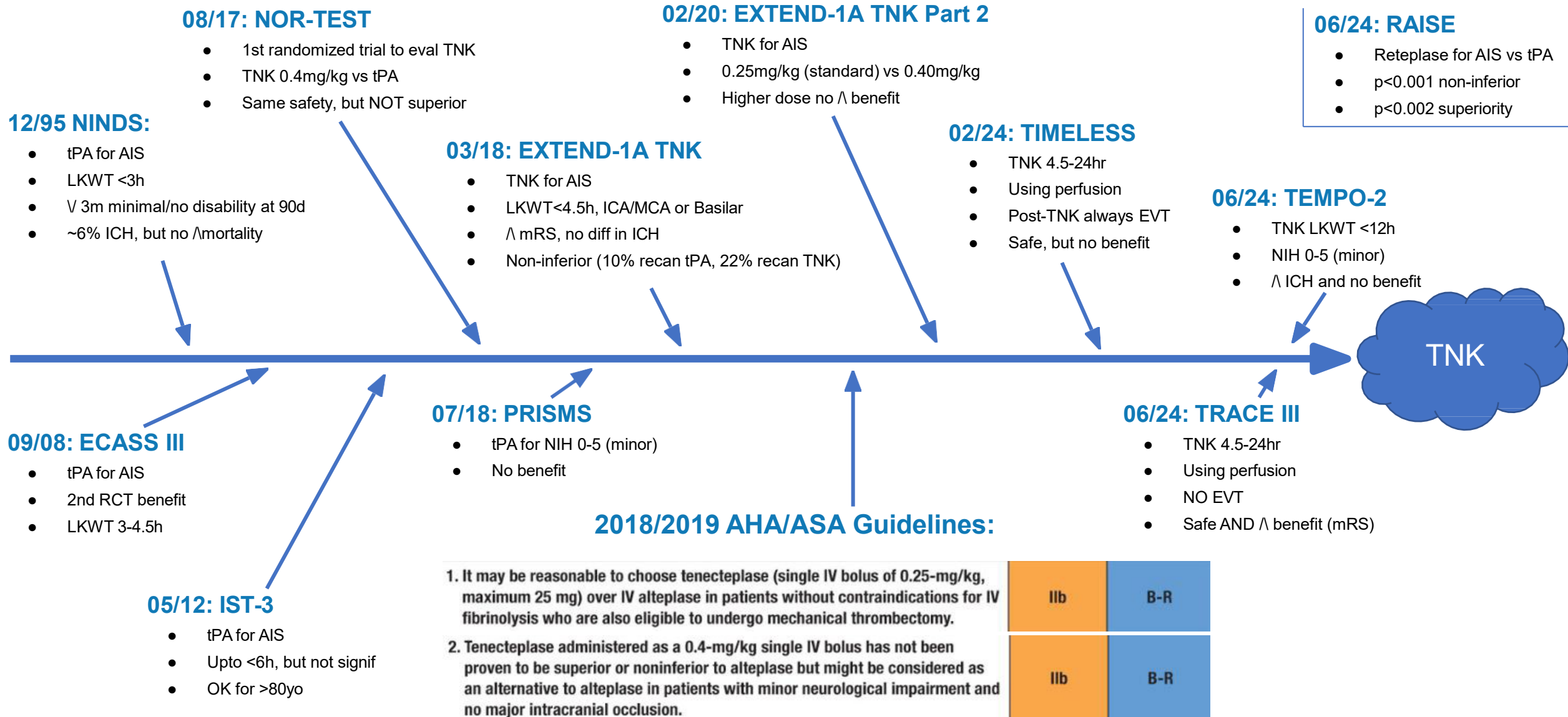


Post-lytic Habitat: ICU or Stepdown?

HINT: Patient Should be in the ICU

09-13-2024

The Journey to TNK



Decades of “Debates”, No Reliable Models

06/2010

A model for identifying patients who may not need intensive care unit admission

Jack E. Zimmerman MD, FCCM and Andrew A. Kramer PhD
Journal of Critical Care, 2010-06-01, Volume 25, Issue 2, Pages 205-213, Copyright © 2010 Elsevier Inc.

