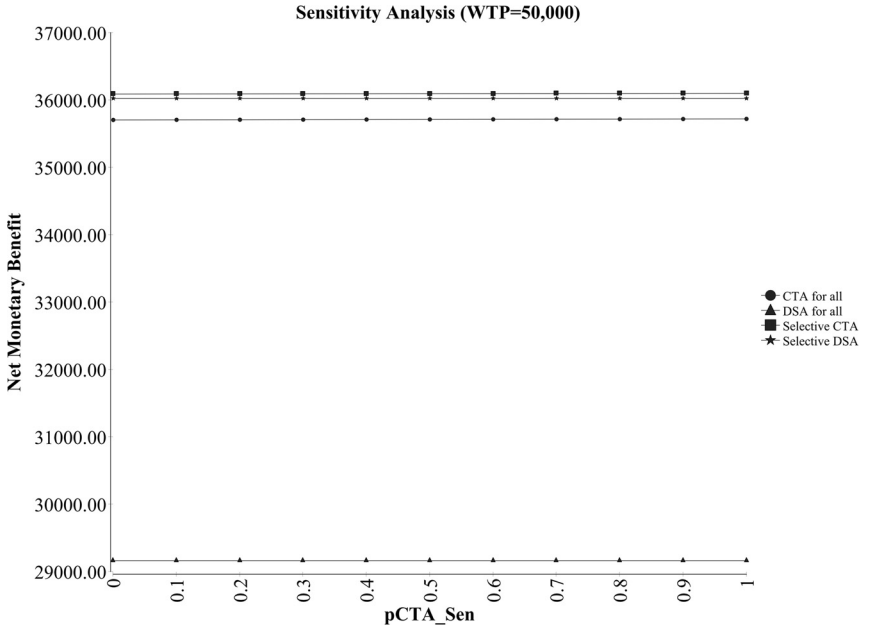
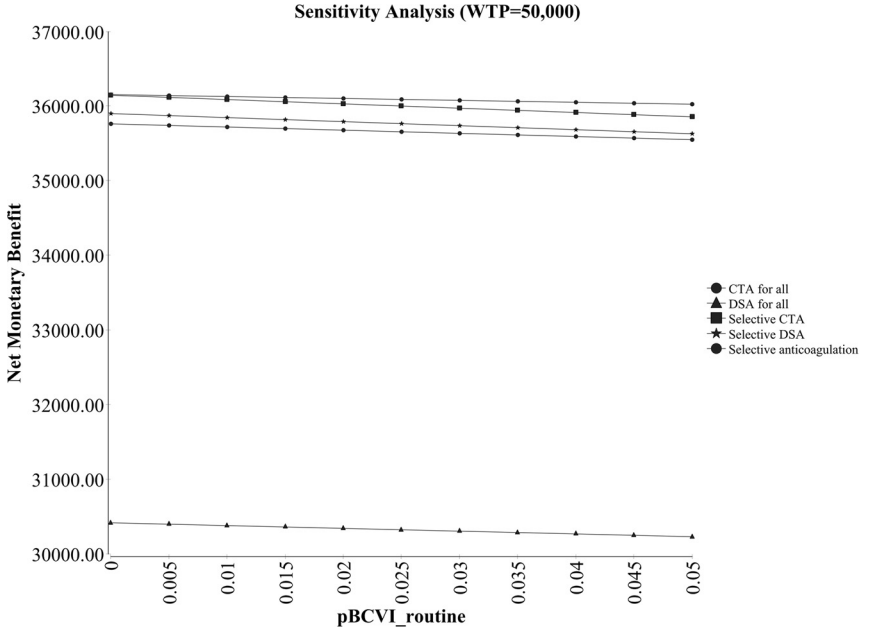
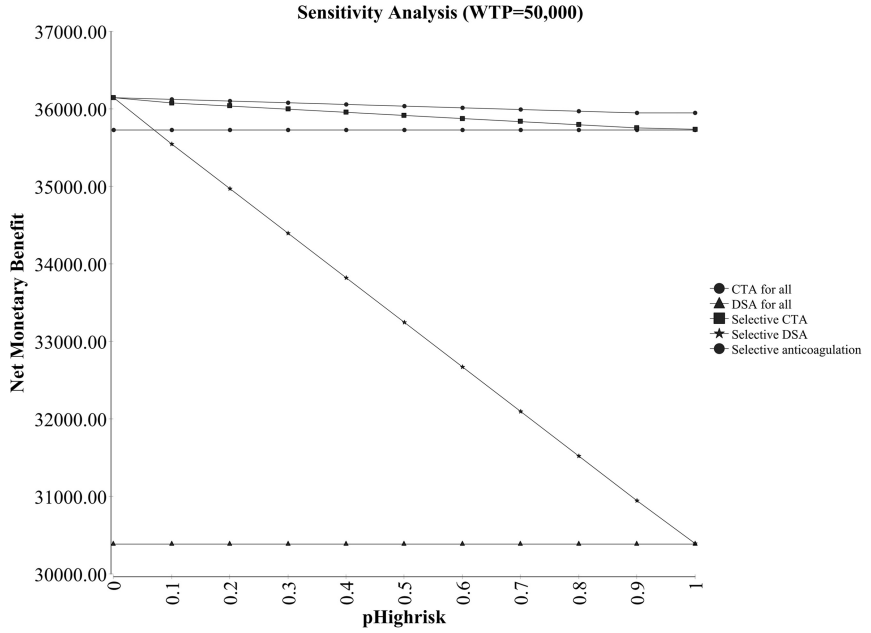


