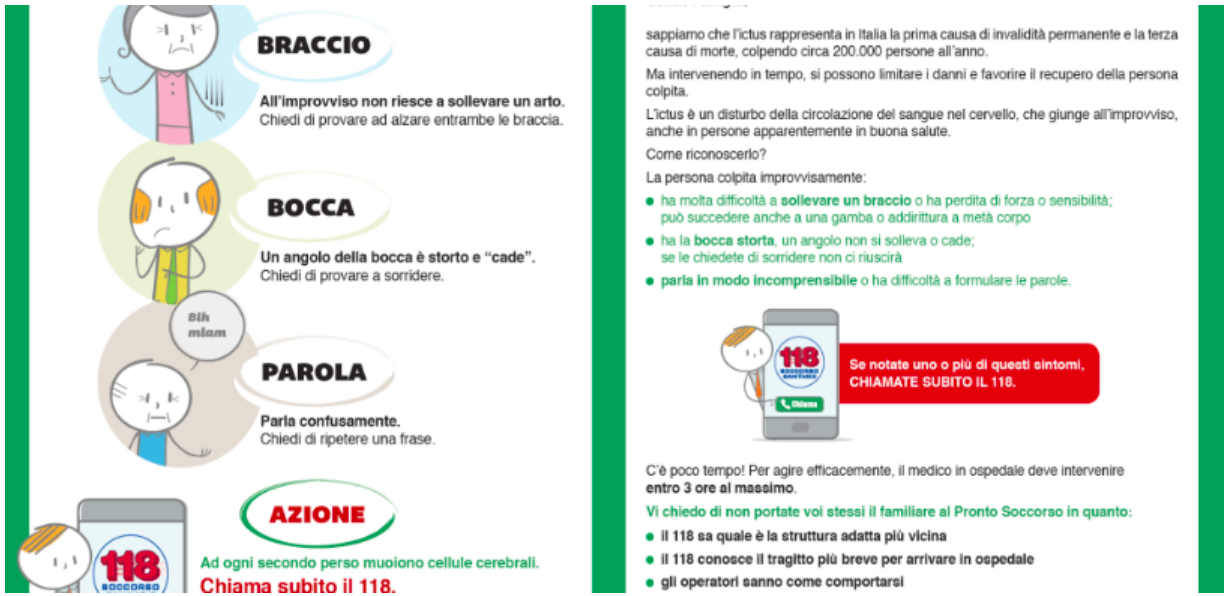
Multiple stroke screening tools have been developed for prehospital evaluation of suspected stroke. A 2016 systematic review assessed the performance of 7 tools.[26] Those with the highest number of subjects in whom the tool had been applied included Cincinnati Prehospital Stroke Scale (CPSS),[27] Los Angeles Prehospital Stroke Screen (LAPSS),[28] Recognition of Stroke in the Emergency Room (ROSIER),[29] and FAST (Face, Arm, Speech, Time).[30] CPSS and FAST performed similarly with regard to sensitivity (range, 44%–95% for CPSS, 79%–97% for FAST) but both had poor specificity (range, 24%–79% for CPSS, 13%–88% for FAST). More complex tools such as LAPSS had improved specificity (range, 48%–97%) but at the cost of sensitivity (range, 59%–91%). All tools inadequately accounted for false-negative cases, thereby likely artificially boosting performance. The review concluded that no strong recommendation could be made for use of one tool over another

See Tables III and IV in online Data Supplement 1.



