Supplementary Material

Machline-Carrion MJ, Santucci EV, Damiani LP, et al; BRIDGE-Stroke Investigators. Effect of a quality improvement intervention on adherence to therapies for patients with acute ischemic stroke and transient ischemic attack: a cluster randomized clinical trial. *JAMA Neurol*. Published online May 6, 2019. doi:10.1001/jamaneurol.2019.1012

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This supplementary material has been provided by the authors to give readers additional information about their work.

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eMethods 1. Details of the Baseline Observational Phase

We conducted a baseline survey in participating clusters using the same eligible criteria for patient's inclusion (approximately 30 patients per cluster were prospectively included in this phase). This survey was conducted before randomization to avoid potential systematic errors caused by awareness of allocation to intervention and control groups. In all participating clusters, data were collected prospectively by a trained independent research nurse. Adherence to guidelines was assessed by a chart review, patient files, and physician prescriptions. Data were entered using a web-based data capture system as the same tool as that in the formal trial. The main objective of the baseline pre-randomization survey was to assess whether clusters were comparable regarding baseline adherence to evidence-based performance measures and to obtain reliable estimates for our sample size estimation as reported in the main text and in the study protocol. We used the same endpoint definition used in the randomized phase. The composite measure was defined as the total number of interventions performed among eligible patients divided by the total number of possible interventions among eligible patients. Results from this survey are available in eTable 1.

eMethods 2. Details of the Intervention

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The multifaceted quality improvement intervention includes case management, a therapeutic plan roadmap and checklist, educational materials, interactive workshops, and periodic audit and feedback reports to each cluster.

Case Management

Case management is conducted by a team of health professionals from each cluster, including a physician leader and trained nurses. The teams are responsible for the timely delivery of the materials and for checking the implementation of effective management, supporting the management when it is needed and acting as quality improvement monitors.

Reminders and Treatment Algorithm

To facilitate the visualization of important interventions and their relation to the time of care, different reminders may be used: a) Patient wristband (Patient Bracelet) and b) a therapeutic plan (Treatment Algorithm) to be attached to the admission form or medical record. The reminders and Treatment Algorithm were designed to be implemented in sequence during the management of AIS and TIA patients. First, a colored wristband is given to an AIS or TIA potential patient. Once a potential diagnosis is given to a patient, the nurse gives the attending physician a Treatment Algorithm. This algorithm consists of a therapeutic plan “roadmap” for quick reference and checking, guiding the physician and nurses from appropriate AIS or TIA diagnosis confirmation to the complete sequence of adequate treatments required during hospitalization until hospital discharge. The treatment management plan requires that the attending physician check and confirm the use of all suggested evidence-based interventions. The colored wristband (bracelet) helps promptly identify AIS or TIA patients in the emergency department and in subsequent units (e.g. intensive care units, infirmary etc) to avoid delays in initiating recommended therapies.

Patient Wristband

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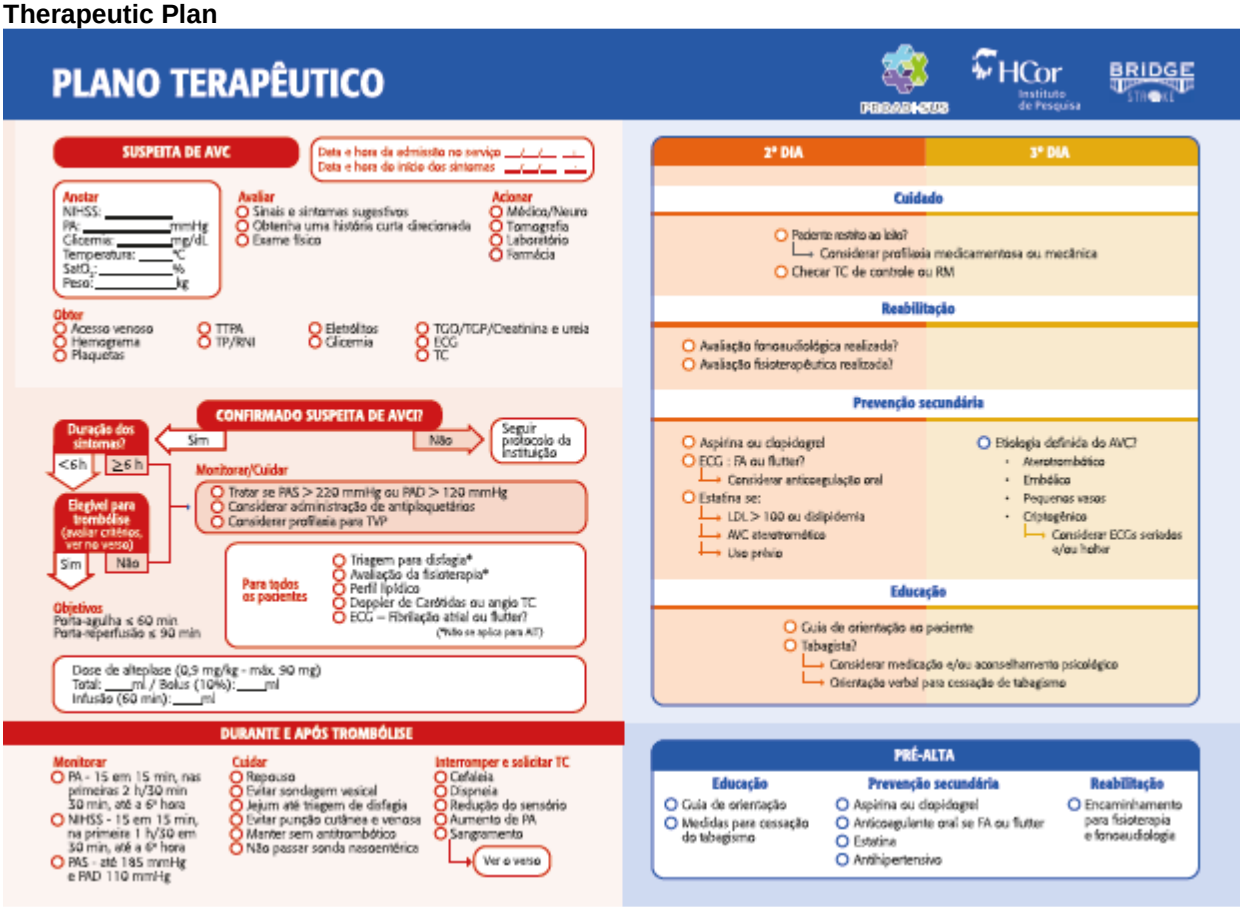
Therapeutic Plan



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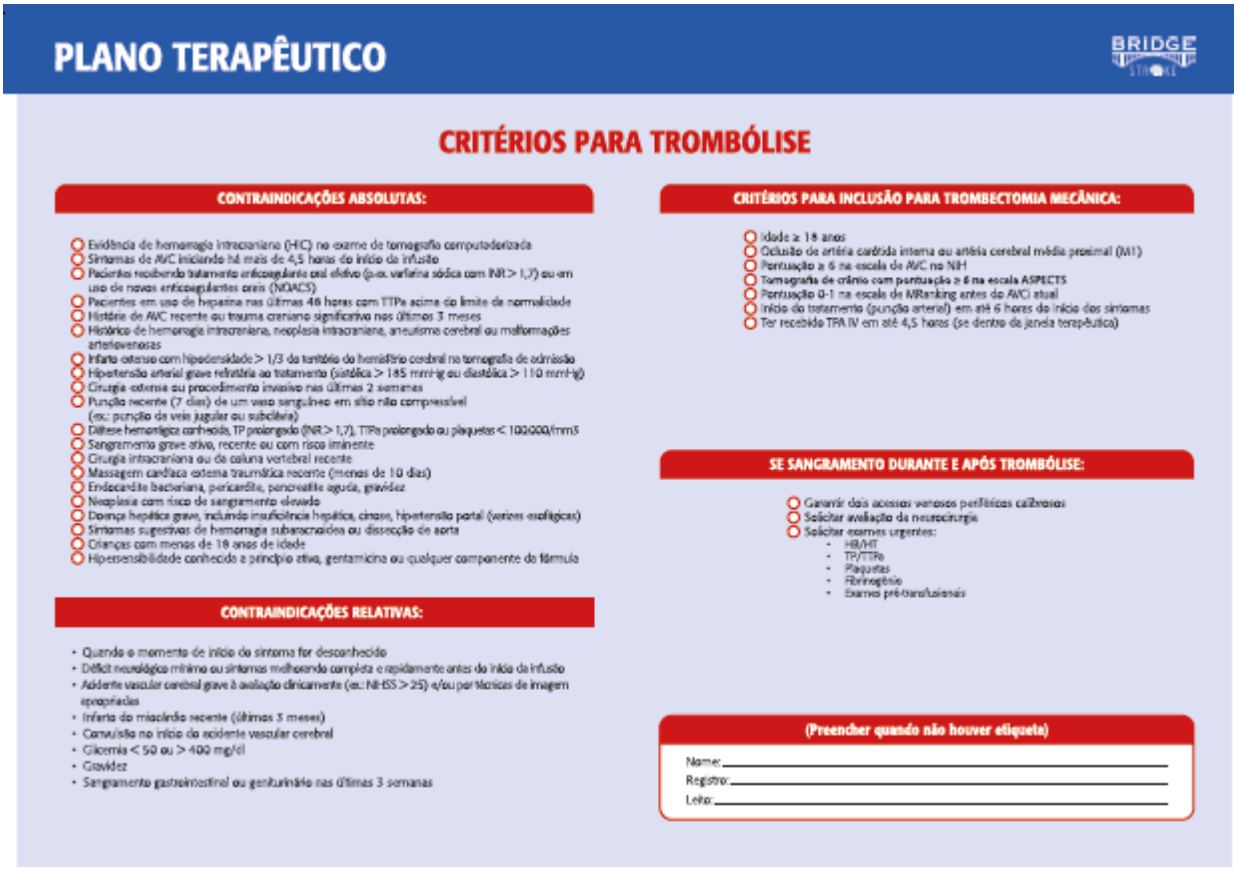