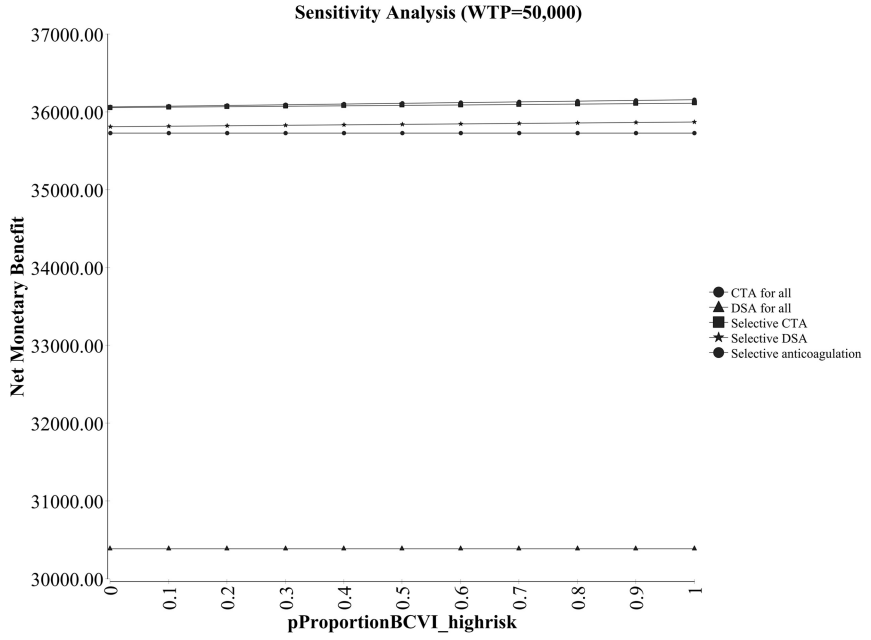
ON-LINE FIG 1. Sensitivity analysis varying the sensitivity of CTA. A higher NMB is more desirable. WTP indicates willingness to pay.



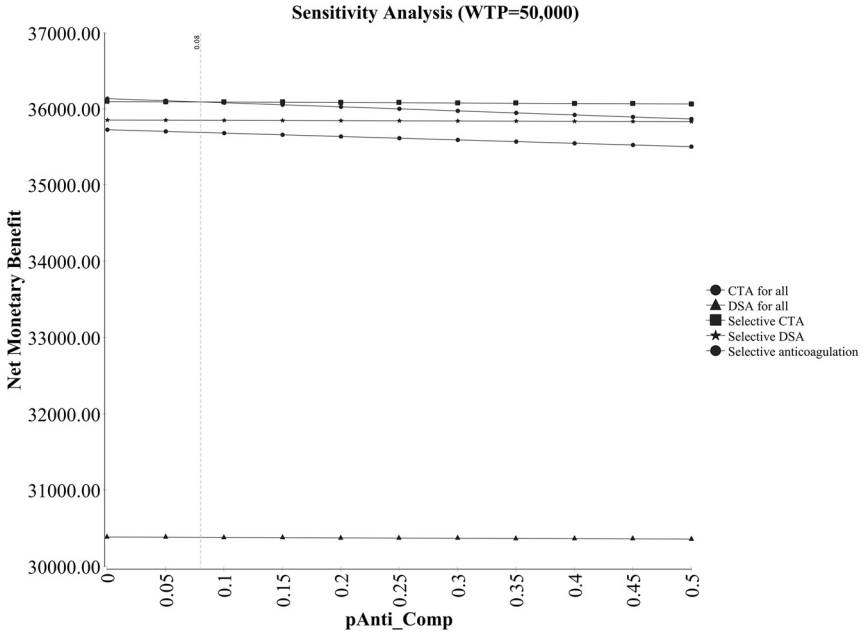
ON-LINE FIG 2. Sensitivity analysis varying the incidence of BCVI in general trauma admissions. A higher NMB is more desirable. WTP indicates willingness to pay.



ON-LINE FIG 3. Sensitivity analysis varying the proportion of high-risk patients in all trauma admissions. A higher NMB is more desirable. WTP indicates willingness to pay.