3. Patients with a positive stroke screen or who are strongly suspected to have a stroke should be transported rapidly to the closest healthcare facilities that are able to administer IV alteplase.	**I**	**B-NR**	Recommendation reworded for clarity from 2013 AIS Guidelines. See Table XCV in online Data Supplement 1 for original wording.
The 2013 recommendation referred to initial emergency care as described elsewhere in the guidelines, which specified administration of IV alteplase as part of this care. The current recommendation is unchanged in intent but reworded to make this clear.			
4. When several IV alteplase–capable hospital options exist within a defined geographic region, the benefit of bypassing the closest to bring the patient to one that offers a higher level of stroke care, including mechanical thrombectomy, is uncertain.	**IIb**	**B-NR**	New recommendation.
5. Effective prehospital procedures to identify patients who are ineligible for IV thrombolysis and have a strong probability of large vessel occlusion (LVO) stroke should be developed to facilitate rapid transport of patients potentially eligible for thrombectomy to the closest healthcare facilities that are able to perform mechanical thrombectomy.	**IIb**	**C-EO**	New recommendation.
At least 6 stroke severity scales targeted at recognition of LVO in the prehospital setting to facilitate transfer to endovascular centers have been published.[31–36] The 2018 AHA systematic review on the accuracy of prediction instruments for diagnosing LVO in patients with suspected stroke concluded that "No scale predicted LVO with both high sensitivity and high specificity."[4] Specifically, the probability of LVO with a positive LVO prediction test was thought to be only 50% to 60%, whereas >10% of those with a negative test may have an LVO. Thus, more effective tools are needed to identify suspected stroke patients with a strong probability of LVO. All the scales were initially derived from data sets of confirmed stroke cases or selected prehospital cases, and there has been only limited study of their performance in the prehospital setting.[37–39] For prehospital patients with suspected LVO by a stroke severity scale, the Mission: Lifeline Severity–based Stroke Triage Algorithm for EMS[40] recommends direct transport to a comprehensive stroke center if the travel time to the comprehensive stroke center is <15 additional minutes compared with the travel time to the closest primary stroke center or acute stroke-ready hospital. However, at this time, there is insufficient evidence to recommend 1 scale over the other or a specific threshold of additional travel time for which bypass of a primary stroke center or acute stroke-ready hospital is justifiable. Given the known impact of delays to IV alteplase on outcomes,[41] the known impact of delays to mechanical thrombectomy on outcome,[42] and the anticipated delays in transport for mechanical thrombectomy in eligible patients originally triaged to a nonendovascular center, the Mission: Lifeline algorithm may be a reasonable guideline in some circumstances. Customization of the guideline to optimize patient outcomes will be needed to account for local and regional factors, including the availability of endovascular centers, door in–door out times for nonendovascular stroke centers, interhospital transport times, and DTN and door-to-puncture times. Rapid, protected, collaborative, regional quality review, including EMS agencies and hospitals, is recommended for operationalized bypass algorithms. Further research is needed.			See Table III in online Data Supplement 1.





sappiamo che l'ictus rappresenta in Italia la prima causa di invalidità permanente e la terza causa di morte, colpendo circa 200.000 persone all'anno.

Ma intervenendo in tempo, si possono limitare i danni e favorire il recupero della persona colpita.

L'ictus è un disturbo della circolazione del sangue nel cervello, che giunge all'improvviso, anche in persone apparentemente in buona salute.

Come riconoscerlo?

La persona colpita improvvisamente:

- ha molta difficoltà a **sollevare un braccio** o ha perdita di forza o sensibilità; può succedere anche a una gamba o addirittura a metà corpo
- ha la **bocca storta**, un angolo non si solleva o cade; se le chiedete di sorridere non ci riuscirà
- **parla in modo incomprensibile** o ha difficoltà a formulare le parole.

Se notate uno o più di questi sintomi, CHIAMATE SUBITO IL 118.

C'è poco tempo! Per agire efficacemente, il medico in ospedale deve intervenire **entro 3 ore al massimo**.

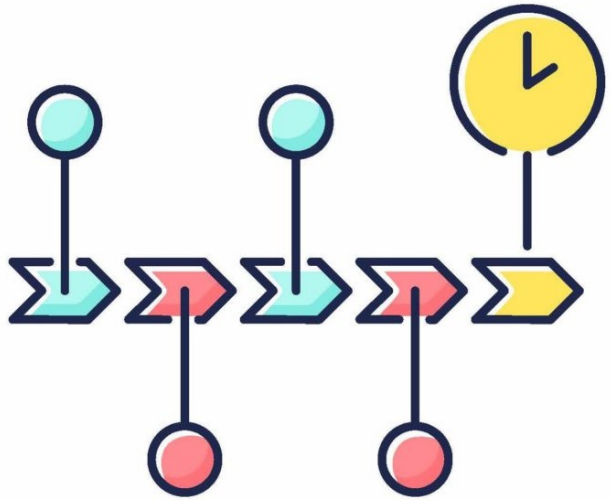
Vi chiedo di non portate voi stessi il familiare al Pronto Soccorso in quanto:

- **il 118 sa quale è la struttura adatta più vicina**
- **il 118 conosce il tragitto più breve per arrivare in ospedale**
- **gli operatori sanno come comportarsi**

LUGLIO 2022
ADOZIONE NUOVE
LG INTERNAZIONALI

NOVEMBRE 2022
DGR 7473

ATTIVAZIONE UNITÀ
FUNZIONALI



RETE STROKE: Regione Lombardia

DELIBERAZIONE N° XI / 7473 Seduta del 30/11/2022

Presidente **ATTILIO FONTANA**

Assessori regionali

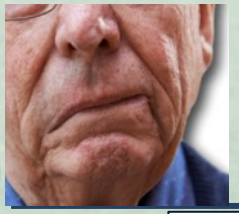
FABRIZIO SALA *Vicepresidente*	GUIDO GUIDESI
GUIDO BERTOLASO	ROMANO MARIA LA RUSSA
STEFANO BOLOGNINI	ELENA LUCCHINI
DAVIDE CARLO CAPARINI	LARA MAGONI
RAFFAELE CATTANEO	ALAN CHRISTIAN RIZZI
MELANIA DE NICHILO RIZZOLI	FABIO ROLFI
PIETRO FORONI	MASSIMO SERTORI
STEFANO BRUNO GALLI	CLAUDIA MARIA TERZI

Con l'assistenza del Segretario Enrico Gasparini

Su proposta dell'Assessore Guido Bertolaso

Oggetto

RETE REGIONALE DELLE NEUROSCIENZE: ULTERIORI DETERMINAZIONI IN MERITO ALLA RETE STROKE DI REGIONE LOMBARDIA



RETE STROKE: Regione Lombardia

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Con l'assistenza del Segretario Enrico Gasparini

Su proposta dell'Assessore Guido Bertolaso

Oggetto

RETE REGIONALE DELLE NEUROSCIENZE: ULTI
REGIONE LOMBARDIA

DELIBERA

1. di approvare il documento tecnico *"RETE STROKE DI REGIONE LOMBARDIA. Identificazione in fase preospedaliera del paziente adulto con ictus. Criteri di centralizzazione. Definizione dei nodi della rete"* predisposto dalla Commissione Tecnica "Ictus (STROKE)" della Rete delle Neuroscienze – Allegato parte integrante del presente provvedimento;