Created & validated “predictive” model
28,715 patients, multicenter

Table 4 Classification table for comparing observed and predicted subsequent active treatment for ICU monitor admissions using a cut point of 10%: included are all eligible ICU admissions from 2004 through 2006 * (N = 28 715)

Risk of active treatment	Did not receive active treatment		Received active treatment	
	n	%	n	%
High risk (>10%) monitor	8937	81.3%	2058	18.7%
Low risk (≤10%) monitor	16482	93.0%	1238	7.0%

P < .001, relative risk (95% confidence interval) = 2.68 (2.51-2.86).
Sensitivity = 62.4%, specificity = 64.8%, positive predictive value = 18.7%, negative predictive value = 93.0%.
Breslow-Day Homogeneity of odds ratios (2002-2003 vs 2004-2006):
 $\chi^2 = 47.2, P < .001$.

* 132 admissions (0.5%) were missing information required to generate a prediction.

Low Risk Monitor (“<10% risk of ever receiving active treatment”) admits:

- 1.8 days length of ICU stay
- **7% needed active ICU treatment**
- **2.5% mortality = 412 patients died**

03/2018

Critical Care Needs in Patients with Diffusion-Weighted Imaging Negative MRI after tPA - Does One Size Fit All?

Roland Faigle*, Elisabeth B. Marsh, Rafael H. Llinas, Victor C. Urrutia
Department of Neurology, Johns Hopkins University School of Medicine, Baltimore, Maryland, United States

Retrospective 209 patients
54 pts (~26%) tPA and DWI negative

No “bleeds” but:
- 5 out of 54 pts (9.3%) needed ICU
- 4 for **refractory HTN** & 2 resp failure

Total LOS ICU <2 days

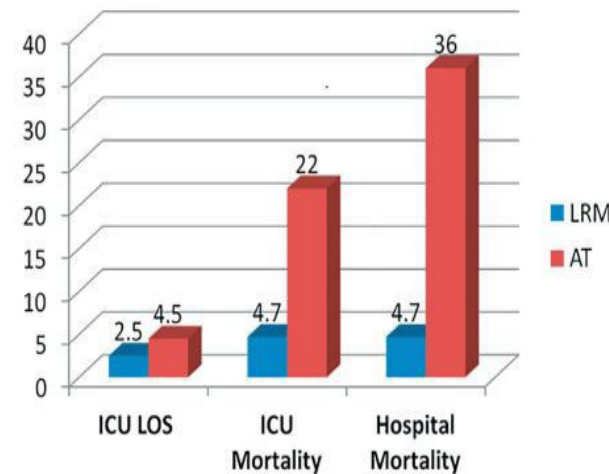
03/2018

Original Article J Clin Med Res. 2018;10(3):174-177

Do All Acute Stroke Patients Receiving tPA Require ICU Admission?

Farid Sadaka^{a,b,c}, Amar Jadhav^{a,b}, Jacklyn O'Brien^{a,b}, Steven Trotter^{a,b}

APACHE outcomes database
80 pts (21 LRM, 59 AT), single center



Low Risk Monitor (“<10% risk of ever receiving active treatment”) admits:
- 2.5 days length of ICU stay
- **4.7% mortality = 1 in 20 patients!**

06/2018

Stroke

Volume 49, Issue 6, June 2018; Pages 1521-1524
<https://doi.org/10.1161/STROKEAHA.118.021398>

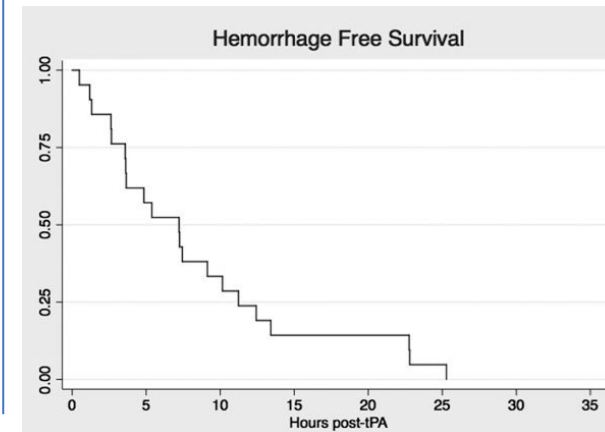
BRIEF REPORTS

Shorter Intensive Care Unit Stays?