PLANO TERAPÊUTICO

BRIDGE STROKE

CRITÉRIOS PARA TROMBÓLISE

CONTRAINDICAÇÕES ABSOLUTAS:

- Evidência de hemorragia intracraniana (HIC) no exame de tomografia computadorizada
- Sintomas de AVC iniciando há mais de 4,5 horas do início da infusão
- Pacientes recebendo tratamento anticoagulante oral efetivo (p.ex. varfarina sódica com INR > 1,7) ou em uso de novos anticoagulantes orais (NOACS)
- Pacientes em uso de heparina nas últimas 48 horas com TTPa acima do limite de normalidade
- História de AVC recente ou trauma craniano significativo nos últimos 3 meses
- Histórico de hemorragia intracraniana, neoplasia intracraniana, aneurisma cerebral ou malformações arteriovenosas
- Infarto extenso com hipodensidade > 1/3 do território do hemisfério cerebral na tomografia de admissão
- Hipertensão arterial grave refratária ao tratamento (sistólica > 185 mmHg ou diastólica > 110 mmHg)
- Cirurgia extensa ou procedimento invasivo nas últimas 2 semanas
- Punção recente (7 dias) de um vaso sanguíneo em sítio não compressível (ex: punção da veia jugular ou subclávia)
- Diátese hemorrágica conhecida, TP prolongado (INR > 1,7), TTPa prolongado ou plaquetas < 100000/mm3
- Sangramento grave ativo, recente ou com risco iminente
- Cirurgia intracraniana ou da coluna vertebral recente
- Massagem cardíaca externa traumática recente (menos de 10 dias)
- Endocardite bacteriana, pericardite, pancreatite aguda, gravidez
- Neoplasia com risco de sangramento elevado
- Doença hepática grave, incluindo insuficiência hepática, cirrose, hipertensão portal (varizes esofágicas)
- Sintomas sugestivos de hemorragia subaracnoides ou dissecção de aorta
- Crianças com menos de 18 anos de idade
- Hipersensibilidade conhecida a princípio ativo, gentamicina ou qualquer componente da fórmula

CONTRAINDICAÇÕES RELATIVAS:

- Quando o momento de início do sintoma for desconhecido
- Déficit neurológico mínimo ou sintomas melhorando completa e rapidamente antes do início da infusão
- Acidente vascular cerebral grave à avaliação clinicamente (ex: NIHSS > 25) e/ou por técnicas de imagem apropriadas
- Infarto do miocárdio recente (últimos 3 meses)
- Convulsão no início do acidente vascular cerebral
- Glicemia < 50 ou > 400 mg/dl
- Gravidez
- Sangramento gastrointestinal ou geniturinário nas últimas 3 semanas

CRITÉRIOS PARA INCLUSÃO PARA TROMBECTOMIA MECÂNICA:

- Idade ≥ 18 anos
- Oclusão de artéria carótida interna ou artéria cerebral média proximal (M1)
- Pontuação ≥ 6 na escala de AVC no NIH
- Tomografia de crânio com pontuação ≥ 6 na escala ASPECTS
- Pontuação 0-1 na escala de MRanking antes do AVCi atual
- Início do tratamento (punção arterial) em até 6 horas do início dos sintomas
- Ter recebido TPA IV em até 4,5 horas (se dentro da janela terapêutica)

SE SANGRAMENTO DURANTE E APÓS TROMBÓLISE:

- Garantir dois acessos venosos periféricos calibrosos
- Solicitar avaliação da neurocirurgia
- Solicitar exames urgentes:
  - HB/HT
  - TP/TTPa
  - Plaquetas
  - Fibrinogênio
  - Exames pré-transfusionais

(Preencher quando não houver etiqueta)

Nome: _____

Registro: _____

Leito: _____

Educational Posters:

These posters are distributed by the emergency department and in all hospital units to draw the attention of the team about techniques that can support better practices.

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Stroke Symptoms (FAST) Poster

Educational Materials:

To each hospital printed, physical or electronic material are provided to support and motivate best practices. These materials included a rt-PA kit case, a bedside dysphagia screening test, the NIH Stroke Scale, a medication brochure, and a patient educational brochure.

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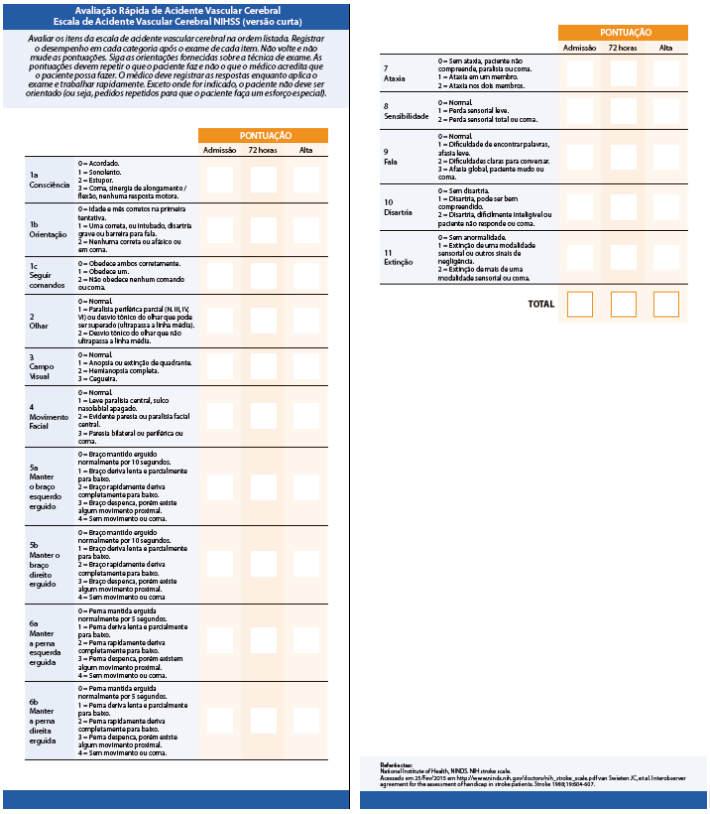


Avaliação Rápida de Acidente Vascular Cerebral
Escala de Acidente Vascular Cerebral NIHSS (versão curta)

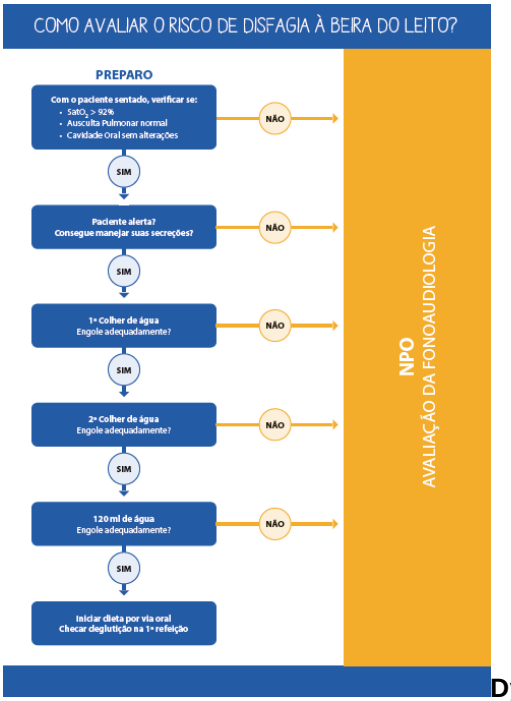
Avaliar os itens da escala de acidente vascular cerebral na ordem listada. Registrar o desempenho em cada categoria após o exame de cada item. Não volte e não mude as pontuações. Siga as orientações fornecidas sobre a técnica de exame. As pontuações devem repetir o que o paciente faz e não o que o médico acredita que o paciente possa fazer. O médico deve registrar as respostas enquanto aplica o exame e trabalhar rapidamente. Exceto onde for indicado, o paciente não deve ser orientado (ou seja, pedidos repetidos para que o paciente faça um esforço especial).

