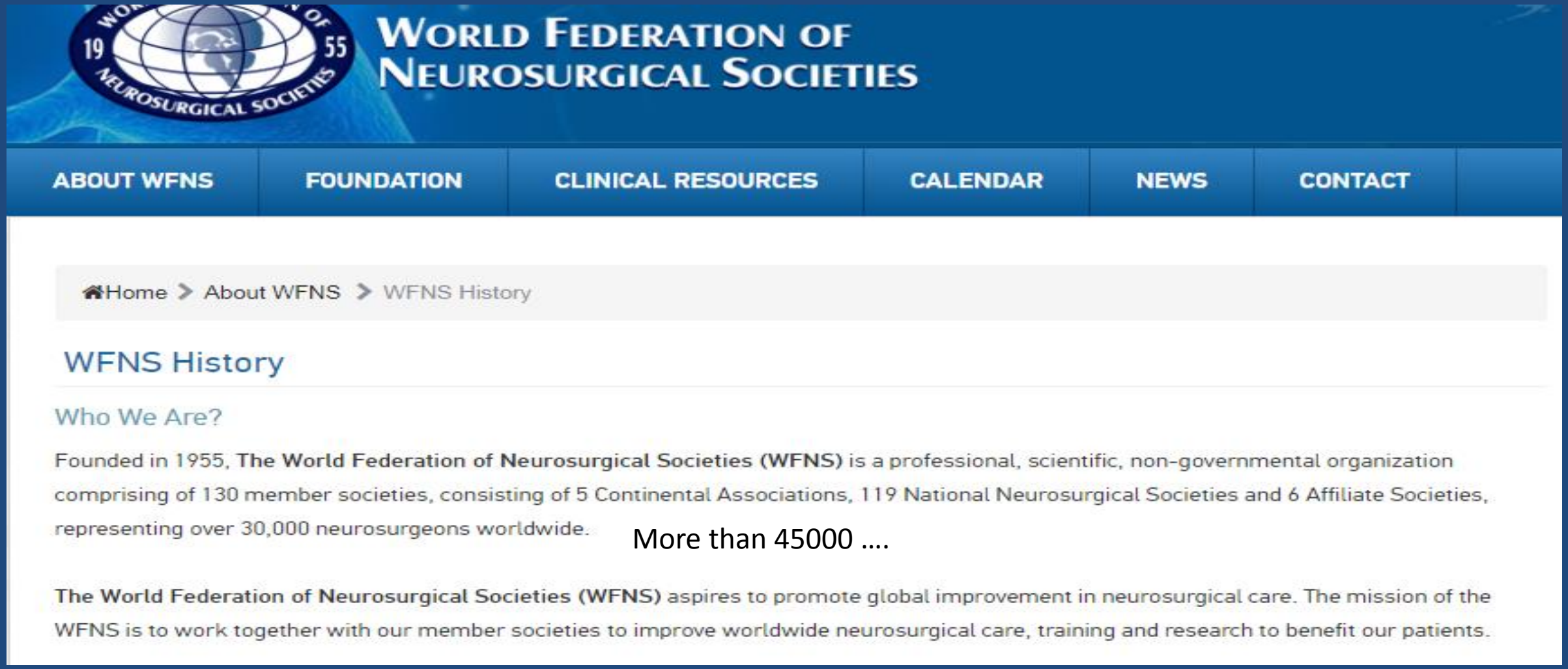
Challenge of International Guideline Development

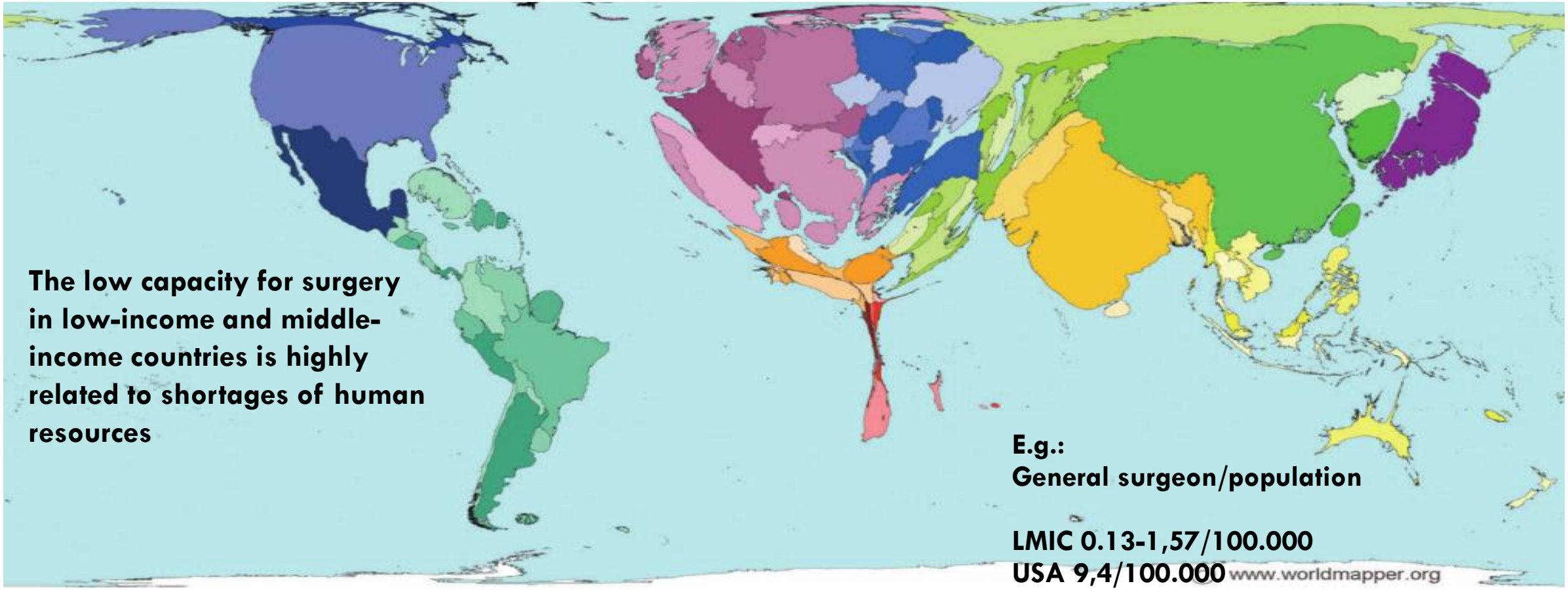
Franco Servadei
Dept of Neurosurgery
Humanitas University , Milano, Italy
President WFNS
Past President SINch

The WFNS

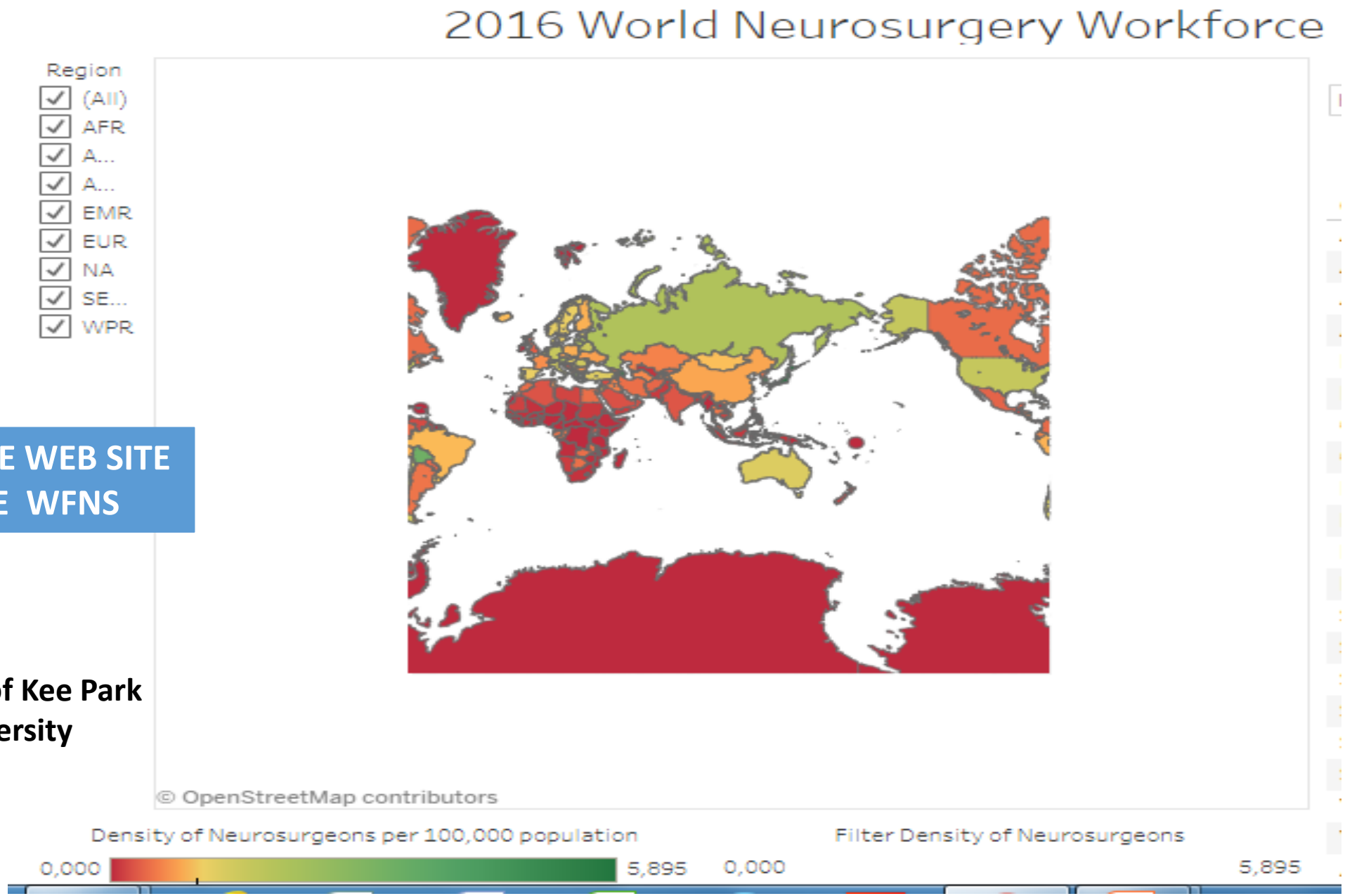

WORLD FEDERATION OF NEUROSURGICAL SOCIETIES
ABOUT WFNS
FOUNDATION
CLINICAL RESOURCES
CALENDAR
NEWS
CONTACT
Home > About WFNS > WFNS History
WFNS History
Who We Are?
Founded in 1955, The World Federation of Neurosurgical Societies (WFNS) is a professional, scientific, non-governmental organization comprising of 130 member societies, consisting of 5 Continental Associations, 119 National Neurosurgical Societies and 6 Affiliate Societies, representing over 30,000 neurosurgeons worldwide.
More than 45000 ….
The World Federation of Neurosurgical Societies (WFNS) aspires to promote global improvement in neurosurgical care. The mission of the WFNS is to work together with our member societies to improve worldwide neurosurgical care, training and research to benefit our patients.