The Majority of Post-Intravenous tPA (Tissue-Type Plasminogen Activator) Symptomatic Hemorrhages Occur Within 12 Hours of Treatment

Adam Chang, Edward J. Llinas, Karen Chen, BA, Rafael H. Llinas, MD, and Elisabeth B. Marsh, MD

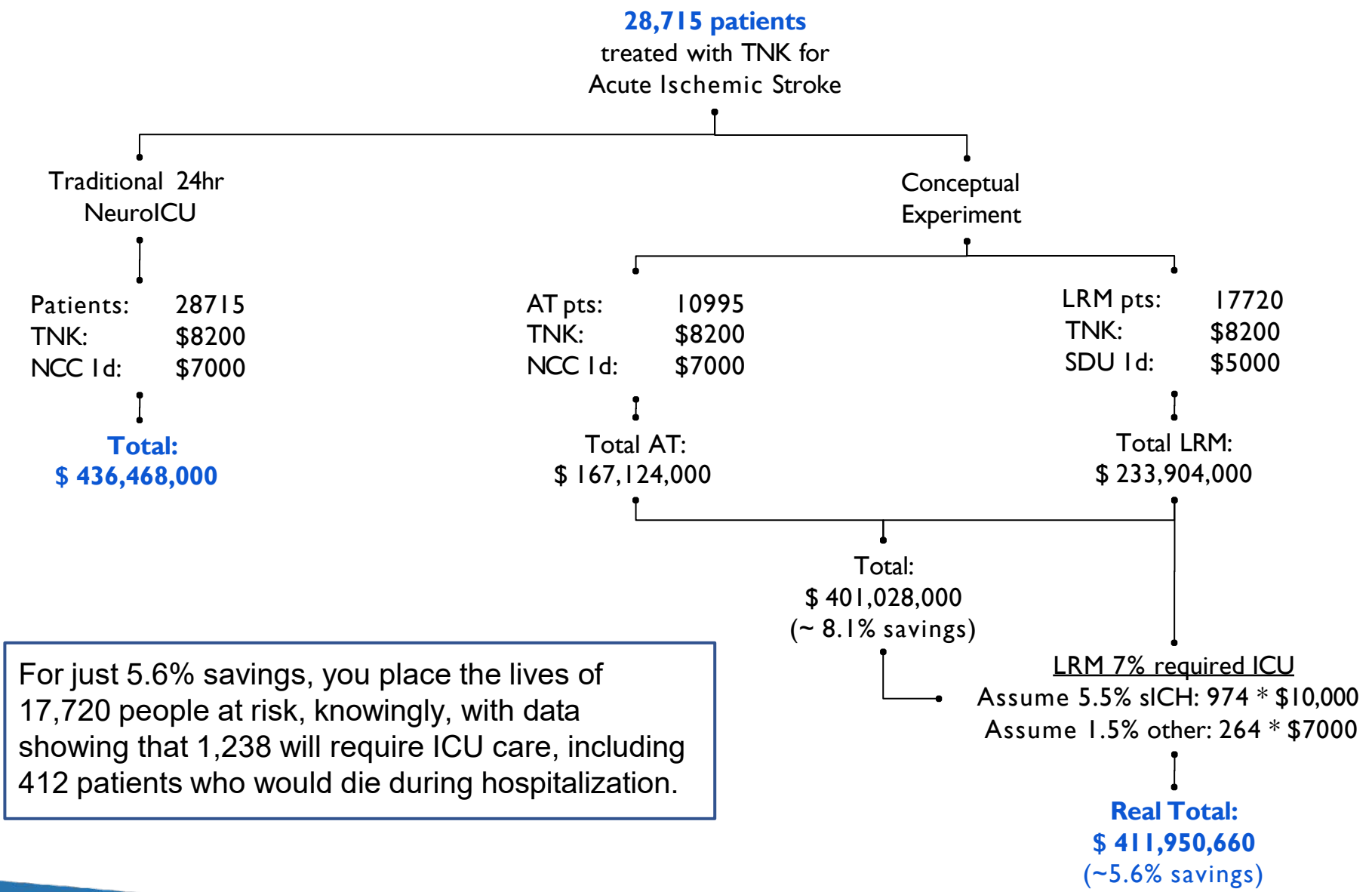
385 patients given tPA, single-center
21 (5.5%) had symptomatic ICH
- 80% before 12 hours
- **20% after 12 hours**



What is the Cost of a Human Life?