		PONTUAÇÃO		
		Admissão	72 horas	Alta
1a Consciência	0 = Acordado. 1 = Sonolento. 2 = Estupor. 3 = Coma, sinergia do alongamento / flexão, nenhuma resposta motora.			
1b Orientação	0 = Idade e mês corretos na primeira tentativa. 1 = Uma correta, ou intubado, disartria grave ou barreira para fala. 2 = Nenhuma correta ou afásico ou em coma.			
1c Seguir comandos	0 = Obedece ambos corretamente. 1 = Obedece um. 2 = Não obedece nenhum comando ou coma.			
2 Olhar	0 = Normal. 1 = Paralisia parcial (N. III, IV, VI) ou desvio tônico do olhar que pode ser superado (ultrapassa a linha média). 2 = Desvio tônico do olhar que não ultrapassa a linha média.			
3 Campo Visual	0 = Normal. 1 = Anopsia ou extinção de quadrante. 2 = Hemianopsia completa. 3 = Cegueira.			
4 Movimento Facial	0 = Normal. 1 = Leve paralisia central, sulco nasolabial apagado. 2 = Evidente paresia ou paralisia facial central. 3 = Paresia bilateral ou periférica ou coma.			
5a Manter o braço esquerdo erguido	0 = Braço mantido erguido normalmente por 10 segundos. 1 = Braço deriva lenta e parcialmente para baixo. 2 = Braço rapidamente deriva completamente para baixo. 3 = Braço despenca, porém atinge algum movimento proximal. 4 = Sem movimento ou coma.			
5b Manter o braço direito erguido	0 = Braço mantido erguido normalmente por 10 segundos. 1 = Braço deriva lenta e parcialmente para baixo. 2 = Braço rapidamente deriva completamente para baixo. 3 = Braço despenca, porém atinge algum movimento proximal. 4 = Sem movimento ou coma			
6a Manter a perna esquerda erguida	0 = Perna mantida erguida normalmente por 5 segundos. 1 = Perna deriva lenta e parcialmente para baixo. 2 = Perna rapidamente deriva completamente para baixo. 3 = Perna despenca, porém existem algum movimento proximal. 4 = Sem movimento ou coma.			
6b Manter a perna direita erguida	0 = Perna mantida erguida normalmente por 5 segundos. 1 = Perna deriva lenta e parcialmente para baixo. 2 = Perna rapidamente deriva completamente para baixo. 3 = Perna despenca, porém existe algum movimento proximal. 4 = Sem movimento ou coma.			

		PONTUAÇÃO		
		Admissão	72 horas	Alta
7 Ataxia	0 = Sem ataxia, paciente não compreende, paralisia ou coma. 1 = Ataxia em um membro. 2 = Ataxia nos dois membros.			
8 Sensibilidade	0 = Normal. 1 = Perda sensorial leve. 2 = Perda sensorial total ou coma.			
9 Fala	0 = Normal. 1 = Dificuldade de encontrar palavras, afasia leve. 2 = Dificuldades claras para conversar. 3 = Afasia global, paciente mudo ou coma.			
10 Disartria	0 = Sem disartria. 1 = Disartria, pode ser bem compreendido. 2 = Disartria, dificilmente inteligível ou paciente não responde ou coma.			
11 Extinção	0 = Sem anormalidade. 1 = Extinção de uma modalidade sensorial ou outros sinais de negligência. 2 = Extinção de mais de uma modalidade sensorial ou coma.			
TOTAL				

Referências:
National Institute of Health, NINDS. NIH stroke scale.
Acessado em 25/fev/2015 em http://www.ninds.nih.gov/doctors/nih_stroke_scale.pdf Van Swieten JC, et al. Interobserver agreement for the assessment of handicap in stroke patients. Stroke 1988;19:604-607.

NIH Stroke Scale



Dysphagia Screening Bedside Test

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Medication Brochure

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BRIDGE STROKE

HIPOLIPEMIANTE

Fármaco	Nome comercial	Apresentação	Dose
Atorvastatina	Lipitor *, Citalor*, Atorless*, Kolevas*, Lipigran*, Lipistat*	Comprimidos	10 a 80 mg
Rosuvastatina	Crestor *, Rosucor*, Rosustati*	Comprimidos	5 a 40 mg
Sinvastatina	Zocor*, Clinfar*, Lipotex*, Sinvalip*, Sinvascor*, Sinvastaco*, Sinvatrox*	Comprimidos	10 a 40 mg
Pravastatina	Pravacol*, Lenitral*, Mevalotin*	Comprimidos	10 a 80 mg
Lovastatina	Mevacor*, Lovaton *	Comprimidos	20 a 40 mg
Fluvastatina XL	Lescol*	Comprimidos	20 a 80 mg
Pitavastatina	Livalo®	Comprimidos	1 a 4 mg
Ezetimibe*	Zetia®	Comprimidos	10 mg

Reações advsersas:	Precauções para reduzir Miopatia, evitar as seguintes drogras quando possível:
• Mialgia com ou sem elevação da creatinoquinase (CK) • Rabdomiólise é rara	• Niacina • Fibratos (genfibrozila) • Diltiazem, Verapamil • Azitromicina, Laritromicina, Eritromicina • Fluconazol, Itraconazol, Cetoconazol • Amprenavir, Ilndinavir, Nelfinavir, Ritonavir, Saquinavir • Ciclosporina, Tacrolimos • Nefazodona • Sildenafil • Digoxina

ANTITROMBÓTICOS

Droga	Apresentação	Nome comercial	Dose
Ácido Acetilsalicílico/ Aspirina	100/325/500/	AAS*, Gencardia*, Aspirina*, Doril*, Melhoral*, Somalgin*, Caprin*, Nu-Seals*, Albyl*, Micropirin*, Angettes 75*	100 a 300 mg 1x/dia
Clopidogrel	75mg	Plavix*, Iscover*	75 mg 1x/dia
Dipiridamol	75 e 100 mg	Persantin*, Persantin Retard*	75 ou 100 mg 3 a 4x/dia
Ticagrelor	90 mg	Brilinta*	90 mg 2x/dia
Warfarina	2,5/5,0 ou 7,5 mg	Marevan*	RNI 2,0 -3,0
Dabigatrana	110 e 150 mg	Pradaxa*	300mg /dia (150 mg 12/12h) - A posologia deve ser reduzida para 150 mg de Pradaxa (2 cápsulas de 75 mg) uma vez ao dia em pacientes com insuficiência renal moderada (CLcr de 30-50 mL/min). - Pacientes ≥80 anos devem ser tratados com dose diária de 220 mg (1 cápsula de 110 mg duas vezes ao dia).

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ANTITROMBÓTICOS

Contra indicação	Efeitos colaterais
Hipersensibilidade, asma, úlcera péotica, insuficuência renal, hepática e cardíaca graves, gestação (último trimestre)	Dispepsia, micro-hemorragias, náuseas, vômitos; sangramentos, síndrome de Rey, hepatite são raros
Úlcera péptica, hemorragia intracraniana, gestação, hipersensibilidade	Dispepsia, constipação, dor abdominal, diarréia, alterações cutâneas; Hemorragias são pouco frequentes
Hipersensibilidade	Cefaleia, náusea, vômito, desconforto gastrointestinal, hipotensão
Hipersensibilidiade, sangramento patológico ativo, hemorragia intracraniana prévia, insuficiência hepática grave	Dispneia, cefaleia, epistaxe, sangramentos (menos comuns)
Doença hepática ou renal grave, hemorragia, gestação, lactação, hipersensibilidade, 24 horas pré e pós parto ou cirurgia, incapacidade para compreender o tratamento ou indisponibilidade de laboratório confiável próximo	Náusea, vômito, diarreia, flatulência, pancreatite, cefaleia, anafilaxia, alergia, nefropatias, letargia, exantema, urticária, hemotórax, sangramento nasal, leucopenia, anemia
Hipersensibilidade conhecida à dabigatrana ou ao etexilato de dabigatrana ou a algum dos excipientes do produto - Insuficiência renal grave (CLcr < 30 mL/min), pois não há dados que apoiem o uso nestes pacientes - Manifestações hemorrágicas, pacientes com diáteses hemorrágicas, ou pacientes com comprometimento espontâneo ou farmacológico da hemostasia - Lesão de órgãos em risco de sangramento clinicamente significativo, inclusive acidente vascular cerebral hemorrágico nos últimos 6 meses - Tratamento concomitante com cetoconazol sistêmico - Pacientes com próteses de valvas cardíacas	Sangramento, anemia, epistaxe, hemorragias gastrintestinal, urogenital e cutânea, dor abdominal, diarreia, dispepsia, náusea, trombocitopenia, hipersensibilidade, prurido, rash, hemorragias, incluindo intracraniana, hematoma, hemoptise, disfagia, úlcera gastrintestinal e esofágica, gastroesofagite, doença do refluxo gastroesofágico, vômitos, função hepática anormal, urticária, angioedema, hemartrose, hemorragia no local de injeção/cateter/incisão, hemorragia traumática