The world wide scenario for Neurosurgery

Territory size VS relative number of physicians



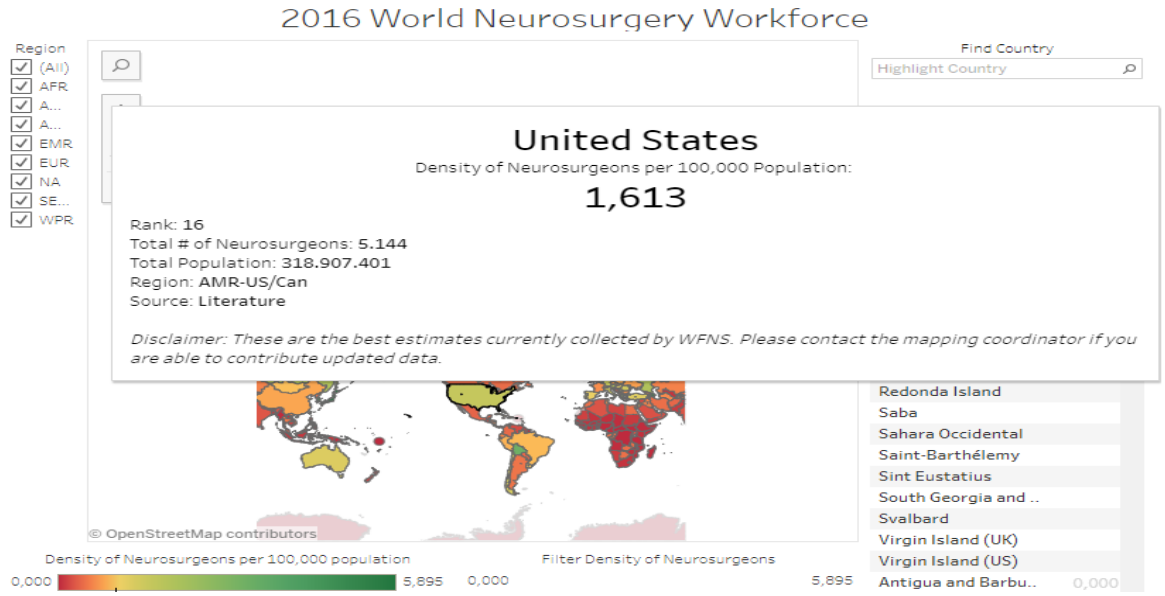
Global Neurosurgical Workforce Map



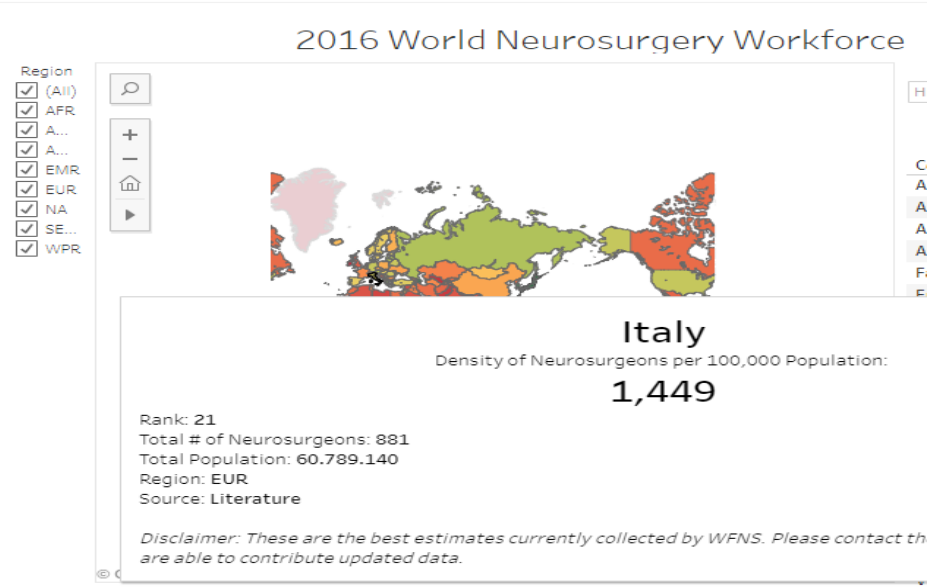
GO TO THE WEB SITE OF THE WFNS

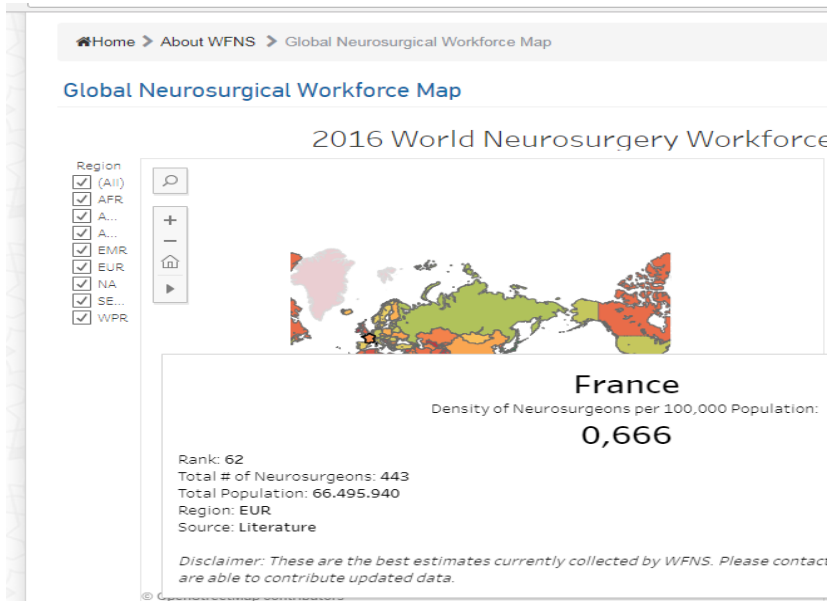
Thanks to prof Kee Park Harvard University