RETE STROKE: Regione Lombardia

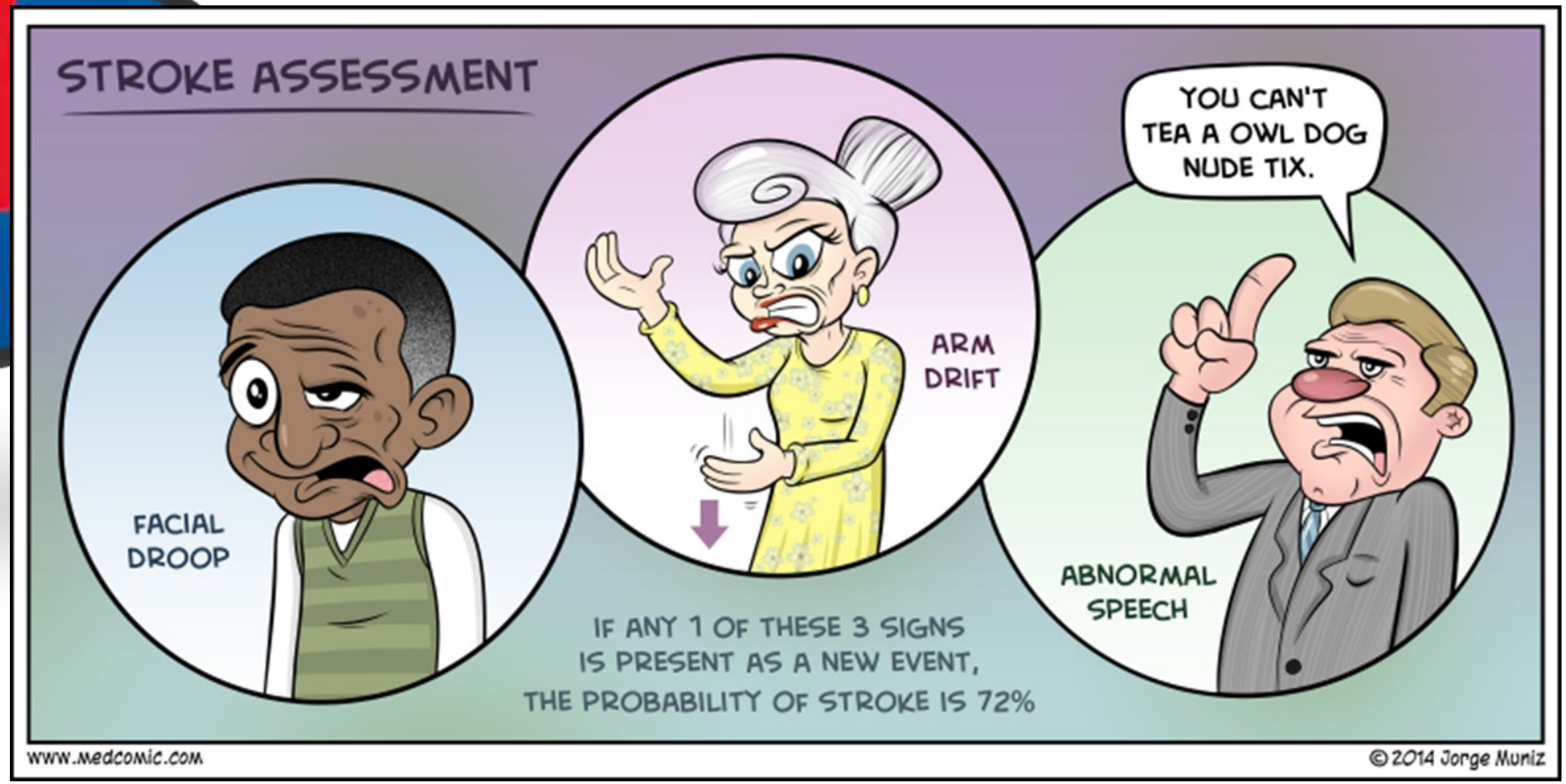
Riconoscimento precoce
e Allarme 112

Arrivo dei soccorsi e
videochiamata

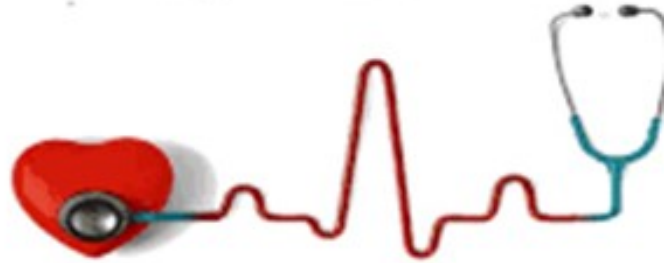
CODICE ICTUS

Allertamento precoce PS

RETE STROKE: riconoscimento precoce



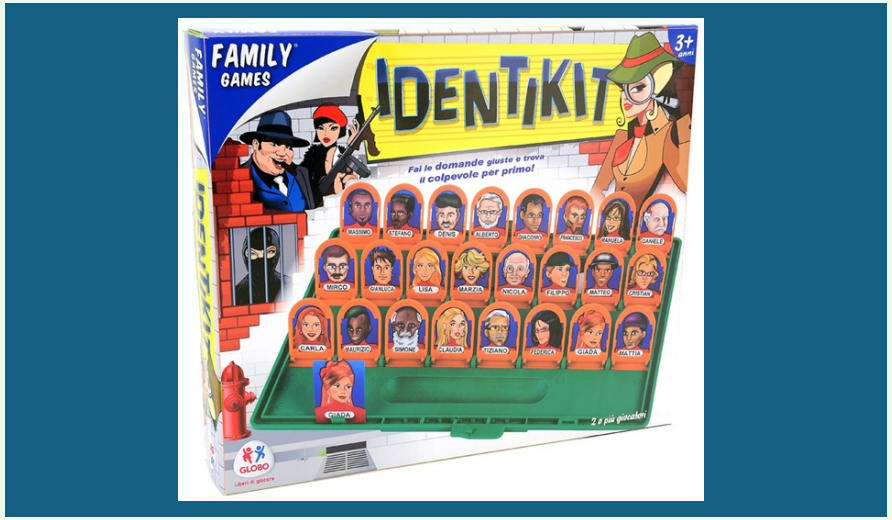
RETE STROKE: dispatch e soccorsi



STROKE PRIORITY

RETE STROKE: dispatch e soccorso

CODICE ICTUS

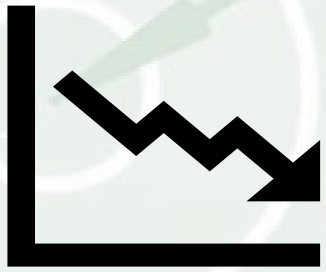


- CPSS
- Videochiamata
- Rankin <=3
- Orario esordio, anamnesi, Care-Giver, terapia anticoagulante

CODICE ICTUS identificazione

IMPATTO SU PRONTO SOCCORSO E SUL PAZIENTE

FALSI POSITIVI



FALSI NEGATIVI

RETE STROKE: ospedalizzazione

UNITÀ FUNZIONALI

AREE COMPRENDENTI STRUTTURE SANITARIE CHE GARANTISCONO LIVELLI DI CURA DIFFERENTI

RETE STROKE: ospedalizzazione

II LIVELLO ASST PAPA GIOVANNI XXIII PO Papa Giovanni XXIII	
I LIVELLO	**OSPEDALE SENZA STROKE UNIT SEDE DI PS**
ASST DI BERGAMO OVEST Ospedale Treviglio Caravaggio	Humanitas Gavazzeni
ASST BERGAMO EST PO "Bolognini" Seriate	Policlinico San Pietro
Policlinico San Marco	ASST BERGAMO EST PO "Pesenti-Fenaroli" Alzano Lombardo
	ASST BERGAMO EST PO "M.O.A Locatelli" Piario
	ASST BERGAMO EST PO " SS. Capitanio e Gerosa " Lovere
	ASST PAPA GIOVANNI XXIII Ospedale Civile - San Giovanni Bianco
	ASST DI BERGAMO OVEST Osp.le SS. Trinità - Romano di Lombardia