ON-LINE FIG 4. Sensitivity analysis varying the incidence of BCVIs in high-risk patients. A higher NMB is more desirable. WTP indicates willingness to pay.



ON-LINE FIG 5. Sensitivity analysis varying the risk of hemorrhage secondary to anticoagulation in trauma patients. A higher NMB is more desirable. WTP indicates willingness to pay.

On-line Table: List of all parameters

Name of Variable	Description	Value	Distribution
pBCVI_routine	Incidence of BCVI in blunt trauma admissions	0.008641543[1]	
pBCVI_highrisk	Incidence of BCVI in high-risk patient population by Denver criteria	0.142514[1–5]	
pBCVI_lowrisk	Incidence of BCVI in non-Denver criteria high-risk patient population	0.00218648[1–5]	
pCTA_Sen	Sensitivity of CTA	0.66[6]	
pCTA_Spe	Specificity of CTA	0.97[6]	
pDSA_Sen	Sensitivity of DSA	1[7]	
pDSA_Spe	Specificity of DSA	1[7]	
pHighrisk	Proportion of high-risk population	0.046[8]	
pCAI	Proportion of CAI in all VAI	0.5573[3,8,9]	
pCAI_Treated_Stroke	Risk of stroke in treated CAI patients	0.191[3,8]	
pVAI_Treated_Stroke	Risk of stroke in treated VAI patients	0.0983[3,8,10]	
pCAI_Untreated_Stroke	Risk of stroke in insufficiently treated CAI patients	0.215[11]	
pVAI_Untreated_Stroke	Risk of stroke in insufficiently treated VAI patients	0.215[11]	
pCAI_Death	Risk of stroke-related death in CAI patients	0.21[8]	
pVAI_Death	Risk of stroke-related death in VAI patients	0.18[8]	
pAllergy_Mild	Risk of mild allergy-like reaction caused by DSA or CTA	0.0056[12,13]	
pAllergy_Severe	Risk of severe allergy-like reaction caused by DSA or CTA	0.0004[12,13]	
pDSA_TIA	Probability of TIA caused by DSA	0.0245[14]	
pDSA_Stroke	Probability of permanent stroke secondary to DSA	0.0014[14]	
pDSA_Hematoma	Probability of hematoma secondary to DSA	0.042[14]	
pDSA_Nephropathy	Probability of nephropathy secondary to DSA	0.0002[14]	
pDSA_Death	Probability of death caused by DSA	0.0005[14]	
pCTA_Nephropathy	Probability of nephropathy secondary to CTA	0.0002[14]	
pAnti_Comp	Probability of hemorrhage caused by anticoagulation	0.0028[15]	
cCTA	Cost of CTA	Mean: 381.15 SD: 38.12	Normal
cDSA	Cost of DSA	Mean: 4963.965 SD: 616.24 CPT code: 36226, 36223 multiplier: 1.5 for bilateral	Normal
cAllergy_Mild	Cost of mild allergic-like reaction	0	
cAllergy_Severe	Cost of severe allergic-like reaction	Mean: 762[16] SD: 76.2	Normal
cHematoma	Cost of hematoma	Mean: 10,000[17] SD: 1000	Normal
cTIA	Cost of TIA	Mean: 6318[18,19] SD: 632	Normal
cStroke	Cost of stroke	Mean: 16,915[20] SD: 1691.5	Normal
cNephropathy	Cost of contrast-induced nephropathy	Mean: 22,157[21] SD: 2215.7	Normal
cAnti	Cost of anticoagulation	Mean: 186[22] SD: 18.6	Normal
cHemorrhage	Cost of hemorrhage caused by anticoagulation	Mean: 11,600[23] SD: 1160	Normal
uGood	Utility of a good outcome	0.6–1.0[24]	Uniform
uPoor	Utility of a poor outcome	0.2–0.5[24]	Uniform
uDeath	Utility of death	0	

Note:—CA1 indicates carotid artery injury; VAI, vertebral artery injury; CPT, Current Procedural Terminology.