Global Neurosurgical Workforce Map

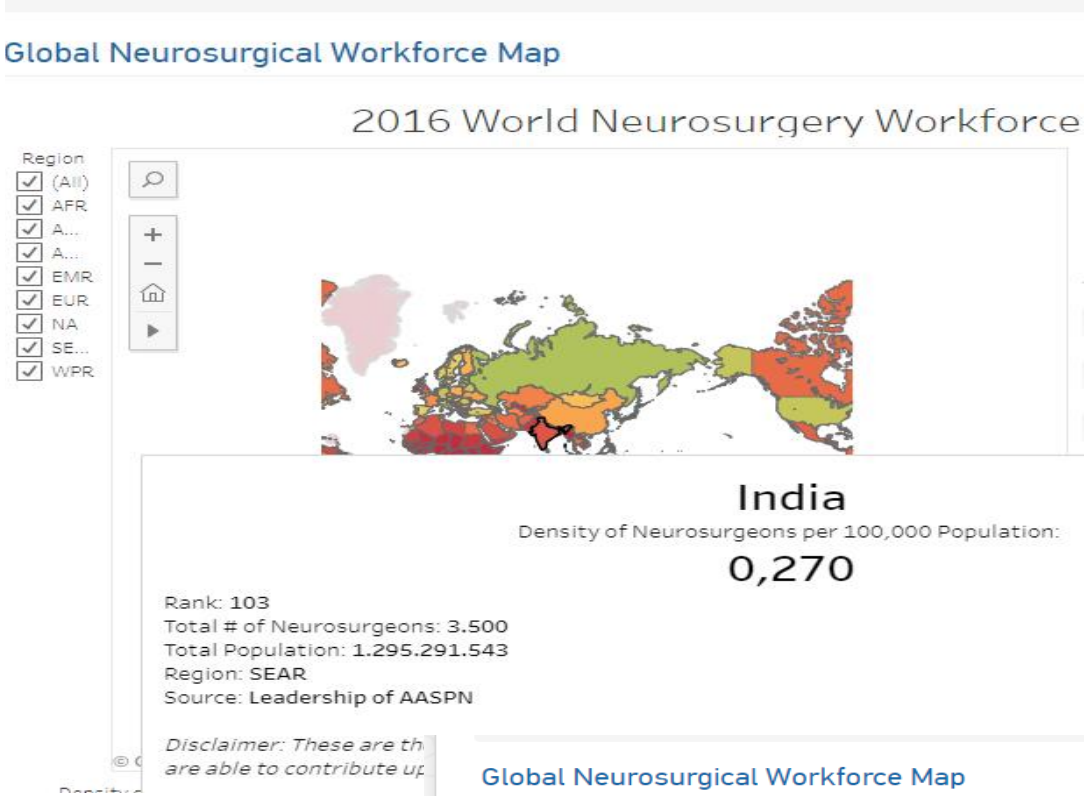


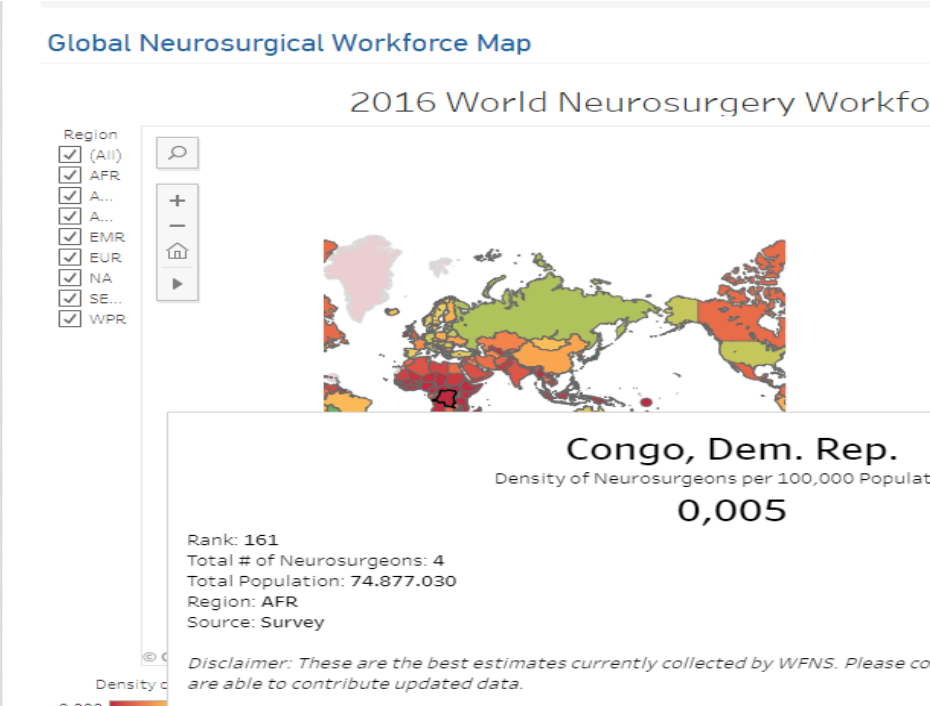
Global Neurosurgical Workforce Map





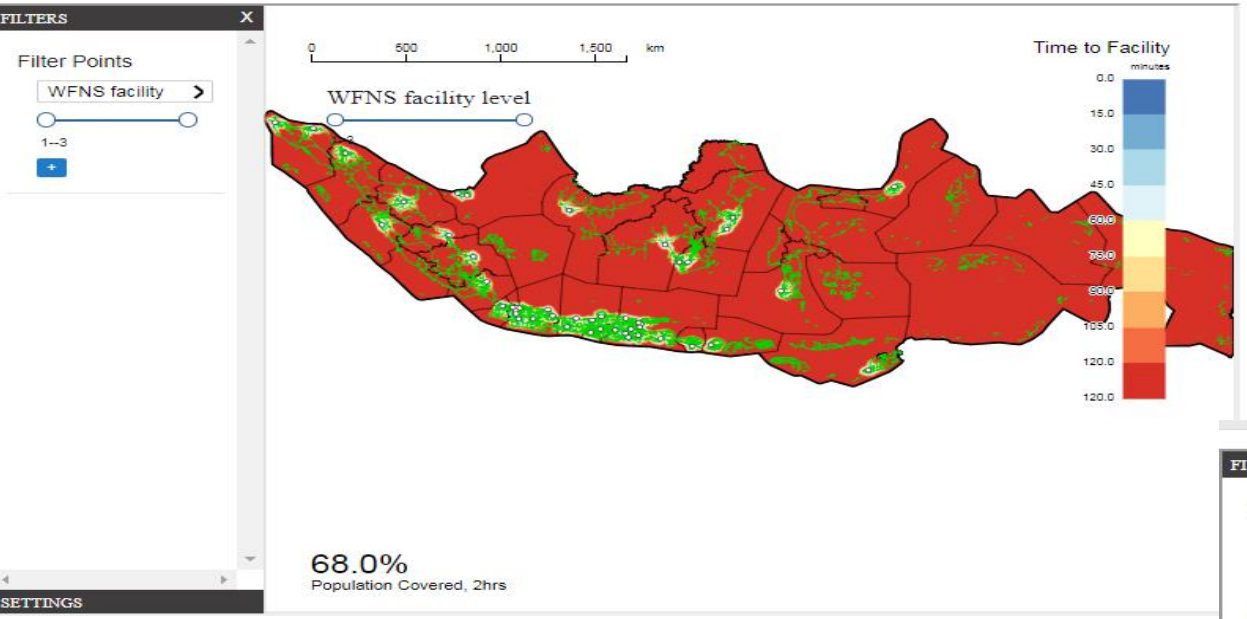
WFNS target is 1:100000

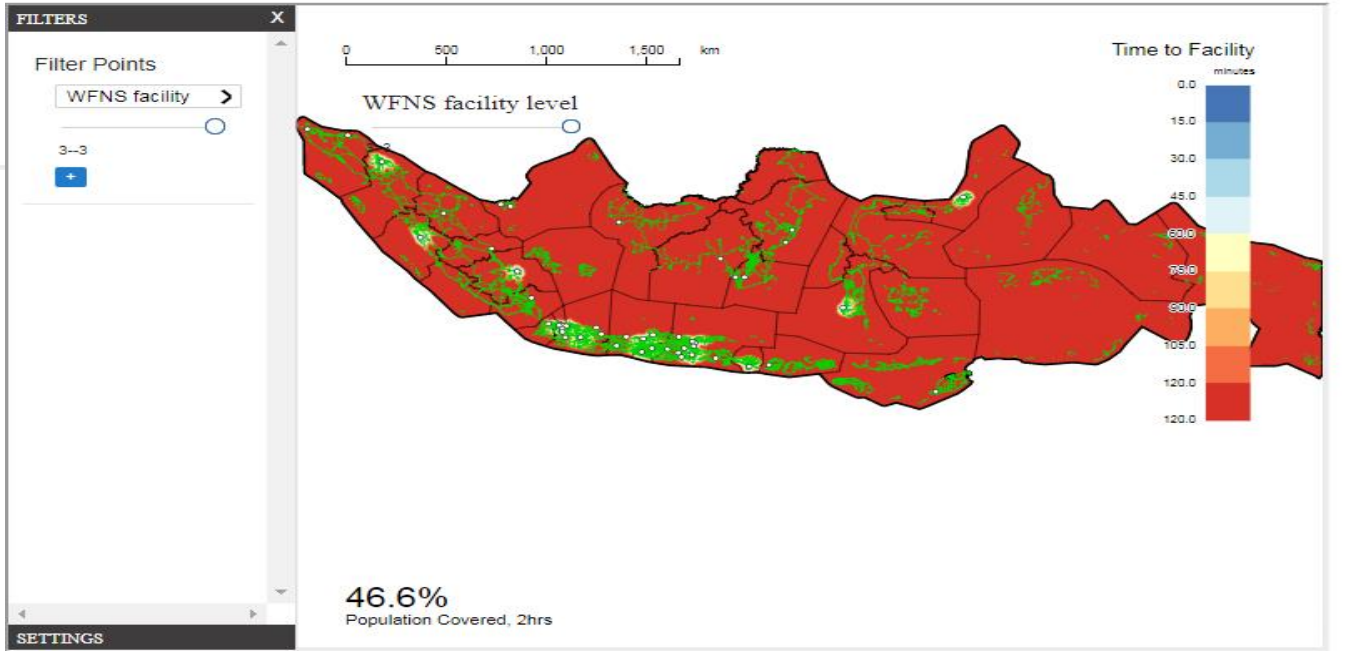




The difference between the coutnries with more and the countries with less neurosurgeons is from 100 to 1000 times

Indonesia partial map





Traumatic brain injury

- Traumatic brain injury (TBI) is a leading cause of death & disability in children and young adults around the world

- Low and middle income countries (LMICs) face the greatest burden of disease
  - At least 80% of TBI in LMICs vs 20% in high-income countries (HICs)

- Universal health coverage – by 2030
  - WFNS committed to addressing the disparities in access to neurosurgical care

TBI care is taken by the WHO global surgery programme as an example of

….“two different worlds” …..

SURGICAL NEUROLOGY INTERNATIONAL
AN OPEN ACCESS, INTERNATIONAL JOURNAL OF NEUROSURGERY AND NEUROSCIENCES
Home | Browse articles | Instructions | Submit articles

Surg Neurol Int. 2013; 4: 47.

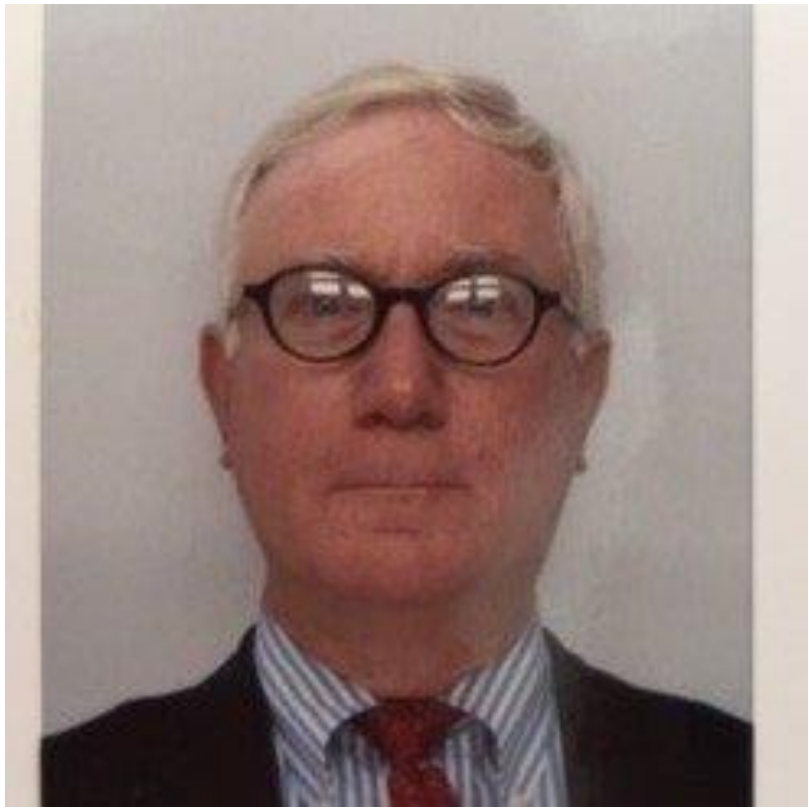
Published online Apr 3, 2013. doi: 10.4103/2152-7806.110030

PMCID: PMC3622355

Surgery as a Global health issue

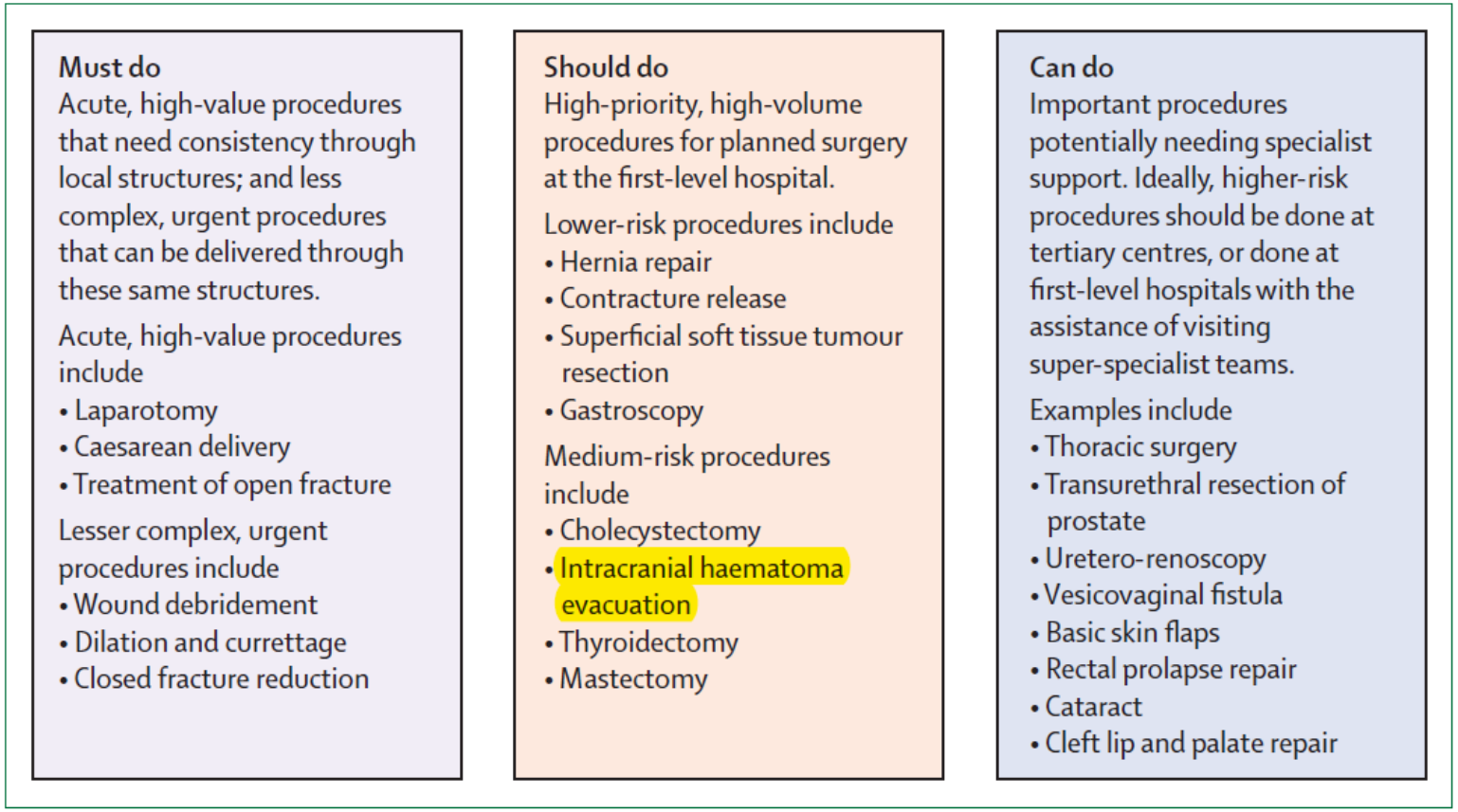
Walter D. Johnson*

Walt Johnson is now the Chairman Of Global Surgery at the WHO



Emergency surgery for TBI : time for a change……

- Craniotomy is now included in **Global Surgery 2030** Lancet Commission paper



Must do
Acute, high-value procedures that need consistency through local structures; and less complex, urgent procedures that can be delivered through these same structures.

Acute, high-value procedures include
- Laparotomy
- Caesarean delivery
- Treatment of open fracture

Lesser complex, urgent procedures include
- Wound debridement
- Dilation and currettage
- Closed fracture reduction

Should do
High-priority, high-volume procedures for planned surgery at the first-level hospital.

Lower-risk procedures include
- Hernia repair
- Contracture release
- Superficial soft tissue tumour resection
- Gastroscopy

Medium-risk procedures include
- Cholecystectomy
- Intracranial haematoma evacuation
- Thyroidectomy
- Mastectomy

Can do
Important procedures potentially needing specialist support. Ideally, higher-risk procedures should be done at tertiary centres, or done at first-level hospitals with the assistance of visiting super-specialist teams.

Examples include
- Thoracic surgery
- Transurethral resection of prostate
- Uretero-renoscopy
- Vesicovaginal fistula
- Basic skin flaps
- Rectal prolapse repair
- Cataract
- Cleft lip and palate repair

The Lancet Commissions

Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development

Epidemiological trends of TBI
Western World / Japan / Australia

OPINION

Changing patterns in the epidemiology of traumatic brain injury

Bob Roozenbeek, Andrew I. R. Maas and David K. Menon

Abstract | Traumatic brain injury (TBI) is a critical public health and socio-economic problem throughout the world. Reliable quantification of the burden caused by TBI is difficult owing to inadequate standardization and incomplete capture of data on the incidence and outcome of brain injury, with variability in the definition of TBI being partly to blame. Reports show changes in epidemiological patterns of TBI: the median age of individuals who experience TBI is increasing, and falls have now surpassed road traffic incidents as the leading cause of this injury. Despite claims to the contrary, no clear decrease in TBI-related mortality or improvement of overall outcome has been observed over the past two decades. In this Perspectives article, we discuss the strengths and limitations of epidemiological studies, address the variability in its definition, and highlight changing epidemiological patterns. Taken together, these analyses identify a great need for standardized epidemiological monitoring in TBI.

Roozenbeek, B. *et al. Nat. Rev. Neurol.* **9**, 231–236 (2013); published online 26 February 2013;

Table 1 | Age of patients with TBI

Study	Year of study	*n*	Median age (years)	% of patients >50 years
Traumatic Coma Data Bank[44]	1984–1987	746	25	15
UK four-centre study[45]	1986–1988	988	29	27
European Brain Injury Consortium core data survey[46]	1995	847	38	33
Prospective Observational COhort Neurotrauma (POCON)[47]	2008–2009	339	45	43
Austrian severe TBI study[48]	1999–2004	415	48	45
Italian intensive care unit cohort[49]	1997–2007	1,478	45	44

Abbreviation: TBI, traumatic brain injury.