ANTITROMBÓTICOS

Droga	Apresentação	Nome comercial	Dose
Rivaroxabana	15 e 20 mg	Xarelto®	20 mg/dia (15 mg/dia em pacientes com ClCr < 50-30 mL/min)
Apixabana	2,5 e 5 mg	Eliquis®	5 mg 12/12h (2,5 mg em pacientes com pelo menos 2 das seguintes Características: Idade ≥ 80 anos, Peso corporal ≤ 60 kg Creatinina sérica ≥ 1,5 mg/dL

ANTIHIPERTENSIVO/IECA

Classe farmacológica	Fármaco	Nome comercial
Diuréticos tiazídicos	Hidroclorotiazida	Clorana®, Drenol®, Diuretic®, Hidroflux®
	Clortalidona	Higroton®, Clordilon®, Clortalil®, Clorton®, Drenidra®, Neolidona®
Agentes poupadores de potássio	Espironolactona	Aldactone®, Aldosterin®, Diacqua®, Espirolona®, Spiroctan®
Betabloqueadores seletivos	Atenolol	Ablok®, Angipress®, Atenopres®, Plenacor®
	Metoprolol Succinato	Selozok®, Selopress®, Zok®
	Metoprolol Tartarato	Popressor®
Agentes alfa e betabloqueadores	Carvedilol	Coreg®, Cardilol®, Carvedilat®, Divelol®, Ictus®, Karvil®
Betabloqueadores não seletivos	Propranolol	Inderal®, Rebaten LA®, Antitensin®, Hipernolol®
Antiadrenérgicos de ação central	Metildopa	Aldomet®
Bloqueadores seletivos dos canais de cálcio (diidropiridina)	Anlodipino	Norvasc, Amlocor®, Amlovasc®, Anlo®, Anlodibal®, Cordarex®, Nicord®, Novarsc®, Pressat®, Roxflan®
	Nifedipino	Adalat®, Adalat Oros®, Adalat Retard®, Cardalin®, Dilaflux®, Oxcord Retard®, Oxcord®
Bloqueadores seletivos dos canais de cálcio (fenilalquilamina)	Verapamil	Dilacoron®, Coronaril®, Dilacor®, Neo Verpamil®, Vasoton®

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ANTIHIPERTENSIVO/IECA

	Concentração	Dose mínima	Dose máxima	Tomadas ao dia
	12,5 mg/25 mg	12,5 – 25 mg	50 mg	1
	25 mg ou 100 mg	25 mg	100 mg	1 - 2
	50 mg/100 mg	25 mg	100 mg	1 - 2
	25 mg/50 mg/100 mg	25 – 100 mg	200 mg	1 - 2
	100 mg	25 – 100 mg	200 mg	1 - 2
	3.125 mg/6,25 mg/12,5 mg/25 mg	12,5 mg	50 mg	1 - 2
	10 mg/40 mg	40 mg	240 mg	2 - 3
	250 mg	500 mg	1.500 mg	2 - 3
	5 mg/10 mg	5mg	10 mg	1
	10 mg	20 – 40 mg	60 mg	3
	80 mg/120 mg	80 – 120 mg	480 mg	2 -3

ANTIHIPERTENSIVO/IECA

Classe farmacológica	Fármaco	Nome comercial
Agentes que atuam no músculo liso Arteriolar	Hidralazina	Apresolina®, Nepresol®
Inibidores da enzima conversorade angiotensina IECA	Captopril	Capoten®, Capotril®
	Enalapril	Renitec®, Eupressin®, Pressotec®, Vasopril®, Atens®, Enaprotec®, Angiopril®, Zestril®, Prinivil®
	Cilazapril	Vascase®, Cardiopril®, Inibace®
	Lisinopril	Zestril®, Prinivil®, Ecapril®, Lipril®
	Perindopril	Coversyl®
	Ramipril	Triatec®, Verzatec®
	Trandolapril	Gopten®, Odrik®
Antagonistas da angiotensina II BRA – ARA II	Losartana	Cozaar®, Corus®, Torlós®, Valtrian®, Zaarpress®, Zart®

Contra-indicações:
• Beta Bloqueadores: doença broncoespástica (DPOC, asma), bloqueio átrio-ventricular de 2º ou 3º graus, depressão maior (relativa), diabete mellitus (tipo 1), dislipidemia (relativa), doença vascular periférica (relativa); • Diuréticos: gota (relativa), dislipidemia (relativa para diurético em altas doses), diabete tipos 1 e 2 (relativa para diurético em altas doses); • Bloqueadores do cálcio: bloqueio átrio-ventricular de 2º ou 3º graus, insuficiência cardíaca (relativa); • IECA: gestação, doença renovascular (relativa); • Metildopa: doença hepática, disfunção erétil.

ANTIHIPERTENSIVO/IECA

	Concentração	Dose mínima	Dose máxima	Tomadas ao dia
	25 mg/25 mg	25 mg	200 mg	2
	25 mg	25 mg	150 mg	2 - 3
	5 mg/10 mg/20 mg	5 mg	40 mg	1 - 2
	20 mg	25 mg	100 mg	1

Medication Brochure

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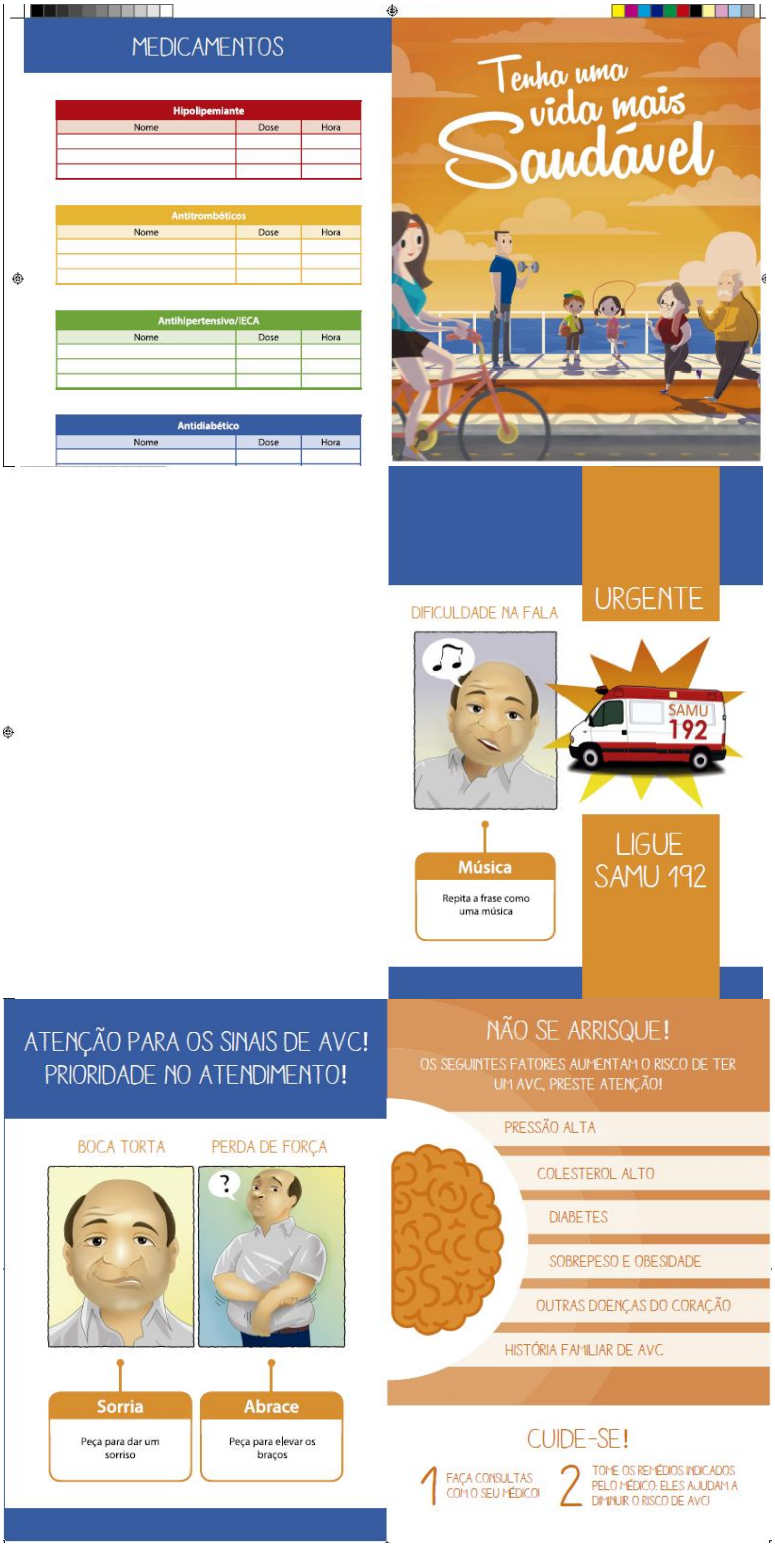
Patient Education Brochure