CODICE ICTUS: criteri di centralizzazione

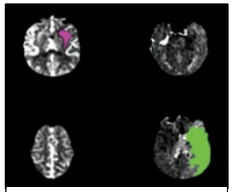
MOTHERSHIP URBANO

STROKE UNIT I LIVELLO

30-45 MINUTI

STROKE UNIT II LIVELLO

DRIP and SHIP RURALE

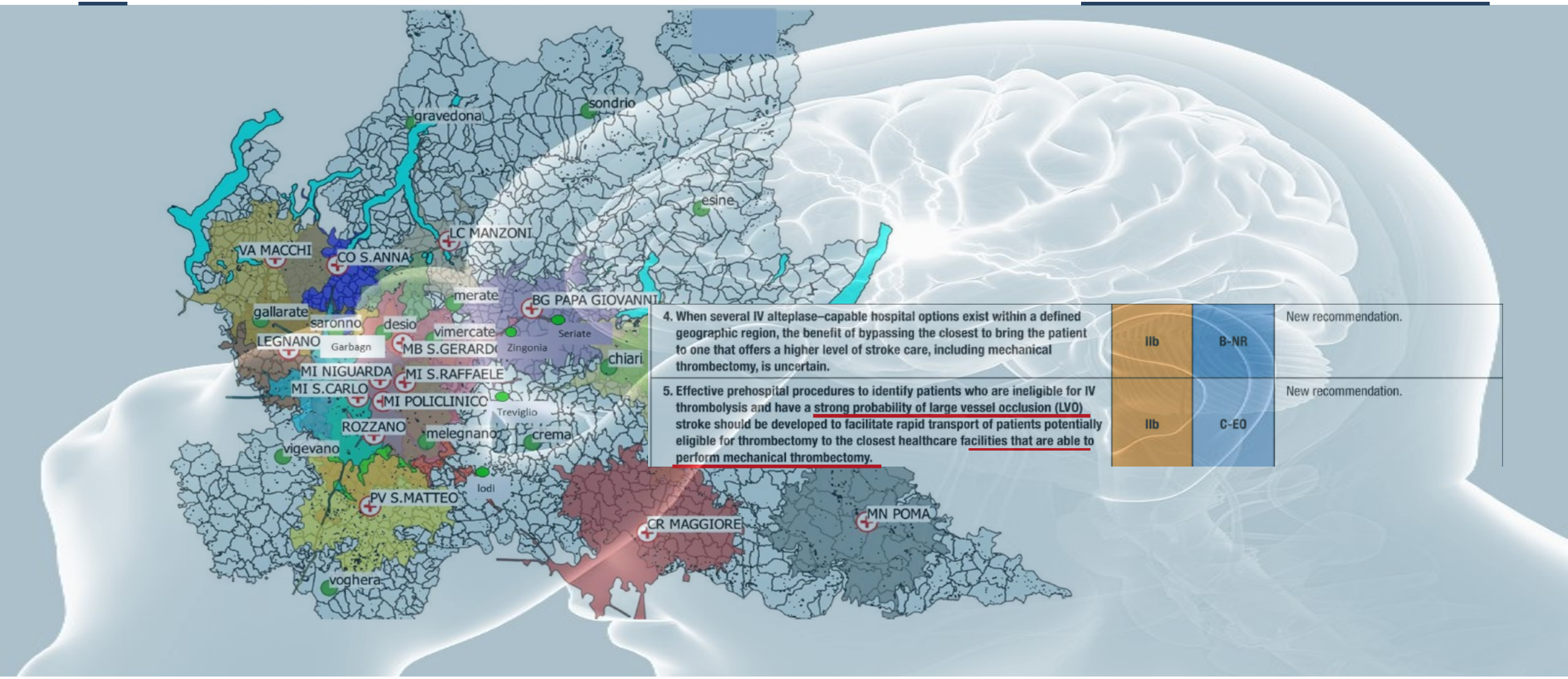


STROKE UNIT I LIVELLO

STROKE UNIT II LIVELLO

RETE STROKE

Fig. 5 AREE DI CENTRALIZZAZIONE SECONDO IL MODELLO MOTHERSHIP A 45 MINUTI DI PERCORRENZA DA STROKE UNIT DI II LIVELLO

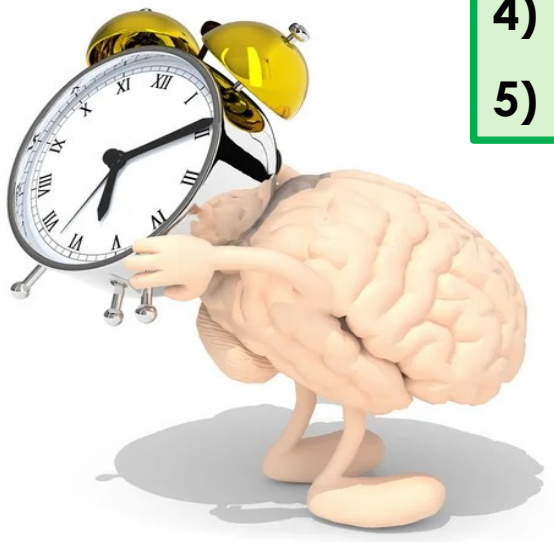


4. When several IV alteplase–capable hospital options exist within a defined geographic region, the benefit of bypassing the closest to bring the patient to one that offers a higher level of stroke care, including mechanical thrombectomy, is uncertain.	IIb	B-NR	New recommendation.
5. Effective prehospital procedures to identify patients who are ineligible for IV thrombolysis and have a strong probability of large vessel occlusion (LVO) stroke should be developed to facilitate rapid transport of patients potentially eligible for thrombectomy to the closest healthcare facilities that are able to perform mechanical thrombectomy.	IIb	C-EO	New recommendation.

CODICE ICTUS: preallerta

UNA CORRETTA COMUNICAZIONE

1) **SCALA RANKIN**
2) **ORARIO ESATTO ESORDIO DEI SINTOMI (LKW/non noto)**
3) **TERAPIA ANTICOAGULANTE (TAO,NAO)**
4) **ANAMNESI**
5) **CAREGIVER**



✓RIDUCE I TEMPI DI VALUTAZIONE DEL NEUROLOGO E DI PRESA IN CARICO

✓ATTIVA LO STROKE TEAM (neurologo, neuroradiologo, laboratorio urgenza)

✓ATTIVA I PERCORSI FAST TRACK INTRA-OSPEDALIERI

Attività Regione 2022 vs 2023

TOTALI 2022	liv	dg ictus	%
	I	2312	37
	II	3728	60
	NO	131	2
	ALTRO	47	1
	tot	6218	100