Increased age = increased comorbidity

Association Between Comorbidities, Nutritional Status, and Anticlotting Drugs and Neurologic Outcomes in Geriatric Patients with Traumatic Brain Injury

Tomoya Okazaki[1], Toru Hifumi[1], Kenya Kawakita[1], Ryuta Nakashima[1], Atsushi Matsumoto[1], Hajime Shishido[1], Daiske Ogawa[2], Masanobu Okauchi[2], Atsushi Shindo[2], Masahiko Kawanishi[2], Takashi Tamiya[2], Yasuhiro Kuroda[1]

BACKGROUND: **Several studies using trauma data banks and registers showed that age, Glasgow Coma Scale (GCS), Injury Severity Score, and intraventricular hemorrhage were independent factors for neurologic outcomes in geriatric patients with traumatic brain injury (TBI). However, these analyses did not comprehensively evaluate factors particularly associated with geriatric patients. We aimed to identify factors particularly associated with geriatric patients that affect neurologic outcomes in TBI.**

METHODS: **Patients aged ≥65 years who were hospitalized consecutively in Kagawa University Hospital with severe TBI between 1 January 2008 and 31 October 2015 were retrospectively reviewed. We evaluated background factors particularly associated with geriatric patients, including comorbidities (Charlson Comorbidity Index [CCI]), nutritional status (serum albumin level), and presence/absence of antiplatelet and anticoagulant drugs, in addition to baseline characteristics. Multivariate analyses were performed to identify independent predictors of unfavorable neurologic outcomes (UO), as defined as a Glasgow Outcome Scale score of 1—3 at discharge from hospital. The association between CCI and UO was evaluated in a subgroup analysis.**

RESULTS: **UO occurred in 65.0% of 140 patients. Multivariate analyses showed that the CCI (odds ratio, 1.91; 95% confidence interval, 1.21—3.29; $P = 0.011$), age, and GCS were independent predictors of UO. In subgroup analyses of patients with an initial GCS score of 13—15, the rate of UO significantly increased with CCI score (CCI 0, 35.5%; CCI 1 or 2, 39.4%; CCI >2, 83.3%; $P < 0.01$).**

CONCLUSIONS: **CCI was an independent predictor of UO in geriatric patients with severe TBI.**

BACKGROUND

There is much in the literature on outcomes and poor prognostic factors in geriatric patients with traumatic brain injury (TBI).[1-11] Recently, several studies using trauma data banks and registers have reported that age, Glasgow Coma Scale (GCS) score, Injury Severity Score (ISS), systolic blood pressure, and intraventricular hemorrhage (IVH) are independent factors for neurologic outcomes in geriatric patients with TBI, using multivariate analysis.[12-14] However, factors particularly associated with geriatric patients with trauma, such as medical history,[15-17] medications,[5] and nutritional status,[18] were not included in these analyses[1-4,7-10,12,14] or were not comprehensively evaluated.[5,6,11,13]

Appropriate determination of factors predicting neurologic outcomes could contribute to clinical decisions on whether to initiate or withdraw intensive treatment and may reduce health care—associated costs.

This study aimed to identify factors particularly associated with geriatric patients that predict neurologic outcomes of these patients with TBI.

METHODS

Study Design and Setting

This single-center study consisted of all patients aged 65 years or older who were consecutively hospitalized in Kagawa University Hospital with severe TBI between 1 January 2008 and 31 October

Epidemiology in countries with less resources

TOTAL 2004

RANK	LEADING CAUSE	%
1	Ischaemic heart disease	12.2
2	Cerebrovascular disease	9.7
3	Lower respiratory infections	7.0
4	Chronic obstructive pulmonary disease	5.1
5	Diarrhoeal diseases	3.6
6	HIV/AIDS	3.5
7	Tuberculosis	2.5
8	Trachea, bronchus, lung cancers	2.3
9	Road traffic injuries	2.2
10	Prematurity and low birth weight	2.0
11	Neonatal infections and other	1.9
12	Diabetes mellitus	1.9
13	Malaria	1.7
14	Hypertensive heart disease	1.7
15	Birth asphyxia and birth trauma	1.5
16	Self-inflicted injuries	1.4
17	Stomach cancer	1.4
18	Cirrhosis of the liver	1.3
19	Nephritis and nephrosis	1.3
20	Colon and rectum cancers	1.1

TOTAL 2030

RANK	LEADING CAUSE	%
1	Ischaemic heart disease	12.2
2	Cerebrovascular disease	9.7
3	Chronic obstructive pulmonary disease	7.0
4	Lower respiratory infections	5.1
5	Road traffic injuries	3.6
6	Trachea, bronchus, lung cancers	3.5
7	Diabetes mellitus	2.5
8	Hypertensive heart disease	2.3
9	Stomach cancer	2.2
10	HIV/AIDS	2.0
11	Nephritis and nephrosis	1.9
12	Self-inflicted injuries	1.9
13	Liver cancer	1.7
14	Colon and rectum cancer	1.7
15	Oesophagus cancer	1.5
16	Violence	1.4
17	Alzheimer and other dementias	1.4
18	Cirrhosis of the liver	1.3
19	Breast cancer	1.3
20	Tuberculosis	1.1

Source: World health statistics 2008 (http://www.who.int/whosis/whostat/2008/en/index.html)


HONDA

Future trends in epidemiology

- **Tremendous increase of TBI in developing countries due to road traffic accidents with more epidural and acute subdural hematomas (contact injuries without protection)**

- **Changes in the TBI population in Europe, Japan and USA : older population , falls as the first cause of trauma, more co-morbidities , more contusions and CrSDH (falls in elderly)**

Table 1. Proportion, incidence, and volume of traumatic brain injury (TBI) worldwide by World Bank income group and WHO region.

I	II	III	IV	V	VI	VII	VIII	IX	X	XI
	P	a	R = (P)(a)	b	D = (R)(b)	c	D/cP		D/c	
Grouping	Population	p(RTI)	Total RTI	p(TBI|RTI)	Total TBI and RTI	p(RTI|TBI)	TBI Incidence (per 100,000)	95% CI	Total TBI	95% CI
LMIC	6,160,384,080	0.01308	80,577,165	0.344	27,727,408	0.555	811	488 – 1,134	49,954,794	30,038,453 – 69,871,135
HIC	1,188,267,169	0.01300	15,448,795	0.289	4,464,702	0.249	1,507	710 – 2,304	17,903,925	8,434,783 – 27,373,067
AFR	990,267,592	0.01292	12,798,416	0.344	4,404,063	0.555	801	730 – 873	7,934,534	7,227,131 – 8,641,937
AMR-L	634,315,984	0.01368	8,677,844	0.335	2,906,427	0.504	909	759 – 1,059	5,765,538	4,811,984 – 6,719,092
AMR-US/Can	357,270,594	0.01121	4,004,087	0.289	1,157,181	0.249	1,299	612 – 1,986	4,640,418	2,185,991 – 7,094,846
EMR	648,060,427	0.01300	8,425,138	0.330	2,783,097	0.479	897	767 – 1,027	5,814,715	4,973,387 – 6,656,043
EUR	916,755,857	0.01201	11,007,015	0.310	3,416,926	0.368	1,012	907 – 1,117	9,278,934	8,317,149 – 10,240,718
SEAR	1,928,530,522	0.01529	29,484,574	0.344	10,145,937	0.555	948	794 – 1,102	18,279,321	15,303,924 – 21,254,717
WPR	1,873,450,273	0.01405	26,331,186	0.336	8,853,523	0.511	924	783 – 1,065	17,312,953	14,668,875 – 19,957,031
Global	7,348,651,249						**939**	871-1,007	69,026,412	64,035,331 – 74,017,494

From Kee Park et al , in press, 2017

Selection of patients is biased by the literature

89% of published papers in TBI come from USA-Canada- Australia-Japan –Europe

Where is located less than 18% of injuries according to the WHO report on worldwide injuries

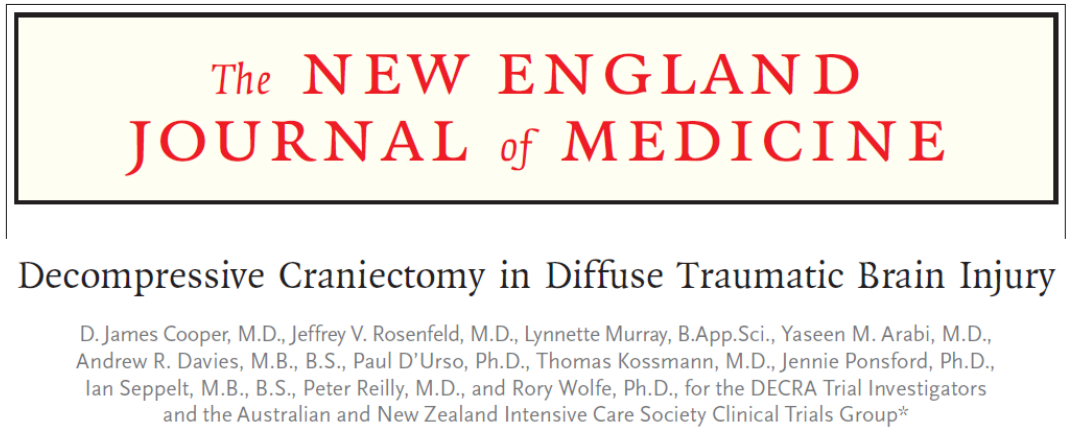
http://www.who.int/topics/injuries/en/2013

We do not have have the same resourses , the patients are different the type of hematomas are different

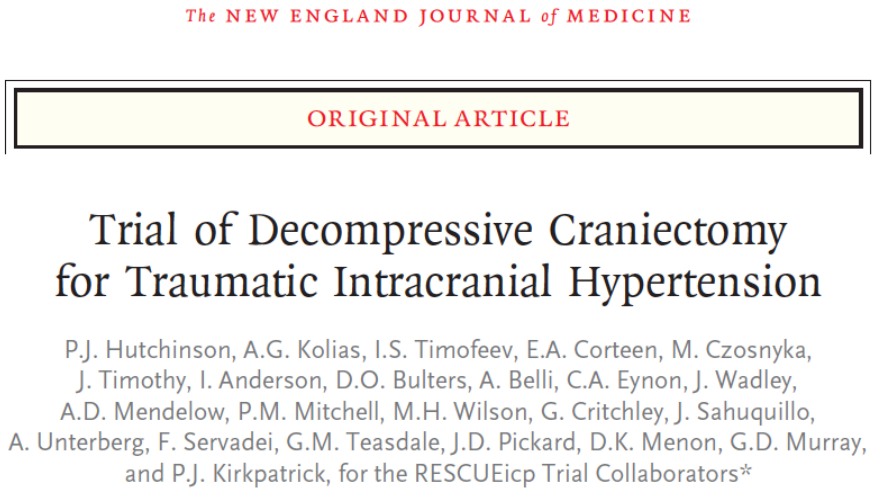
BUT we tell them what to do …….

TBI research – mostly in HICs

- Decompressive craniectomy trials



DECRA
155 patients
100% in HICs



RESCUEicp
408 patients
91% in HICs

BEST-TRIP trial – all patients from LMICs
What is wrong ?????


The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 DECEMBER 27, 2012 VOL. 367 NO. 26

A Trial of Intracranial-Pressure Monitoring in Traumatic Brain Injury

Randall M. Chesnut, M.D., Nancy Temkin, Ph.D., Nancy Carney, Ph.D., Sureyya Dikmen, Ph.D., Carlos Rondina, M.D., Walter Videtta, M.D., Gustavo Petroni, M.D., Silvia Lujan, M.D., Jim Pridgeon, M.H.A., Jason Barber, M.S., Joan Machamer, M.A., Kelley Chaddock, B.A., Juanita M. Celix, M.D., Marianna Cherner, Ph.D., and Terence Hendrix, B.A.

The apparently oversimplified concepts surrounding manipulating ICP do not produce improved recovery in the general sTBI population.