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Audit and Feedback Reports

Periodical audit and feedback reports on performance are provided to each hospital allocated to the intervention group. This strategy stimulates the teams to seek continuous improvement. Additionally, this report is discussed in periodic web or phone conferences to review the performance measures and set with aspects needed to improve. To each cluster we have an idea on the recruitment performance based on the observational phase information. Thus, after randomization we provided to the intervention sites their observational adherence to therapies rates and we established that the report would be sent when 25%, 50% and 75% of the sample was recruited. The report was sent by email to the principal investigator and case manager, then a conference call was set with these professionals in order to discuss adherence to the therapies and possible opportunities for improvement. It was up to the investigator and case manager to provide further internal feedback

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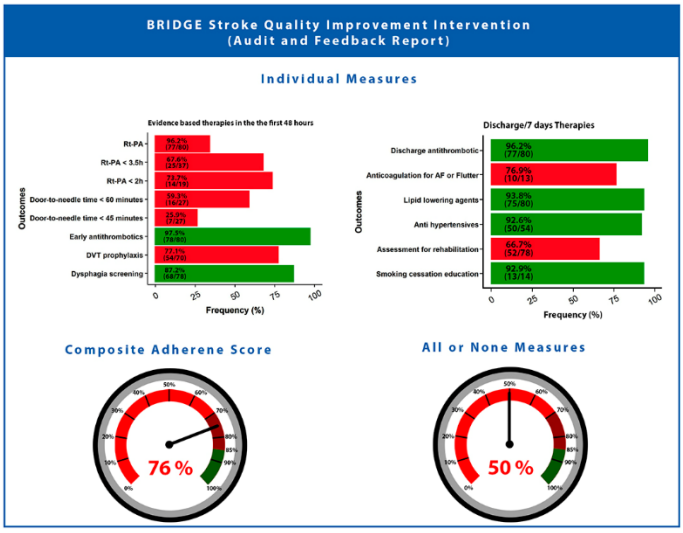

Interactive Training Workshops

Interactive training workshops were planned as follows; a) During an investigators' meeting where the principal investigator and lead case manager from each site allocated to the intervention group will receive a simulation-based training developed in small groups and addressing the techniques to implement the intervention, or b) During outreach visits developed in each hospital when members of the quality improvement committee perform a diagnostic visit addressing the actual clinical pathway at each hospital and together with the local teams (including representatives from the emergency department physicians, neurologists, nurses from the emergency department, stroke units, intensive care units and infirmary) help tailoring the intervention to the needs of each site. It will also be stimulated that each participating site disseminates the intervention to other professionals from the institution using the same materials used during the meeting and outreach visits. Addionally, the principal investigator and the case managers were asked to provide the coordinating center evidence om the dissemination to at least 80% of the personnel involved in stroke and TIA care .The BRIDGE Stroke training techniques will also be available in a video that will be used during the training sessions. This video is also available for the hospitals so that they can use it as a continuous improvement tool.

Case Management Slide Set

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BRIDGE STROKE

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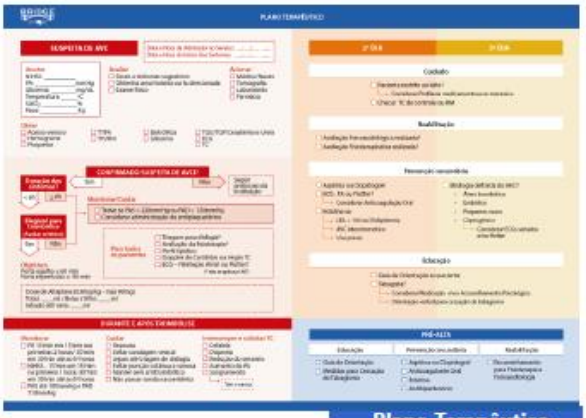
Fluxo de Gerenciamento de Casos

FERRAMENTAS DA INTERVENÇÃO

Pôster de Identificação

Case Manager



Plano Terapêutico

Pulseira de Identificação

Botton

BRIDGE STROKE

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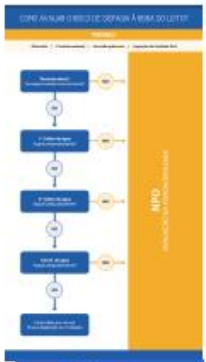
MATERIAIS de APOIO

Pôster SINAIS de ALERTA

NIHSS



Triagem para Disfagia

Brochura de Educação ao Paciente

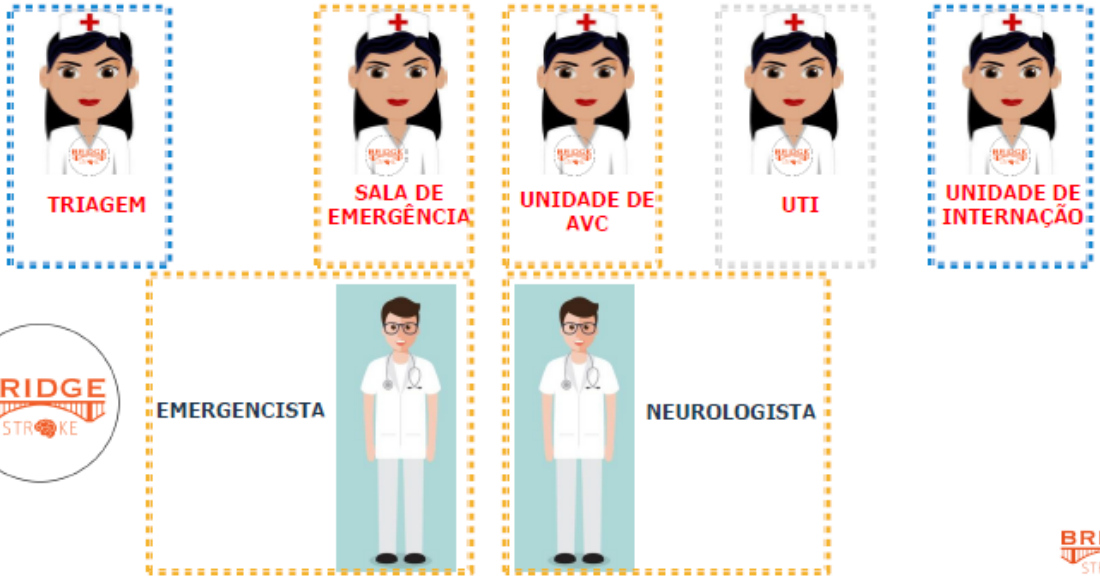
Maleta de Medicamentos

Folheto de Medicamentos

HCor Instituto de Pesquisa

BRIDGE STROKE

Quem participa do Gerenciamento de Casos



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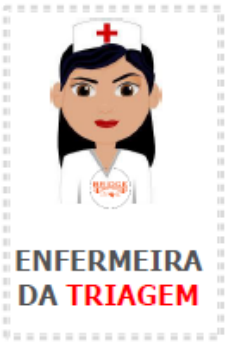
TRIAGEM

TRIAGEM

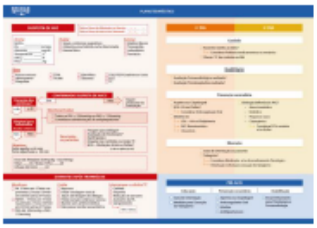


ENFERMEIRA DA TRIAGEM

1) Identifica o caso suspeito de AVC ou AIT

2) Coloca a Pulseira no Paciente

3) Coloca o Plano Terapêutico a Ficha de Admissão do Paciente



ENFERMEIRA DA SALA DE EMERGÊNCIA

4) Transfere o paciente para a SALA de EMERGÊNCIA

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1º DIA

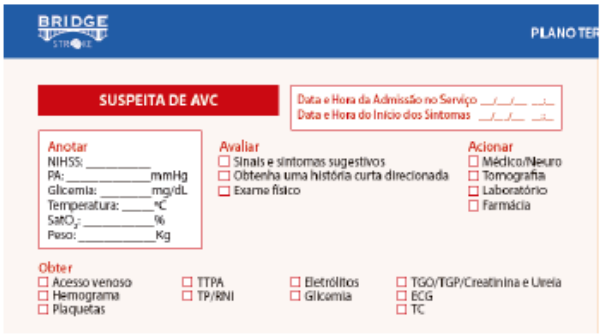
SALA DE EMERGÊNCIA – Avaliação Inicial

ENFERMEIRA(O)

- **ACIONAR :**
  - Médico - Neurologista
  - Tomografia
  - Laboratório
  - Farmácia
- OBTER:
  - Sinais vitais
  - Labs, **TC**, ECG