- Avg TNK ~ \$8,200/dose
- Avg Step-Down ~ \$3-5000/day
- Avg NCC (non-vent) ~ \$7000/day
- Avg sICH inpatient ~ \$10,000/day



Cost-effectiveness of tissue plasminogen activator for acute ischemic stroke

S. C. Fagan, PharmD, L. B. Morgenstern, MD, A. Peittta, RPH, MBA, R. E. Ward, MD, MBA, B. C. Tilley, PhD, J. R. Marler, MD, S. R. Levine, MD, ... [SHOW ALL](#) ... The NINDS rt-PA Stroke Study Group* | [AUTHORS INFO](#) | [AFFILIATIONS](#)

April 1998 issue • 50 (4) 883-890 • <https://doi.org/10.1212/WNL.50.4.883>

West J Emerg Med. 2020 Mar; 21(2): 199-202. PMID: PMC7081848
Published online 2020 Feb 24. doi: 10.5811/westjem.2020.1.45279 PMID: 32191176

Using Tenecteplase for Acute Ischemic Stroke: What Is the Hold Up?

Tony Zitek, MD^{1*}, Ramsey Ataya, MD,² and Isabel Brea, MD^{1†}

Daily cost of an intensive care unit day: The contribution of mechanical ventilation*

Dasta, Joseph F. MSc, FCCM; McLaughlin, Trent P. PhD; Mody, Samir H. PharmD, MBA; Piech, Catherine Tak MBA
Author Information

Critical Care Medicine 33(6):p 1266-1271, June 2005. | DOI: 10.1097/01.CCM.0000164543.14619.00

Eur Stroke J. 2022 Sep; 7(3): 267-279. PMID: PMC9446333
Published online 2022 Apr 29. PMID: 36082247
doi: 10.1177/123969873221094705

One-year healthcare costs of patients with spontaneous intracerebral hemorrhage treated in the intensive care unit

Marika Smeds,¹ Markus B. Skrifvars,¹ Matti Reinikainen,² Stepani Bendel,² Sanna Hoppu,³ Ruut Laitio,⁴ Tero Ala-Kokko,⁵ Sami Curtze,⁶ Gerli Sibolt,⁶ Nicolas Martinez-Majander,⁶ and Rahul Raj⁷

For just 5.6% savings, you place the lives of 17,720 people at risk, knowingly, with data showing that 1,238 will require ICU care, including 412 patients who would die during hospitalization.



Table 7. Treatment of AIS: IV Administration of Alteplase

Infuse 0.9 mg/kg (maximum dose 90 mg) over 60 min, with 10% of the dose given as a bolus over 1 min.
Admit the patient to an intensive care or stroke unit for monitoring.
If the patient develops severe headache, acute hypertension, nausea, or vomiting or has a worsening neurological examination, discontinue the infusion (if IV alteplase is being administered) and obtain emergency head CT scan.
Measure BP and perform neurological assessments every 15 min during and after IV alteplase infusion for 2 h, then every 30 min for 6 h, then hourly until 24 h after IV alteplase treatment.
Increase the frequency of BP measurements if SBP is >180 mm Hg or if DBP is >105 mm Hg; administer antihypertensive medications to maintain BP at or below these levels (Table 5).
Delay placement of nasogastric tubes, indwelling bladder catheters, or intra-arterial pressure catheters if the patient can be safely managed without them.
Obtain a follow-up CT or MRI scan at 24 h after IV alteplase before starting anticoagulants or antiplatelet agents.

TNK = 24 hrs in the ICU

Is it better **for our stroke patients** to be without ICU monitoring after receiving TNK ...

... from a clinical perspective ?

No

... from an evidenced-based medicine perspective ?

No

... from a national guideline perspective ?

No

... from a cost-benefit analysis perspective ?

Maybe (arguable at-best)

... from an ethical and service-oriented perspective ?

Absolutely not