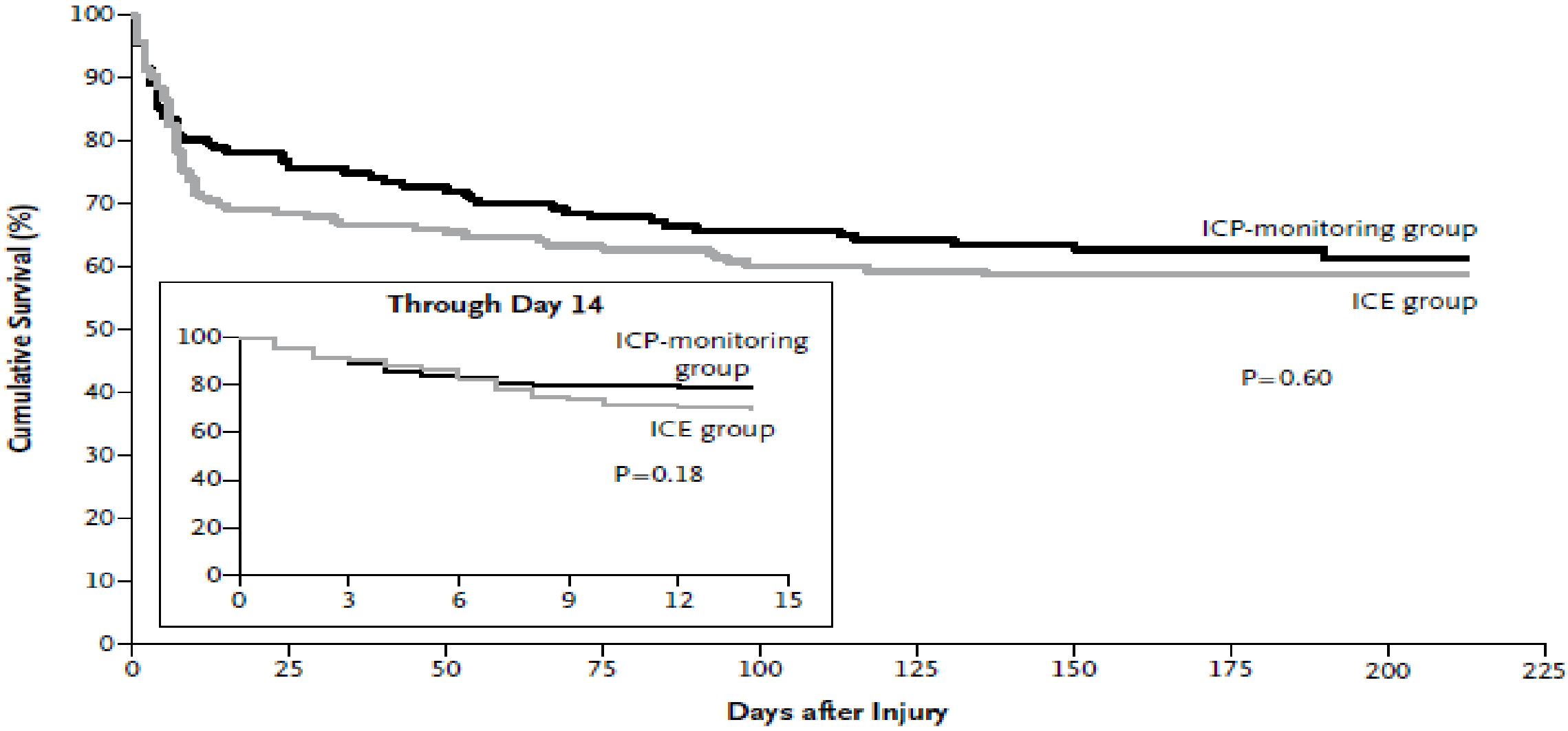


Figure 1. Cumulative Survival Rate According to Study Group.

A Kaplan–Meier survival plot based on the prespecified analysis shows the cumulative survival rate at 6 months

BRAIN TRAUMA FOUNDATION
CELEBRATES 20 YEARS
OF SAVING LIVES

Click Here to Donate Now

US Guidelines
BTF and AANS

Published 1996, Revised 2000, 2003 ,2007 and 2016

BTF Meeting Salzburg Europe-Usa 1994

US Guidelines : BTF and AANS
Severe Traumatic Brain Injury
GCS 3 to 8

- First set of guidelines ever published in Neurosurgery
- Well received by the Neurosurgical Community all over the world
- Either translated in different languages as they were (f.i spanish for Spain and Latino America) or adapted to local environment (f.i. Italy) or changed with the addiction of some experts' opinion (EBIC)
- Already some tentative approach for adaptation to countries with limited resources (Bulgaria, Romenia)

Limits of the evidence based process and subsequently of the produced guidelines : with the time we may realize that we may be wrong ….

❁ Cerebral Pressure Thresholds

GUIDELINES MAY BE WRONG AND NEED A CHANGE

B. **Level II**

Aggressive attempts to maintain cerebral perfusion pressure (CPP) above 70 mm Hg (FIRST VERSION) with fluids and pressors should be avoided because of the risk of adult respiratory distress syndrome (ARDS).

C. **Level III**

CPP of 50 mm Hg should be avoided.

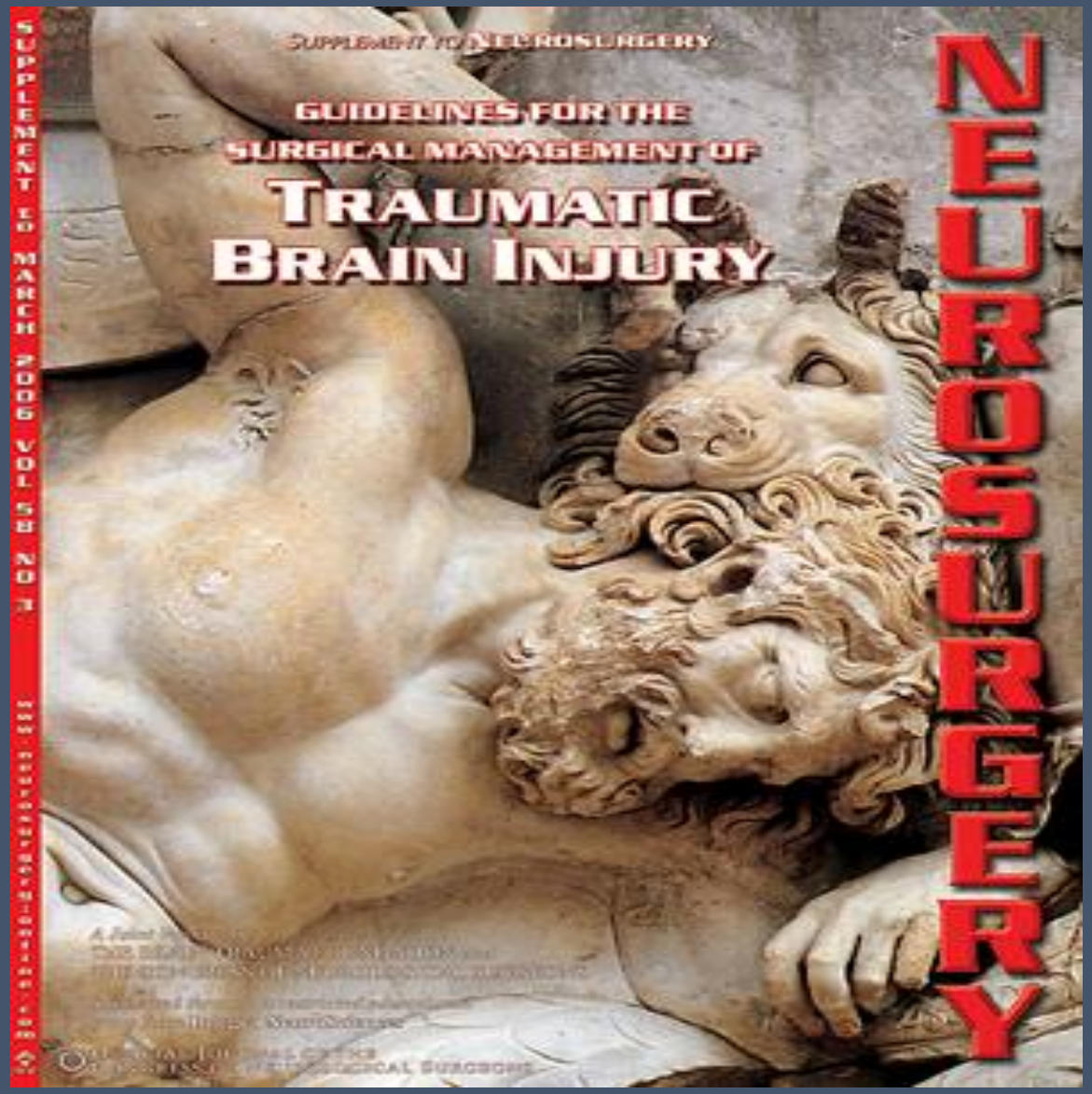
The CPP value to target lies within the range of 50–70 mm Hg. Patients with intact pressure auto-regulation tolerate higher CPP values.

Ancillary monitoring of cerebral parameters that include blood flow, oxygenation, or metabolism facilitates CPP management.

CPP=MABP-ICP

The weakness of the evidence based guidelines : there is no evidence when it is not necessary

The example of the surgical guidelines



M. Ross Bullock, M.D., Ph.D.

Department of Neurological Surgery,
Virginia Commonwealth University
Medical Center,
Richmond, Virginia

Randall Chesnut, M.D.

Department of Neurological Surgery,
University of Washington
School of Medicine,
Harborview Medical Center,
Seattle, Washington

Jamshid Ghajar, M.D., Ph.D.

Department of Neurological Surgery,
Weil Cornell Medical College of
Cornell University,
New York, New York

David Gordon, M.D.

Department of Neurological Surgery,
Montefiore Medical Center,
Bronx, New York

Roger Hartl, M.D.

Department of Neurological Surgery,
Weil Cornell Medical College of
Cornell University,
New York, New York

David W. Newell, M.D.

Department of Neurological Surgery,
Swedish Medical Center,
Seattle, Washington

Franco Servadei, M.D.

Department of Neurological Surgery,
M. Bufalini Hospital,
Cesena, Italy

Guidelines for monitoring and medical management

- Class I, II and III paper
- 3 standards found (all negative)
- 10 guidelines
- Many options

BTF Study Group , 1996

Guidelines for surgical management

- Only class III papers
- No standards found
- No guidelines
- Only options

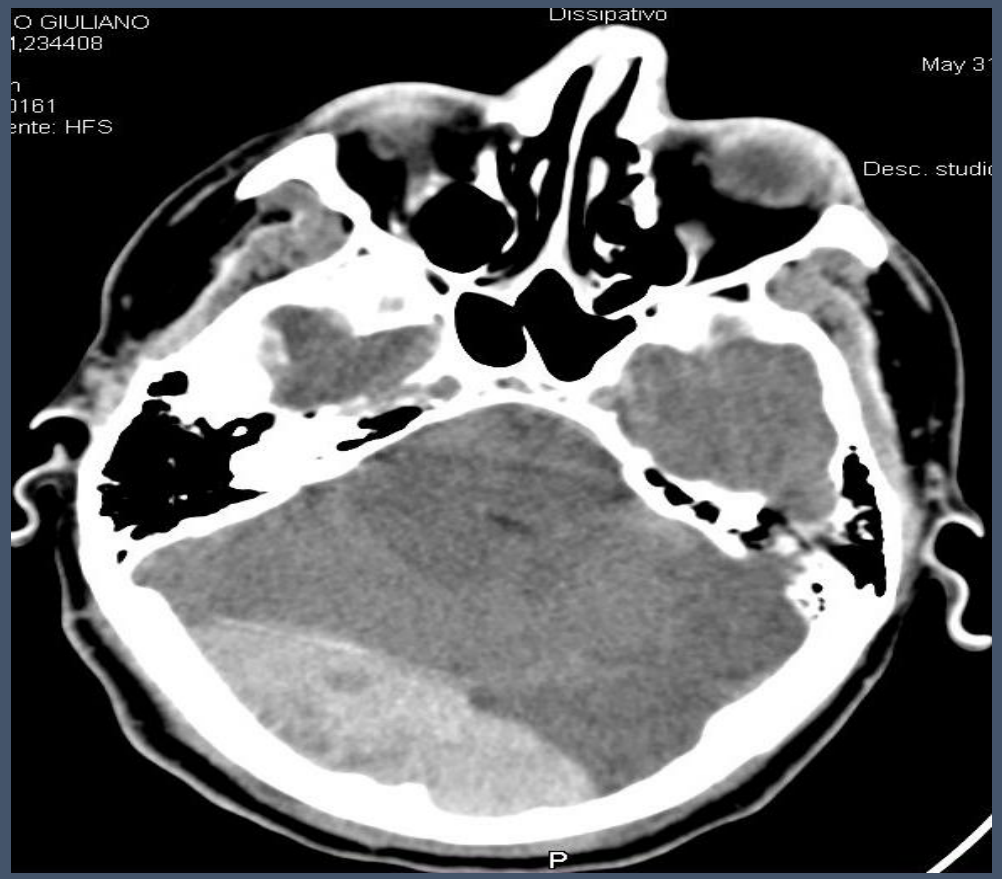
BTF Study Group , 2006

RECOMMENDATIONS

(see *Methodology*)

Indications for Surgery

- An epidural hematoma (EDH) greater than 30 cm^3 should be surgically evacuated regardless of the patient's Glasgow Coma Scale (GCS) score.