TOTALI 2023	liv	dg ictus	%
	I	1165	21
	II	4348	77
	NO	127	2
	ALTRO	28	0
	tot	5668	100

livello SU 22	CODICE ICTUS	NON CODICE ICTUS	% CODICE ICTUS
I	1572	740	25
II	2875	853	46
NON SU	39	92	1
ALTRO	24	23	0
tot	4510	1708	6218

livello SU 23	CODICE ICTUS	NON CODICE ICTUS	% CODICE ICTUS
I	499	666	9
II	3615	733	64
NON SU	59	68	1
ALTRO	16	12	0
tot	4189	1479	5668

Fonte dati Tavolo dello Stroke

Regione Lombardia - H Bergamo Papa Giovanni 2022-2023

2022

249 CODICI ICTUS

19 non codice ictus

2023

270 CODICE ICTUS

10 non codice ictus

H Bergamo Papa Giovanni 2023 1°vs 2° semestre

CODICE ICTUS	NON Codice Ictus
56% vs 79% S.U. 2°livello	28% vs 31% S.U. 2°livello
35% vs 16% S.U. 1°livello	39% vs 50% S.U. 1°livello
9% vs 4.5% non S.U.	29% vs 18% non S.U.

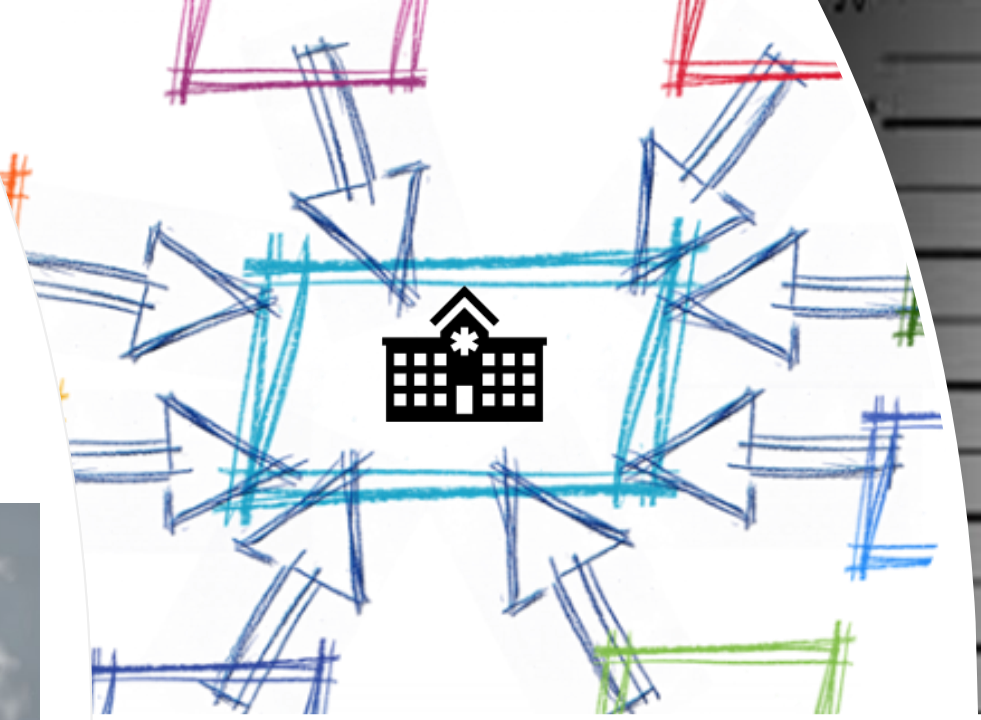
H Bergamo Papa Giovanni 2023 1°vs 2° semestre