MÉDICO

- História Direcionada
- Exame Físico
- NIHSS



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SALA DE EMERGÊNCIA - TOMOGRAFIA
Confirmação do Diagnóstico / Eleição para Trombólise

MÉDICO

- Confirmação do Diagnóstico de AVC
- Eleição para Trombólise

ENFERMEIRA(O)

- Checar a dose de Alteplase

Dose de Alteplase (0,9mg/kg - max 90mg)
Total: ____ml / Bolus (10%): ____ml
Infusão (60 min): ____ml

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TOMOGRAFIA

ENFERMEIRA da SALA de EMERGÊNCIA

Maleta para Trombólise

- ✓Alteplase
- ✓Equipo
- ✓Seringa e Agulha

✓ Avalia a Tomografia

✓ Define a conduta

NEUROLOGISTA

Aplicação do Bolus de Alteplase → Retorna para Emergência/Unidade de AVC/ UTI

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SALA DE EMERGÊNCIA/ UTI/ UNIDADE DE AVC
Cuidados Pós Trombólise

ENFERMEIRA da SALA de EMERGÊNCIA

Monitorização durante a trombólise

DURANTE E APÓS TROMBÓLISE

Monitorar
- ☐ PA 15'min em 15'min nas primeiras 2 horas/ 30'min em 30'min até as 6ª horas
- ☐ NIHSS - 15'min em 15'min na primeira 1 hora/ 30'min em 30'min até as 6ª horas
- ☐ PAS até 185mmHg e PAD 110mmHg

Cuidar
- ☐ Repouso
- ☐ Evitar sondagem vesical
- ☐ Jejum até triagem de disfagia
- ☐ Evitar punção cutânea e venosa
- ☐ Manter sem antitrombótico
- ☐ Não passar sonda nasoentérica

Interromper e solicitar TC
- ☐ Cefaleia
- ☐ Dispneia
- ☐ Redução do sensório
- ☐ Aumento de PA
- ☐ Sangramento

Ver o verso

EMERGENCISTA/ NEUROLOGISTA

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SALA DE EMERGÊNCIA/ UTI/ UNIDADE DE AVC
Medidas para pacientes não trombolisados

ENFERMEIRA da SALA de EMERGÊNCIA

- **ALERTAR** o **MÉDICO**
  - PA
  - Uso de **Antiplaquetário**
- **CHECAR e LEMBRAR**
  - Solicitação de **Fisioterapia**
  - Realização da **Triagem** de Risco para **Disfagia**
  - Solicitação de **Labs** e **Exames**

Monitorar/Cuidar
- ☐ Tratar se PAS > 220mmHg ou PAD > 120mmHg
- ☐ Considerar administração de antiplaquetários

Para todos os pacientes
- ☐ Triagem para disfagia*
- ☐ Avaliação da fisioterapia*
- ☐ Perfil lipídico
- ☐ Doppler de Carótidas ou Angio TC
- ☐ ECG – Fibrilação Atrial ou Flutter?

(* não se aplica p/ AIT)

- **PRESCREVER** **Antiplaquetário**
- **SOLICITAR**
  - Avaliação de **Fisioterapia**
  - Avaliação de **Disfagia**
  - **Labs** e **Exames**

NEUROLOGISTA

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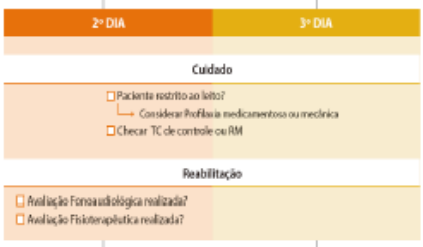
2º e 3º DIA

UNIDADE DE AVC/ UNIDADE DE INTERNAÇÃO

ENFERMEIRA da INTERNAÇÃO

- **ALERTAR o MÉDICO**
  - Necessidade de **Profilaxia para TVP**
- **CHECAR**
  - Avaliação da **Fisioterapia** realizada?
  - Avaliação da **Fono** realizada?



- **PRESCREVER** **Heparina/ Clexane ou**

  Dispositivo de Compressão Pneumática

SOLICITAR

- **TC**

NEUROLOGISTA

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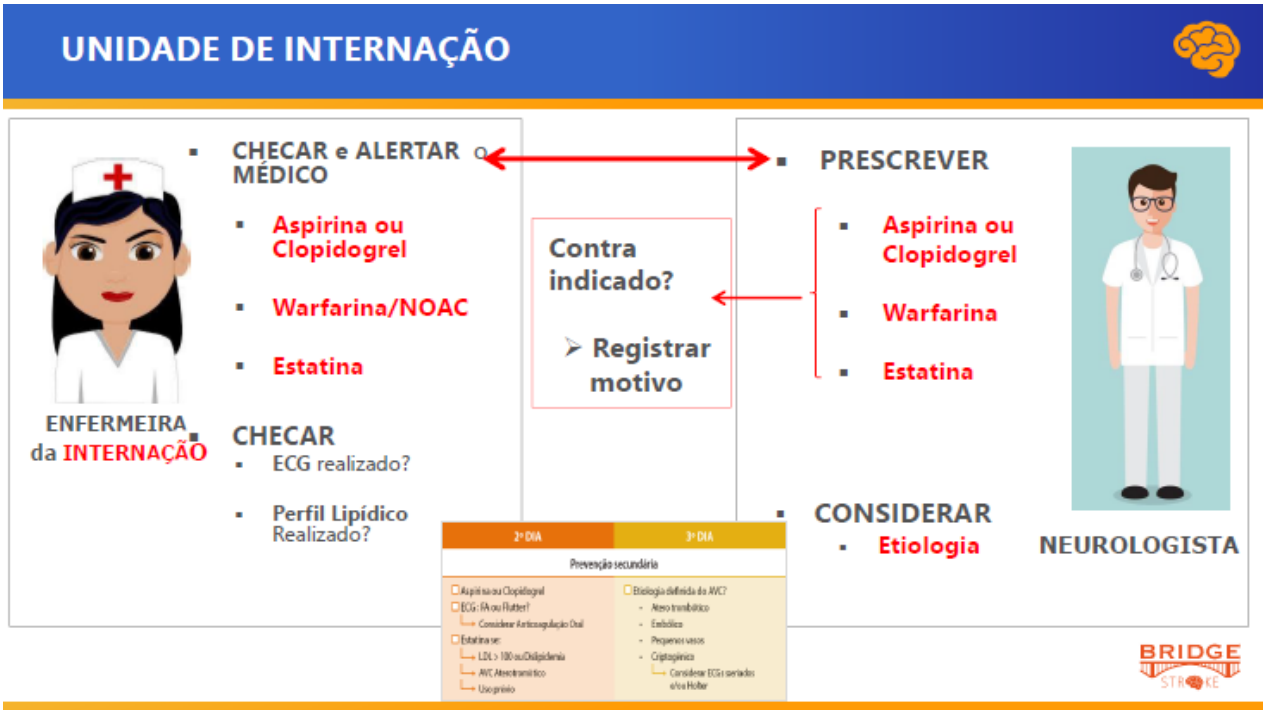