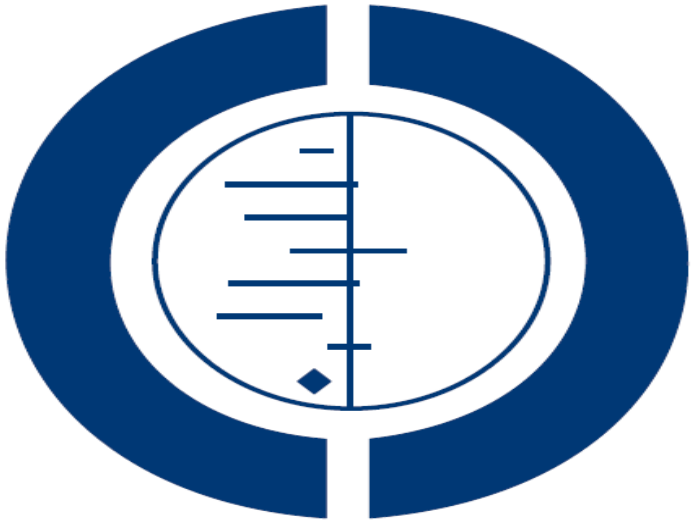


According to the EBM Evacuation of this hematoma is optional …

Is it evidence based medicine neutral ? In other words the process itself ensures us about the objective validity of the published results ??

Steroids for acute spinal cord injury (Review)

Bracken MB



THE COCHRANE COLLABORATION®

February 2013

Authors' conclusions

High-dose methylprednisolone steroid therapy is the only pharmacologic therapy shown to have efficacy in a phase three randomized trial when administered within eight hours of injury. One trial indicates additional benefit by extending the maintenance dose from 24 to 48 hours, if start of treatment must be delayed to between three and eight hours after injury. There is an urgent need for more randomized trials of pharmacologic therapy for acute spinal cord injury.

Pharmacological Therapy for Acute Spinal Cord Injury

KEY WORDS: GM-1 ganglioside, Mehtylprednisolone, NASCIS trials, Pharmacologic therapy, Sygen trials

Neurosurgery 72:93–105, 2013 DOI: 10.1227/NEU.0b013e31827765c6 www.neurosurgery-online.com

NEUROSURGERY VOLUME 72 | NUMBER 3 | MARCH 2013 SUPPLEMENT | 93

R. John Hurlbert, MD, PhD, FRCSC*

Mark N. Hadley, MD‡

Beverly C. Walters, MD, MSc, FRCSC‡§

Bizhan Aarabi, MD, FRCSC¶

Sanjay S. Dhall, MD‖

Daniel E. Gelb, MD#

Curtis J. Rozzelle, MD**

Timothy C. Ryken, MD, MS‡‡

Nicholas Theodore, MD§§

RECOMMENDATIONS

Level I

- Administration of methylprednisolone (MP) for the treatment of acute spinal cord injury (SCI) is not recommended. Clinicians considering MP therapy should bear in mind that the drug is not Food and Drug Administration (FDA) approved for this application. There is no Class I or Class II medical evidence supporting the clinical benefit of MP in the treatment of acute SCI. Scattered reports of Class III evidence claim inconsistent effects likely related to random chance or selection bias. However, Class I, II, and III evidence exists that high-dose steroids are associated with harmful side effects including death.
- Administration of GM-1 ganglioside (Sygen) for the treatment of acute SCI is not recommended.

PERSPECTIVES

CrossMark

WORLD NEUROSURGERY 90: 621-622, JUNE 2016

Commentary on: *Steroid Use for Acute Spinal Cord Injury in Latin America: A Potentially Dangerous Practice Guided by Fear of Lawsuit*
by Teles et al. World Neurosurg 88:342-349, 2016

Steroid Therapy for Spinal Cord Trauma: Where's the Evidence?

Ran Harel

The current article by Teles et al[15] evaluated the use of MP in Latin America by using spine surgeons' questionners. Despite the current recommendations, 86% of the involved surgeons were still using MP for spinal cord trauma, a treatment method with major complication. Of these surgeons, 56.1% believe in its clinical benefit, 29.3% fear of litigation, 27.1% follow their hospital protocol, and 3.5% believe that MP has no major adverse effect. This article is important as it emphasizes the current recommendations and risks of MP treatment and educates the surgeons so malpractice lawsuits will not be the cause for useless treatments.

New updating of the guidelines is always better than the older version ???

Nancy Carney, PhD*
Annette M. Totten, PhD*
Cindy O'Reilly, BS*
Jamie S. Ullman, MD‡
Gregory W.J. Hawryluk, MD, PhD§
Michael J. Bell, MD¶
Susan L. Bratton, MD§
Randall Chesnut, MD||
Odette A. Harris, MD, MPH#
Niranjan Kissoon, MD**
Andres M. Rubiano, MD‡‡§§
Lori Shutter, MD¶
Robert C. Tasker, MBBS, MD¶¶
Monica S. Vavilala, MD||
Jack Wilberger, MD|||
David W. Wright, MD##
Jamshid Ghajar, MD, PhD#

*Oregon Health & Science University, Portland, Oregon; ‡Hofstra North Shore-LIJ School of Medicine, Hempstead, New York; §University of Utah, Salt Lake City, Utah; ¶University of Pittsburgh, Pitts-

Guidelines for the Management of Severe Traumatic Brain Injury, Fourth Edition

The scope and purpose of this work is 2-fold: to synthesize the available evidence and to translate it into recommendations. This document provides recommendations only when there is evidence to support them. As such, they do not constitute a complete protocol for clinical use. Our intention is that these recommendations be used by others to develop treatment protocols, which necessarily need to incorporate consensus and clinical judgment in areas where current evidence is lacking or insufficient. We think it is important to have evidence-based recommendations to clarify what aspects of practice currently can and cannot be supported by evidence, to encourage use of evidence-based treatments that exist, and to encourage creativity in treatment and research in areas where evidence does not exist. The communities of neurosurgery and neuro-intensive care have been early pioneers and supporters of evidence-based medicine and plan to continue in this endeavor. The complete guideline document, which summarizes and evaluates the literature for each topic, and supplemental appendices (A-I) are available online at https://www.braintrauma.org/coma/guidelines.

KEY WORDS: Severe traumatic brain injury, Adults, Critical care, Evidence-based medicine, Guidelines, Systematic review

Neurosurgery 0:1–10, 2016 DOI: 10.1227/NEU.0000000000001432 www.neurosurgery-online.com

Guidelines for management of severe head injuries : changes from 2007 to 2016

Brain Trauma FOUNDATION

Topic	*Change*	*Explanation*
Blood Pressure Thresholds	Blood Pressure Thresholds was made its own section. Studies from pre-hospital care are no longer included.	Vasser 1990, 1991, and 1993 are studies of pre-hospital care and are no longer included.
ICP Thresholds	Eisenberg, 1988 is no longer included in this topic.	Eisenberg, 1988 is not included for this topic. This study is a Class 2 study of barbiturates.
Cerebral Perfusion Thresholds	CPP Thresholds was made its own section.	We split monitoring and thresholds into separate sections to clarify the scope and allow for different quality assessment criteria.
Advanced Cerebral Monitoring Thresholds	Name changed and scope clarified.	The name was changed from Brain Oxygen Monitoring in order to accurately reflect that several types of monitoring could be included.

Abbreviations: CPP=cerebral perfusion pressure, CRASH=Corticosteroid Randomization After Significant Head Injury Trial, CSF=cerebrospinal fluid, ICP=intracranial pressure, NA=not applicable, TBI=traumatic brain injury.

Intracranial Pressure Monitoring

JOURNAL OF NEUROTRAUMA
Volume 24, Supplement 1, 2007
© Brain Trauma Foundation
Pp. S-37–S-44
DOI: 10.1089/neu.2007.9990

A. Level I

There are insufficient data to support a treatment standard for this topic.

B. Level II

Intracranial pressure (ICP) should be monitored in all salvageable patients with a severe traumatic brain injury (TBI; Glasgow Coma Scale [GCS] score of 3–8 after resuscitation) and an abnormal computed tomography (CT) scan. An abnormal CT scan of the head is one that reveals hematomas, contusions, swelling, herniation, or compressed basal cisterns.

C. Level III

ICP monitoring is indicated in patients with severe TBI with a normal CT scan if two or more of the following features are noted at admission: age over 40 years, unilateral or bilateral motor posturing, or systolic blood pressure (BP) < 90 mm Hg.

Neurosurgery 0:1–10, 2016

Level I and II A

There was insufficient evidence to support a Level I or II A recommendation for this topic.

Level II B

Management of severe TBI patients using information from ICP monitoring is recommended to reduce in-hospital and 2-week post-injury mortality.

Do we need an ICP monitoring to cure our patients with severe TBI??

The mistake of using ICP monitoring as the only index of correct management of TBI and guidelines adherence

Original Investigation | PACIFIC COAST SURGICAL ASSOCIATION

Compliance With Evidence-Based Guidelines and Interhospital Variation in Mortality for Patients With Severe Traumatic Brain Injury

Aaron J. Dawes, MD; Greg D. Sacks, MD, MPH; H. Gill Cryer, MD, PhD; J. Peter Gruen, MD; Christy Preston, RN; Deidre Gorospe, RN; Marilyn Cohen, RN; David L. McArthur, PhD, MPH; Marcia M. Russell, MD; Melinda Maggard-Gibbons, MD, MSHS; Clifford Y. Ko, MD, MS, MSHS; for the Los Angeles County Trauma Consortium

"Compliance with evidence-based guidelines in TBI has been proposed as a marker of hospital quality.

However, the association between hospital-level compliance rates and risk-adjusted clinical outcomes for patients with TBI remains poorly understood."

Is hospital-level compliance with the Brain Trauma Foundation guidelines for intracranial pressure monitoring and craniotomy associated with risk-adjusted mortality rates for patients with severe TBI?

Conclusions

Our results demonstrate no association between hospitals' compliance with 2 BTF guidelines and risk-adjusted mortality, suggesting that neither measure should be used as an independent marker of hospital quality.

The NEW ENGLAND JOURNAL of MEDICINE

N Engl J Med 2014;370:2121-30.
DOI: 10.1056/NEJMra1208708

Traumatic Intracranial Hypertension

Nino Stocchetti, M.D., and Andrew I.R. Maas, M.D., Ph.D.