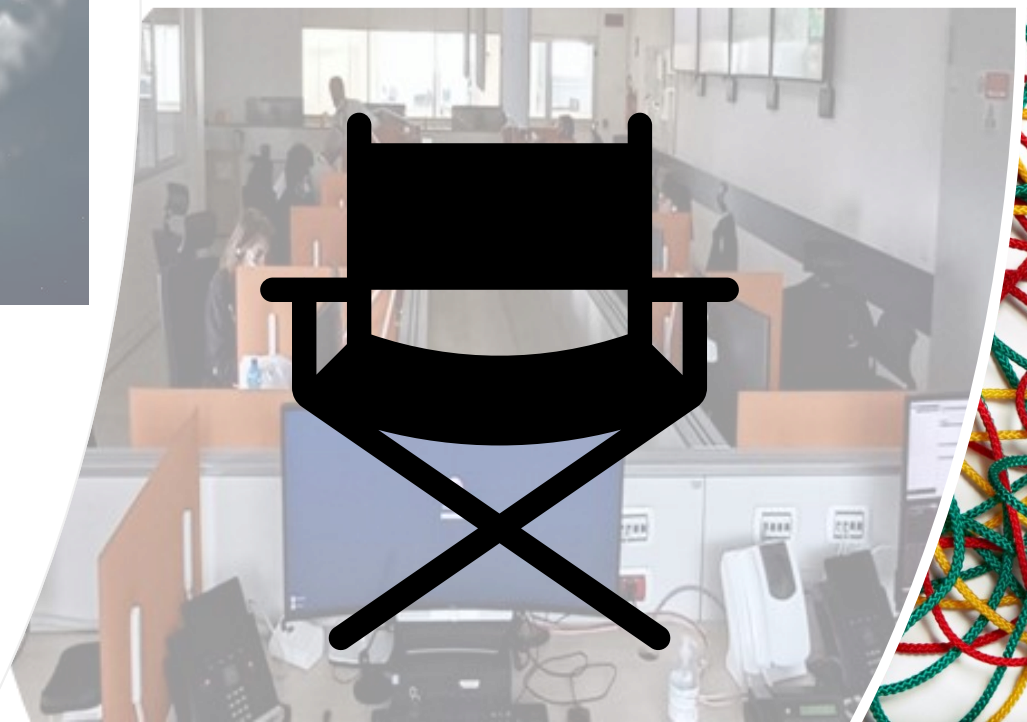
T chiamata - T arrivo H

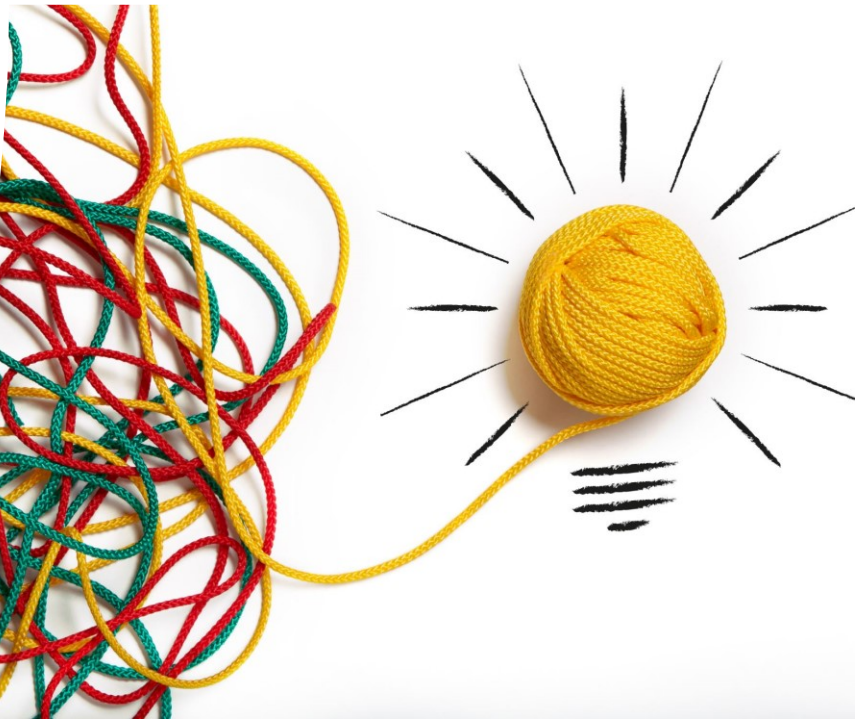
Media 1h, 03 min
Min 27 min
Max 2h, 39 min

I “NOSTRI” spunti di miglioramento

I «NOSTRI» spunti di miglioramento







l lavoro di squa
divide i compiti e
moltiplica il succes

rasi

Grazie