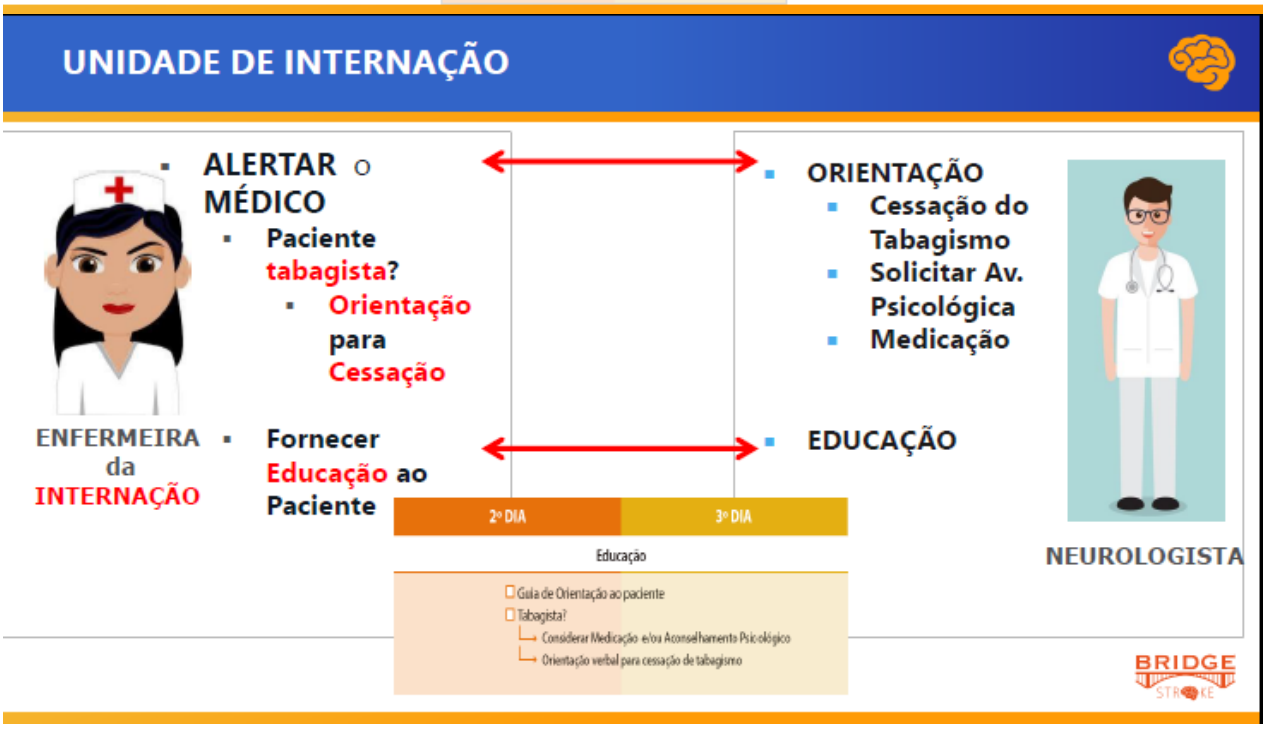

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Pré - Alta

UNIDADE DE INTERNAÇÃO

ENFERMEIRA da INTERNAÇÃO

- CHECAR e LEMBRAR
  - Cessação do Tabagismo ok? ⟷ ORIENTAR
  - Educação? ⟷ EDUCAR
  - Medicações? ⟷ PRESCREVER
  - Encaminhamento p/ Fisio e Fono ⟷ ENCAMINHAR

NEUROLOGISTA

PRÉ-ALTA		
Educação	Prevenção secundária	Reabilitação
☐ Guia de Orientação ☐ Medidas para Cessação do Tabagismo	☐ Aspirina ou Clopidogrel ☐ Anticoagulante Oral ☐ Estatina ☐ Antihipertensivo	☐ Encaminhamento para Fisioterapia e Fonoaudiologia

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eTable 1. Use of Evidence-Based Therapies During the Observational Phase

Endpoints	Intervention (19 clusters; 460 patients)	Control (17 clusters; 364 patients)	All randomized sites (36 clusters; 824 patients)	All Sites Included in the Baseline Observational Phase (45 clusters; 946 patients)	ICC*
Composite adherence score - mean (sd)[a]	76.5 ± 19.8 (n=460)	75.1 ± 22.7 (n=364)	75.9 ± 21.1 (n=824)	75.3 ± 21.4 (n=946)	0.27
Complete adherence to all acute and discharge therapies)[b]	124/460 (27)	104/364 (28.6)	228/824 (27.7)	261/946 (27.6)	0.18
Acute Interventions during first 48 hours					
Rt-PA[c]	50/140 (35.7)	53/122 (43.4)	103/262 (39.3)	107/292 (36.6)	0.37
Global Rt-PA [d]	56/323 (17.3)	65/417 (15.6)	121/740 (16.4)	127/843 (15.1)	0.08
Rt-PA within 3 hours [e]	18/90 (20)	21/95 (22.1)	39/185 (21.1)	41/204 (20.1)	0.03
Door-to-needle time < 60 min	26/65 (40)	25/56 (44.6)	51/121 (42.1)	56/127 (44.1)	0.07
Door-to-needle time < 45 min	15/56 (26.8)	22/65 (33.8)	37/121 (30.6)	42/127 (33.1)	0.11
Early Antithrombotics	432/450 (96)	329/361 (91.1)	761/811 (93.8)	871/932 (93.5)	0.05
DVT Prophilaxis	126/257 (49)	115/213 (54)	241/470 (51.3)	280/536 (52.2)	0.51
Discharge Interventions					
Antithrombotics	430/450 (95.6)	333/362 (92)	763/812 (94)	868/933 (93)	0.05
Anticoagulants for AF or Flutter	33/41 (80.5)	9/18 (50)	42/59 (71.2)	46/63 (73)	0.00
Statins in patients with LDL> 100 or not documented	308/352 (87.5)	236/301 (78.4)	544/653 (83.3)	628/758 (82.8)	0.12
Smoking Cessation Education	54/81 (66.7)	33/48 (68.8)	87/129 (67.4)	90/138 (65.2)	0.27
Assessment for Rehabilitation	231/307 (75.2)	158/211 (74.9)	389/518 (75.1)	438/600 (73)	0.13
Dysphagia Screening	216/390 (55.4)	180/304 (59.2)	396/694 (57.1)	427/775 (55.1)	0.58
Antihypertensives for patients with hypertension	237/272 (87.1)	264/328 (80.5)	501/600 (83.5)	563/683 (82.4)	0.10

Data are presented as n/N (%)

ICC denotes intracluster correlation coefficient Rt-PA denotes intravenous recombinant plasminogen activator. DVT denotes deep venous thrombosis. LDL denotes low-density lipoprotein. AF denotes Atrial Fibrillation.

(*) Calculation didn't considered allocated to intervention or control group and was based on the full sample (45 clusters and 946 patients)

[a]Composite adherence score: early antithrombotics, Rt-PA within therapeutic window, DVT prophylaxis, door-to-needle time < 60 min, dysphagia screening, assessment for rehabilitation, antithrombotics at discharge, anticoagulants for atrial fibrillation or flutter, statins in patients with LDL ≥100mg/dL or not documented , smoke cessation education

[b]Complete adherence to all acute and discharge therapies: early antithrombotics, Rt-PA within therapeutic window, DVT prophylaxis, door-to-needle time < 60 min, dysphagia screening, assessement for rehabilitation, antithrombotics at discharge, anticoagulants for atrial fibrillation or flutter, statins LDL≥100mg/dL or not documented, smoke cessation education.

[c]RtPA within therapeutic window (patients who arrive at the hospital within 3.5hours of symptoms onset and are treated within 4.5 hours).

[d]Global RtPa – patients within 24 hours of symptoms who receive RtPA if not contraindicated except for the therapeutic window.

[e]Rt-PA within 3 hours (patients who arrived within 2 hours of sympton and treated within 3h of symptom onset)

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eTable 2. Adherence to the Multifaceted Quality Improvement Intervention

Proposed Tools and Techniques	Adherence n/N (%)
Case management[a]	18/19 (94.7)
Audit and Feedback[b]	18/19 (94.7)
Educational Materials (Including Treatment Algorithm) during the First 48 hours[c]	539/817 (66)
Educational Materials (Including Treatment Algorithm) until discharge[d]	519/817 (63.5)

[a] Case Management required that the assigned leader provide evidence for training the nurses involved in patients care.
[b] Audit and Feedback required that the principal investigator and leader case manager answer to the feedback report provided by the coordinating center and attend a web or phone call to discuss the findings.
[c] When adherence is adjusted to the patients from the clusters that adhered to the first two proposed tools the result is 539/774 (69.6).
[d] When adherence is adjusted to the patients from the clusters that adhered to the first two proposed tools the result is 519/774 (67.1)

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eTable 3. Results of Quality Improvement Intervention on Use of Evidence-Based Therapies for Patients With Acute Ischemic Stroke

	Intervention	Control	Mean difference [95%CI]	P value	ICC[g]
	(19 clusters; 711 patients)	(17 clusters; 723 patients)			
Primary Endpoint					
Composite adherence score - mean (sd)[a]	84.6 ± 19.8 (n=711)	76.7 ± 17.8 (n=723)	5.24 [-2.92-13.40]	0.20	0.363
Secondary Endpoints					
Complete adherence to all acute and specified discharge therapies)	320/711 (45)	149/723 (20.6)	3.17 [1.49—6.73]	<0.01	0.239
Rt-PA	122/222 (55)	107/268 (39.9)	2.77 [1.31-5.82]	0.01	0.169
Door-to-needle time < 60 min	84/145 (57.9)	59/121 (48.8)	2.47 [0.97-6.28]	0.06	0.158
Early Antithrombotics	658/705 (93.3)	676/719 (94)	0.61 [0.26-1.44]	0.26	0.181
Prophilaxis for DVT	313/433 (72.3)	228/451 (50.6)	2.48 [0.92-6.72]	0.07	0.36
Discharge therapies					
Antithrombotics	656/705 (93)	683/722 (94.6)	0.57 [0.21-1.55]	0.27	0.275
Anticoagulants for AF or Flutter	103/136 (75.7)	72/90 (80)	0.94 [0.30-2.98]	0.92	0.117
LDL > 100 or not documented	536/590 (90.8)	567/627 (90.4)	0.87 [0.49-1.57]	0.65	0.085
Smoking Cessation Education	78/109 (71.6)	77/158 (48.7)	3.83 [1.17-12.54]	0.03	0.289
Assessed for Rehabilitation	620/711 (87.2)	574/723 (79.4)	1.92 [0.58-6.33]	0.28	0.457
Dysphagia Evaluation	577/711 (81.2)	460/723 (63.6)	2.82 [0.71-11.24]	0.14	0.547
Global Rt-PA	145/538 (27%)	121/602 (20.1)	2.07 [1.05-4.09]	0.04	0.173
Door-to-needle time < 45 min	59/145 (40.7)	35/121 (28.9)	1.86 [0.85-4.09]	0.12	0.037
Antihypertensive	422/540 (78.1)	450/530 (84.9)	0.74 [0.33-1.65]	0.46	0.233