Therapy Steps	Levels of Evidence	Treatment	Risk
8	Not reported	Decompressive craniectomy	Infection or delayed hematoma Subdural effusion Hydrocephalus and syndrome of the trephined
7	Level II	Metabolic suppression (barbiturates)	Hypotension and increased number of infections
6	Level III	Hypothermia	Fluid and electrolyte disturbances and infection
5	Level III	Induced hypocapnia	Excessive vasoconstriction and ischemia
4	Level II	Hyperosmolar therapy Mannitol or hypertonic saline	Negative fluid balance Hypernatremia Kidney failure
3	Not reported	Ventricular CSF drainage	Infection
2	Level III	Increased sedation	Hypotension
1	Not reported	Intubation Normocarbic ventilation	Coughing, ventilator asynchrony, ventilator-associated pneumonia

Standard of care !!!!
We need iCP monitoring …

- **This requires multimodal monitoring that in its simplest form means interpreting the ICP value according to the clinical and CT findings or in a more sophisticated approach using other physiologic parameters as well.-This can be challenging and requires further research validation, and so for the present, it is reasonable to set the treatment threshold at 20–25 mm Hg at the onset of management but consider altering the threshold when other clinical data support this.**
- ***From Le Roux et al , 2016***

Letter: Guidelines for the Management of Severe Traumatic Brain Injury Fourth Edition

Edoardo Picetti, MD*
Corrado Iaccarino, MD‡
Franco Servadei, MD‡
*I Servizio Anestesia Rianimazione
A.O.U. Parma
Parma, Italy
‡Neurochirugia e Neurotraumatologia
A.O.U. Parma and A.S.M.N. Reggio Emilia
Parma and Reggio Emilia, Italy

To the Editor:

We have read with great interest the new edition of the Brain Trauma Foundation guidelines for the management of severe traumatic brain injury (TBI).[1] The authors should be congrat-

a return to an individual-based approach.[1 1] In the light of the above reported considerations, we suggest that a common sense-based approach (based on published practical suggestions) should be integrated into evidence-based recommendations. The final target of guidelines is, in our opinion, to help neurosurgeons and intensivists to cure their patients and not to keep at any cost an aseptic "formally correct" methodology.

In Reply: Guidelines for the Management of Severe Traumatic Brain Injury, Fourth Edition

To the Editor:

We thank Drs Picetti, Iaccarino, and Servadei for their thoughtful comments[1] in relation to the recently published Guidelines for the Management of Severe Traumatic Brain Injury, Fourth Edition.[2] We share their distress and disappointment with the gaps that exist in current evidence for important topics. It is our great hope that the fourth edition guidelines will inspire investigators to complete high-quality studies that will fill these gaps. We also fully agree with the Parma group[1] that published guidelines should not be viewed as "formally correct." The Guidelines should serve as a starting point for individualized patient care protocols, integrating broad information specific to patient characteristics.

not be made in this document. We hope that investigators will urgently seek to address important areas of deficient evidence and that the new Living Guidelines will provide a rapid mechanism for incorporating this new evidence into revised recommendations which will improve future TBI care. It is our additional hope that institutional protocols derived from these guidelines will consider all aspects of severe TBI care evaluated in our document. Resultant outcomes should not be judged based upon compliance with only selected components, such as ICP monitoring alone.[10]

We all agree that we need a change and produce guidelines probably with a less perfect methodology but with a better clinical meaning

1. Decompressive Craniectomy

Changes from Prior Edition

DC is a new topic for the 4th Edition. DC had been included in the surgical guidelines.

Level I

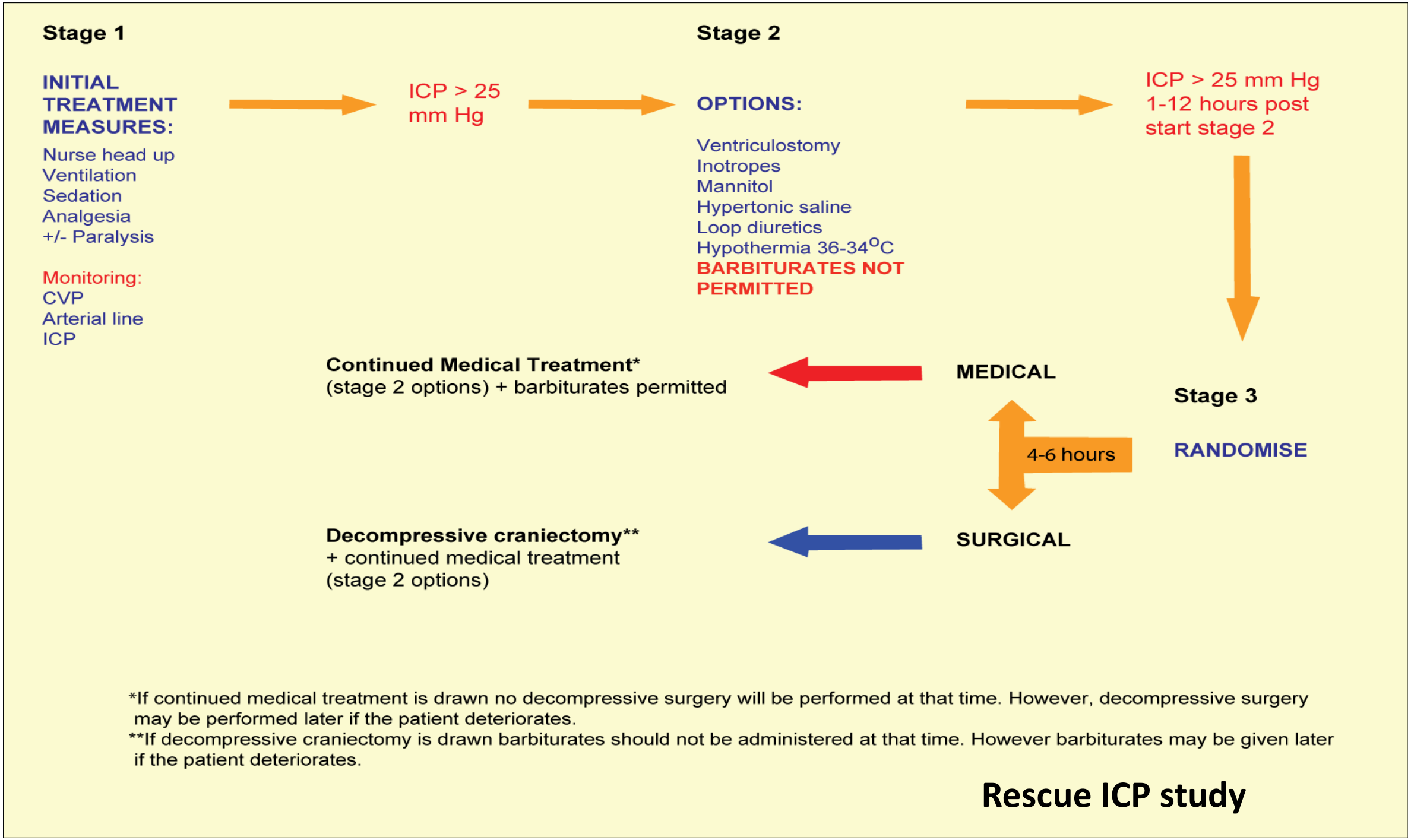
There was insufficient evidence to support a Level I recommendation for this topic.

Level II A

Bifrontal DC is not recommended to improve outcomes as measured by the Glasgow Outcome Scale – Extended (GOS-E) score at 6 months post-injury in severe TBI patients with diffuse injury (without mass lesions), and with ICP elevation to values >20 mm Hg for more than 15 minutes within a 1-hour period that are refractory to first-tier therapies. However, this procedure has been demonstrated to reduce ICP and to minimize days in the intensive care unit (ICU).

A large frontotemporoparietal DC (not less than 12 x 15 cm or 15 cm diameter) is recommended over a small frontotemporoparietal DC for reduced mortality and improved neurologic outcomes in patients with severe TBI.

*The committee is aware that the results of the RESCUEicp trial may be released soon after the publication of these Guidelines. The results of this trial may affect these recommendations and may need to be considered by treating physicians and other users of these Guidelines. We intend to update these recommendations after the results are published if needed. Updates will be available at https://braintrauma.org/coma/guidelines



*If continued medical treatment is drawn no decompressive surgery will be performed at that time. However, decompressive surgery may be performed later if the patient deteriorates.

**If decompressive craniectomy is drawn barbiturates should not be administered at that time. However barbiturates may be given later if the patient deteriorates.

Rescue ICP study

Table 1. Comparison of Brain Trauma Foundation Recommendations (3rd Edition) for Severe Traumatic Brain Injury and Status of Locally Available Treatment in Tanzania

Topic	BTF Recommendation	Data Class*	Status in Tanzania
Monitoring			
Blood pressure	Monitor blood pressure in all patients	II	Available
Oxygenation	Monitor oxygen saturation in all patients	II	Available
ICP	Monitor ICP in patients with severe TBI and abnormal CT scan	II	Unavailable
	Monitor ICP in patients with severe TBI and normal CT scan if ≥2 of the following present at admission: age >40 years, unilateral or bilateral motor posturing, SBP <90 mm Hg	III	Unavailable
Brain oxygen	Monitor jugular venous saturation or brain tissue oxygen for cerebral oxygenation	III	Unavailable
Cerebral perfusion	Monitor cerebral perfusion parameters including blood flow, oxygenation, and metabolism to facilitate CPP management	III	Unavailable
Thresholds			
Blood pressure	Treat SBP <90 mm Hg	II	Attempted
Oxygenation	Treat Pao_2 <60 mm Hg or oxygen saturation <90%	III	Attempted
ICP	Treat ICP >20 mm Hg	II	Unable to monitor
	Use ICP values, clinical findings, and brain CT findings to determine need for treatment	III	Unable to monitor ICP
Brain oxygen	Treat jugular venous saturation <50% or brain tissue oxygenation tension <15 mm Hg	III	Unable to monitor
Cerebral perfusion	Avoid aggressive attempts to maintain CPP >70 mm Hg with fluids and vasopressors because of the risk of ARDS	II	Unable to monitor
	Target CPP 50–70 mm Hg; patients with intact pressure autoregulation tolerate higher CPP	III	Unable to monitor
	Avoid CPP of <50 mm Hg	II	Unable to monitor
Treatments			
Hyperosmolar therapy for elevated ICP	Mannitol (0.25–1 g/kg) is effective	II	Available and used
	Before ICP monitoring, use only for signs of transtentorial herniation or progressive neurologic deterioration	III	Available and used
	No current recommendation for use of hypertonic saline	—	
Prophylactic hypothermia	Does *not* decrease mortality	II	Unavailable

Clinical and Radiologic Outcome of a Less Invasive, Low-Cost Surgical Technique of Osteoplastic Decompressive Craniectomy

Amos O. Adeleye[1]

[1] Division of Neurological Surgery, Department of Surgery, University of Ibadan, and University College Hospital, UCH, Ibadan, Nigeria

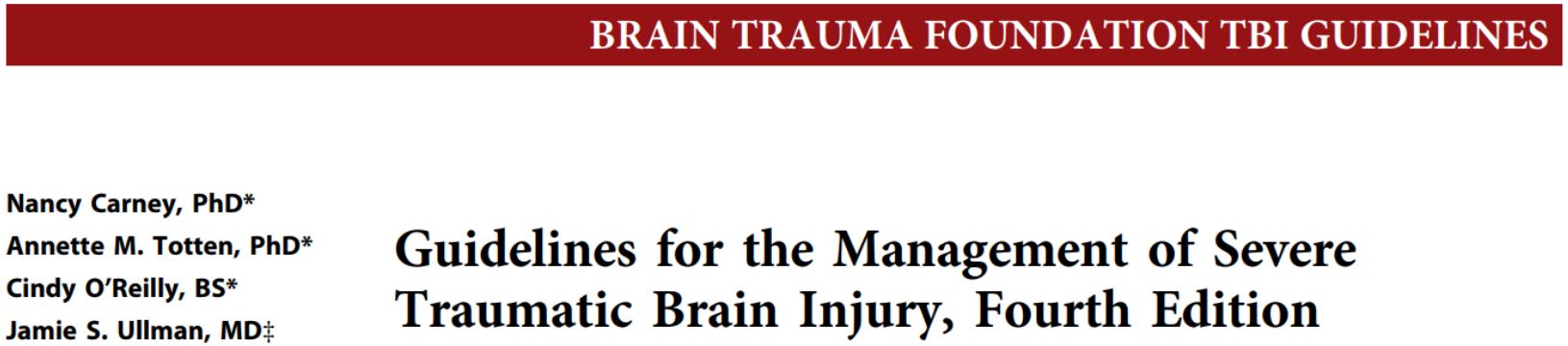
Address for correspondence Amos O. Adeleye, MBBS, FWACS, FACS, Department of Neurological Surgery, University College Hospital, UCH, PMB 5116, Ibadan, 200001, Nigeria (e-mail: femdoy@yahoo.com).