ON-LINE BIBLIOGRAPHY

1. Franz RW, Willette PA, Wood MJ, et al. **A systematic review and meta-analysis of diagnostic screening criteria for blunt cerebrovascular injuries.** *J Am Coll Surg* 2012;214:313–27 CrossRef Medline
2. Bruns BR, Tesoriero R, Kufera J, et al. **Blunt cerebrovascular injury screening guidelines: what are we willing to miss?** *J Trauma Acute Care Surg* 2014;76:691–95 CrossRef Medline
3. Stein DM, Boswell S, Sliker CW, et al. **Blunt cerebrovascular injuries: does treatment always matter?** *J Trauma* 2009;66:132–43; discussion 143–44 CrossRef Medline
4. Kopelman TR, Leeds S, Berardoni NE, et al. **Incidence of blunt cerebrovascular injury in low-risk cervical spine fractures.** *Am J Surg* 2011;202:684–88; discussion 688–89 CrossRef Medline
5. Beliaev AM, Barber PA, Marshall RJ, et al. **Denver screening protocol for blunt cerebrovascular injury reduces the use of multi-detector computed tomography angiography.** *ANZ J Surg* 2014;84:429–32 CrossRef Medline
6. Roberts DJ, Chaubey VP, Zygun DA, et al. **Diagnostic accuracy of computed tomographic angiography for blunt cerebrovascular injury detection in trauma patients: a systematic review and meta-analysis.** *Ann Surg* 2013;257:621–32 CrossRef Medline
7. Paulus EM, Fabian TC, Savage SA, et al. **Blunt cerebrovascular injury screening with 64-channel multidetector CT: more sections finally cut it.** *J Trauma Acute Care Surg* 2014;76:279–83; discussion 284–85 CrossRef Medline
8. Cothren CC, Moore EE, Ray CE Jr, et al. **Screening for blunt cerebrovascular injuries is cost-effective.** *Am J Surg* 2005;190:845–49 Medline
9. Berne JD, Cook A, Rowe SA, et al. **A multivariate logistic regression analysis of risk factors for blunt cerebrovascular injury.** *J Vasc Surg* 2010;51:57–64 CrossRef Medline
10. Lebl DR, Bono CM, Velmahos G, et al. **Vertebral artery injury associated with blunt cervical spine trauma: a multivariate regression analysis.** *Spine (Phila Pa 1976)* 2013;38:1352–61 CrossRef Medline
11. Cothren CC, Biffl WL, Moore EE, et al. **Treatment for blunt cerebrovascular injuries: equivalence of anticoagulation and antiplatelet agents.** *Arch Surg* 2009;144:685–90 CrossRef Medline
12. Valls C, Andia E, Sánchez A, et al. **Selective use of low-osmolality contrast media in computed tomography.** *Eur Radiol* 2003;13:2000–05 CrossRef Medline
13. ACR Committee on Drugs and Contrast Media. *ACR Manual on Contrast Media*. Version 6. Reston: American College of Radiology; 2013
14. Kaufmann TJ, Huston J 3rd, Mandrekar JN, et al. **Complications of diagnostic cerebral angiography: evaluation of 19,826 consecutive patients.** *Radiology* 2007;243:812–19 CrossRef Medline
15. Cotté FE, Chaize G, Kachaner I, et al. **Incidence and cost of stroke and hemorrhage in patients diagnosed with atrial fibrillation in France.** *J Stroke Cerebrovasc Dis* 2014;23:e73–83 CrossRef Medline
16. Powe NR, Moore RD, Steinberg EP. **Adverse reactions to contrast media: factors that determine the cost of treatment.** *AJR Am J Roentgenol* 1993;161:1089–95 CrossRef Medline
17. Jethwa PR, Punia V, Patel TD, et al. **Cost-effectiveness of digital subtraction angiography in the setting of computed tomographic angiography negative subarachnoid hemorrhage.** *Neurosurgery* 2013;72:511–19; discussion 519 CrossRef Medline
18. Porsdal V, Boysen G. **Direct costs of transient ischemic attacks: a hospital-based study of resource use during the first year after transient ischemic attacks in Denmark.** *Stroke* 1998;29:2321–24 CrossRef Medline
19. World Bank. PPP conversion factor (GDP) to market exchange rate ratio. http://data.worldbank.org/indicator/PA.NUS.PPPC.RF. Accessed November 26, 2014
20. Kaye D, Brasel KJ, Neideen T, et al. **Screening for blunt cerebrovascular injuries is cost-effective.** *J Trauma* 2011;70:1051–56; discussion 1056–57 CrossRef Medline
21. Jackson D, Earnshaw SR, Farkouh R, et al. **Cost-effectiveness of CT perfusion for selecting patients for intravenous thrombolysis: a US hospital perspective.** *AJNR Am J Neuroradiol* 2010;31:1669–74 CrossRef Medline
22. Shah SV, Gage BF. **Cost-effectiveness of dabigatran for stroke prophylaxis in atrial fibrillation.** *Circulation* 2011;123:2562–70 CrossRef Medline
23. von Schéele B, Fernandez M, Hogue SL, et al. **Review of economics and cost-effectiveness analyses of anticoagulant therapy for stroke prevention in atrial fibrillation in the US.** *Ann Pharmacother* 2013;47:671–85 CrossRef Medline
24. Samsa GP, Reutter RA, Parmigiani G, et al. **Performing cost-effectiveness analysis by integrating randomized trial data with a comprehensive decision model: application to treatment of acute ischemic stroke.** *J Clin Epidemiol* 1999;52:259–71 Medline