Data are presented as n (N° of Events)/N (Total Patients) (%), except for the composite adherence score.
Abbreviations: OR, denotes odds ratio; CI denotes confidence interval; ICC denotes intracluster correlation coefficient; Rt-PA denotes intravenous recombinant plasminogen activator; DVT denotes deep venous thrombosis, AF denotes atrial fibrillation.
[a]Composite adherence score: early antithrombotics, Rt-PA within therapeutic window, DVT prophylaxis, door-to-needle time < 60 min, dysphagia screening, assessment for rehabilitation, antithrombotics at discharge, anticoagulants for atrial fibrilation or flutter, LDL >= 100 or not documented (statins), smoke cessation education.
[b]Mean difference and 95% CI
[c]Patients who received all eligible therapies in an "All or None" model: antithrombotics in 48 hours, Rt-PA within therapeutic window, DVT prophylaxis, door-to-needle time < 60 min, dysphagia screening, assessment for rehabilitation, antithrombotics at discharge, anticoagulants for atrial.
[d]RtPA within therapeutic window (who arrive within 3.5 hours of symptoms onset and are treated within 4.5 hours)
[e] Global Rt-PA rates: Rt-PA delivered in patients who arrive within 24 hours of symptoms and have no contraindications.
[f]Rt-PA within 3 hours: patients who arrived within 2h of symptoms and are treated within 3h.
[g]Estimative from mixed logistic regression model considering group (Intervention and Control) adjusted by cluster observational phase mean endpoint.

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eTable 4. Results of Quality Improvement Intervention on Use of Evidence-Based Therapies for Patients with Transient Ischemic Attack

	Intervention (19 clusters; 106 patients)	Control (17 clusters; 84 patients)	Mean difference [95%CI]	P value	ICC[g]
Primary Endpoint					
Composite adherence score - mean (sd)[a]	90.3 ± 21.3 (n=106)	87.1 ± 20.7 (n=84)	3.08 [-5.68-11.83]	0.48	0.122
Secondary Endpoints					
Complete adherence to all acute and discharge therapies)	82/106 (77.4)	54/84 (64.3)	2.14 [0.85-5.39]	0.11	0.13
Early Antithrombotic	101/106 (95.3)	80/84 (95.2)	0.61 [0.13-2.84]	0.53	0.031
Discharge therapies					
Antithrombotic	95/106 (89.6)	76/84 (90.5)	0.82 [0.31-2.20]	0.70	0
Oral Anticoagulants for AF or Flutter	8/10 (80)	5/7 (71.4)	1.56 [0.09-28.3]*	0.99*	-
LDL > 100 or not documented	77/85 (90.6)	64/74 (86.5)	0.89 [0.29-2.78]	0.84	0
Smoking Cessation Education	15/20 (75)	5/11 (45.5)	3.01 [0.61-14.73]	0.17	0
Antihypertensive	57/82 (69.5)	49/56 (87.5)	0.28 [0.06-1.29]	0.10	0.262
(*) Fisher exact test					

Data are presented as n (N° of Events)/N (Total Patients) (%), except for the composite adherence score.
Abbreviations: OR, denotes odds ratio; CI denotes confidence interval; ICC denotes intracluster correlation coefficient; Rt-PA denotes intravenous recombinant plasminogen activator; DVT denotes deep venous thrombosis, AF denotes atrial fibrillation.
[a]Composite adherence score: early antithrombotics, Rt-PA , DVT prophylaxis, door-to-needle time < 60 min, dysphagia screening, assessment for rehabilitation, antithrombotics at discharge, anticoagulants for atrial fibrilation or flutter, LDL >= 100 or not documented (statins), smoke cessation education.
[b]Mean difference and 95% CI
[c]Patients who received all eligible therapies in an "All or None" model: antithrombotics in 48 hours, Rt-PA within therapeutic window, DVT prophylaxis, door-to-needle time < 60 min, dysphagia screening, assessment for rehabilitation, antithrombotics at discharge, anticoagulants for atrial.
[d]RtPA within therapeutic window (patients who arrive within 3.5 hours of symptoms onset and are treated within 4.5 hours)
[e] Global Rt-PA rates: Rt-PA delivered in patients who arrive within 24 hours of symptoms and have no contraindications.
[f]Rt-PA within 3 hours: patients who arrived within 2h of symptoms and are treated within 3h.
[g]Estimate from mixed logistic regression model considering group (Intervention and Control) adjusted by cluster observational phase mean endpoint.

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eTable 5. Results of Quality Improvement Intervention on Use of Evidence-Based Therapies

Endpoints	Intervention (19 clusters; 817 patients)	Control (17 clusters; 807 patients)	OR 95% CI	P value	ICC[g]
Composite adherence score - mean (sd)[a]	85.3 (20.1)	77.8 (18.4)	3.15[-4.88 – 11.19][b]	.43	0.318
Complete adherence to all acute and discharge therapies)[c]	402/817 (49.2)	203/807 (25.2)	2.30 [1.08-4.91]	.03	0.23
Acute therapies during first 48 hours					
Rt-PA[d]	122/222 (55.0)	107/268 (39.9)	2.84 [1.49-5.39]	<.01	0.09
Global Rt-PA[e]	145/538 (27.0)	121/602 (20.1)	2.03 [1.03 – 3.98]	.04	0.15
Rt-PA within 3 hours[f]	69/123 (56.1)	47/143 (32.9)	3.03 [1.34-6.65]	.01	0.12
Door-to-needle time < 60 min	84/145 (57.9)	59/121 (48.8)	2.96 [1.22 --7.16]	.02	0.116
Door-to-needle time < 45 min	59/145 (40.7)	35/121 (28.9)	2.05 [0.93 - -4.52]	.08	0.02
Early Antithrombotic Agents	759/811 (93.6)	756/803 (94.1)	0.54 [0.24-1.19]	.13	0.149
Prophilaxis for DVT	326/450 (72.4)	234/466 (50.2)	2.56 [1.01-6.48)	.05	0.304
Discharge therapies					
Antithrombotics	751/811 (92.6)	759/806 (94.2)	0.53 [0.23-1.22]	.13	0.194
Oral Anticoagulants for AF or Flutter	111/146 (76.0)	77/97 (79.4)	1.14 [0.48-2.68]	.77	0.02
LDL≥100mg/dL or not documented	613/675 (90.8)	631/701 (90)	0.87 [0.51-1.49]	.61	0.06
Smoke Cessation Education	93/129 (72.1)	82/169 (48.5)	3.18 [1.00-10.11]	.05	0.276
Assessed for Rehabilitation	620/711 (87.2)	574/723 (79.4)	1.59 [0.50-5.05]	.43	0.417
Dysphagia Screening	577/711 (81.2)	460/723 (63.6)	2.36 [0.57-9.74]	.24	0.54
Antihypertensive	479/622 (77.0)	499/586 (85.2)	0.82 [0.40-1.68]	.59	0.184

Data are presented as n (N° of Events)/N (Total Patients) (%), except for the composite adherence score.
Abbreviations: OR, denotes odds ratio; CI denotes confidence interval; ICC denotes intracluster correlation coefficient; Rt-PA denotes intravenous recombinant plasminogen activator; DVT denotes deep venous thrombosis, AF denotes atrial fibrillation.
[a]Composite adherence score: early antithrombotics, Rt-PA, DVT prophylaxis, door-to-needle time < 60 min, dysphagia screening, assessment for rehabilitation, antithrombotics at discharge, anticoagulants for atrial fibrilation or flutter, LDL >= 100 or not documented (statins), smoke cessation education.
[b]Mean difference and 95% CI
[c]Patients who received all eligible therapies in an "All or None" model: antithrombotics in 48 hours, Rt-PA , DVT prophylaxis, door-to-needle time < 60 min, dysphagia screening, assessment for rehabilitation, antithrombotics at discharge, anticoagulants for atrial.

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[d]RtPA within therapeutic window (who arrive within 3.5 hours of symptoms onset and are treated within 4.5 hours)
[e] Global Rt-PA rates: Rt-PA delivered in patients who arrive within 24 hours of symptoms and have no contraindications.
[f]Rt-PA within 3 hours: patients who arrived within 2h of symptoms and are treated within 3h.
[g]Estimative from mixed logistic regression model considering group (Intervention and Control) adjusted by cluster observational phase mean endpoint.

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