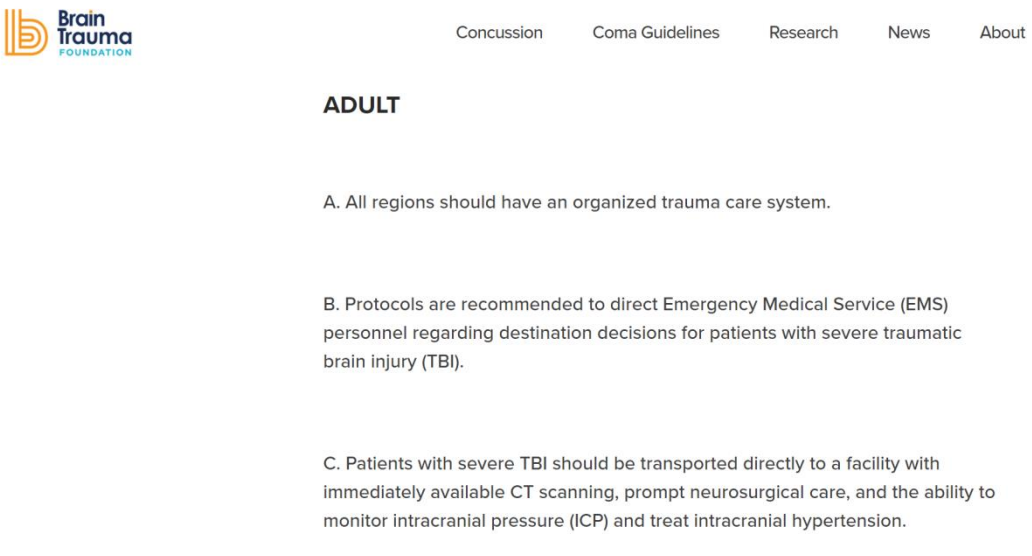
J Neurol Surg A 2016;77:167–175.

Decompressive Craniectomy for Moderate and Mild TBI

Concerns are raised occasionally about the need for DC in moderate and mild TBI, as was performed in some patients in this study. However, we are aware of a subpopulation of TBI patients who present (according to the GCS score) with a clinically benign TBI, but who have malignant brain injuries according to CT grading scales like the Marshall or the CT Rotterdam score (←**Fig. 4**). The indication for DC in such cases is mainly based on the experience that those patients with a poor (high grade) Rotterdam CT score or poor Marshall grade CT findings will develop high ICP values.[10,18,19] In essence, a prophylactic DC before occurrence of high ICP values was performed, which makes sense in a low-resource practice: Without doubt the standard of

Guidelines – **by** high-income countries **for** high-income countries





ADULT

A. All regions should have an organized trauma care system.

B. Protocols are recommended to direct Emergency Medical Service (EMS) personnel regarding destination decisions for patients with severe traumatic brain injury (TBI).

C. Patients with severe TBI should be transported directly to a facility with immediately available CT scanning, prompt neurosurgical care, and the ability to monitor intracranial pressure (ICP) and treat intracranial hypertension.

Ambulance in Tamil Nadu, India

Courtesy of
Dr Mathew Joseph,
CMC Vellore

Head Injuries at the Cho Ray Hospital

Ho Chi Minh City 2013

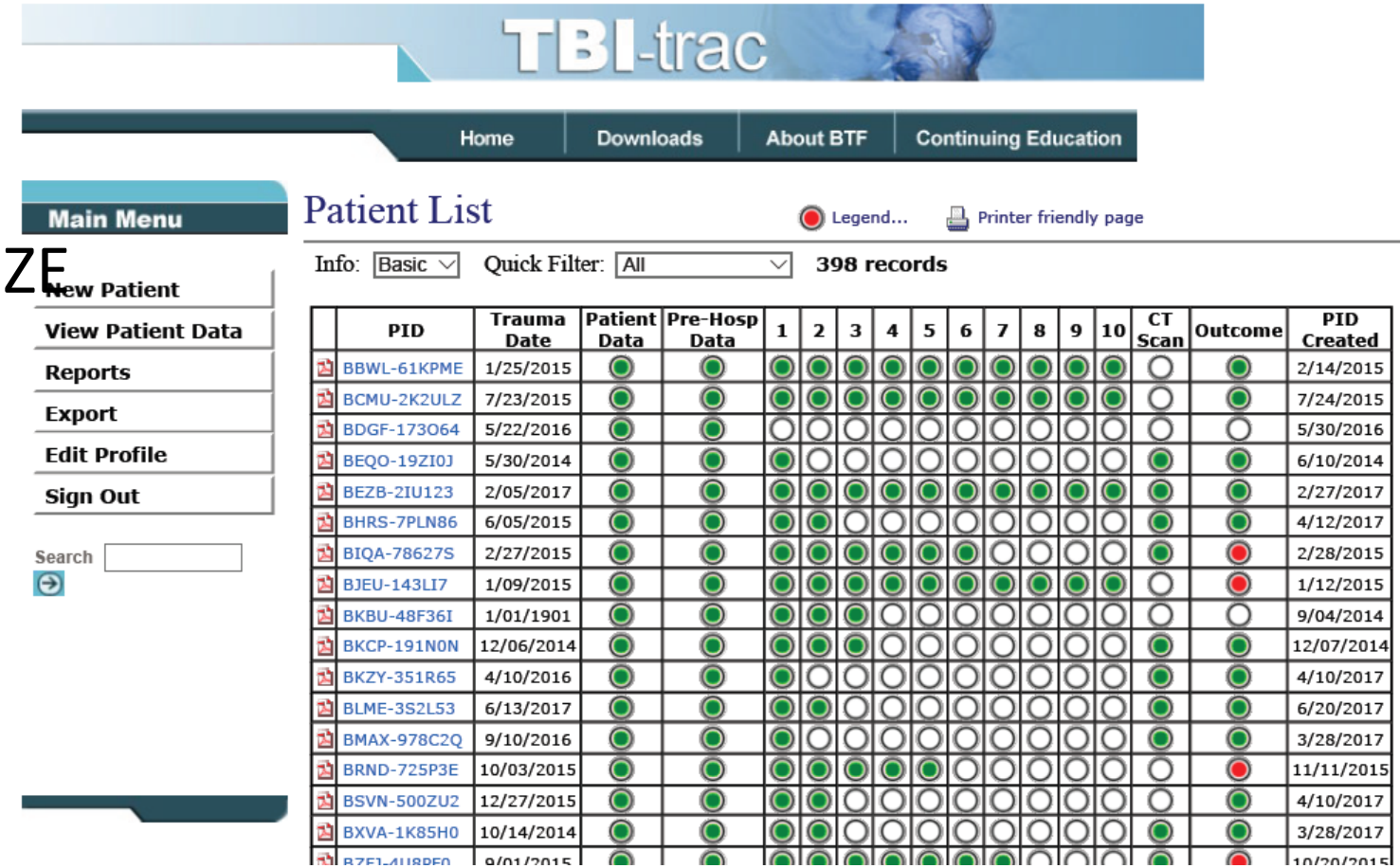
40 admissions and 10 operations for TBI per day

What we can do to move to guidelines more clinically oriented and useful for that part of the world where trauma are located ?

YOU CAN'T MANAGE WHAT YOU DON'T MEASURE

PETER DRUCKER

TBI database
MOI, Tanzania



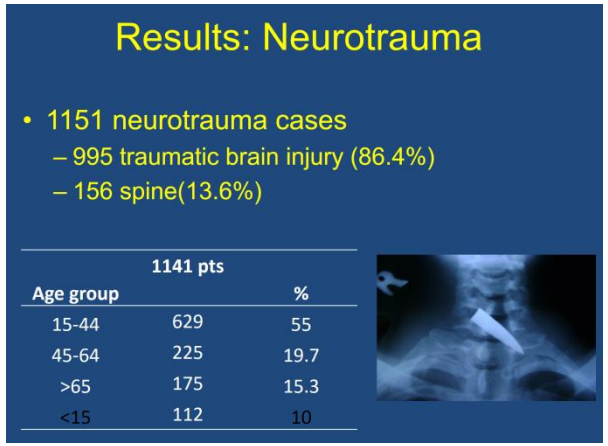
	PID	Trauma Date	Patient Data	Pre-Hosp Data	1	2	3	4	5	6	7	8	9	10	CT Scan	Outcome	PID Created
	BBWL-61KPME	1/25/2015															2/14/2015
	BCMU-2K2ULZ	7/23/2015															7/24/2015
	BDGF-173O64	5/22/2016															5/30/2016
	BEQO-19ZI0J	5/30/2014															6/10/2014
	BEZB-2IU123	2/05/2017															2/27/2017
	BHRS-7PLN86	6/05/2015															4/12/2017
	BIQA-78627S	2/27/2015															2/28/2015
	BJEU-143LI7	1/09/2015															1/12/2015
	BKBU-48F36I	1/01/1901															9/04/2014
	BKCP-191N0N	12/06/2014															12/07/2014
	BKZY-351R65	4/10/2016															4/10/2017
	BLME-3S2L53	6/13/2017															6/20/2017
	BMAX-978C2Q	9/10/2016															3/28/2017
	BRND-725P3E	10/03/2015															11/11/2015
	BSVN-500ZU2	12/27/2015															4/10/2017
	BXVA-1K85H0	10/14/2014															3/28/2017
	BZFJ-4U8PF0	9/01/2015															10/20/2015

Online database provided by BTF
MOI – Weill Cornel collaboration
Voluntary basis. No funding

MOI
MUHIMBILI ORTHOPAEDIC INSTITUTE

Examples of other databases / registries

- Ethiopia



With the help of Bergen University
5000 euros ……..

- Colombia

- UK TARN

CENTER-TBI

HOME PROJECT

Participants

INCLUDE ALSO CENTERS FROM L/M INCOM COUNTRIES

Associated Participants

Name of principalinvestigator	Participant Organisation Name	Country
Monika Bullinger	Universitätsklinikum Hamburg-Eppendorf	Germany
Marta Correia	MRC Cognition and Brain Sciences Unit	UK
Pablo Gagliardo	Fundación Instituto Valenciano de Neurorrehabilitación (FIVAN)	Spain
Russell Gruen	Nanyang Institute for Technology in Health and Medicine	Singapore
Deepak Gupta	Neurosciences Centre, AIIMS, New Delhi	India

Neurol India. 2017 Jul-Aug;65(4):767-769
Correlation of biomarkers with cognitive deficits in young adults with mild traumatic brain injury.

Gupta D(1), Raheja A(1).
(1)Department of Neurosurgery, All India Institute of Medical Sciences, New Delhi, India.

As A Referral Hospital
We can't refuse patients

FUTURE

NIHR Global Health Research Group on Neurotrauma

- Group received funding from UK government (NIHR)
  - £1.78 million (total UK global health awards - £120 million)

- Launch meeting 27 September 2017
  - Partnering with WFNS and institutions from several countries to develop a Global Neurotrauma research programme

Neurosurgeons/Intensivists from Ethiopia, Tanzania, Nigeria, India, Indonesia, Pakistan, Colombia, Haiti……

Guidelines – context-specific

- The example of decompressive craniectomy

- RESCUEicp / DECRA trials included patients with ICP monitoring
- **Growing recognition that ICP monitoring is not available in LMICs**
- Consensus meeting on craniectomy 28-29 September
  - Included delegates from LMICs
  - 1 session dedicated to use of craniectomy in LMICs

- We need to change our way of thinking – think globally

Global Neurotrauma Registry

- Aiming to unify existing registries
  - WFNS global neurotrauma registry
- Aiming to develop a web-based registry
  - that will map pre-hospital, acute in-hospital (imaging, neurosurgery, intensive care), and post-acute care (access to rehabilitation) of TBI patients and
  - will be used for defining the contemporary case mix and outcomes of TBI patients globally
- Registry useful for
  - Quality improvement
  - Research

Feasibility of registry

Global Health Research Group on Neurotrauma

Global Neurotrauma Outcomes Study (GNOS)

World Federation of Neurosurgical Societies 1955

Society of British Neurological Surgeons www.sbns.org.uk

University of Cambridge

Addenbrooke's Abroad
Cambridge University Hospitals

Funded & supported by NHS National Institute for Health Research

GNOS-1

- The GNOS-1 study aims, for the first time, to provide a **comprehensive picture of the management and outcomes of patients undergoing emergency cranial surgery after a TBI worldwide**.
- **“Snapshot clinician-driven study”** methodology successfully used by the GlobalSurg 1 project which collected data on 10,745 patients undergoing emergency abdominal surgery from 357 centres in 58 countries.

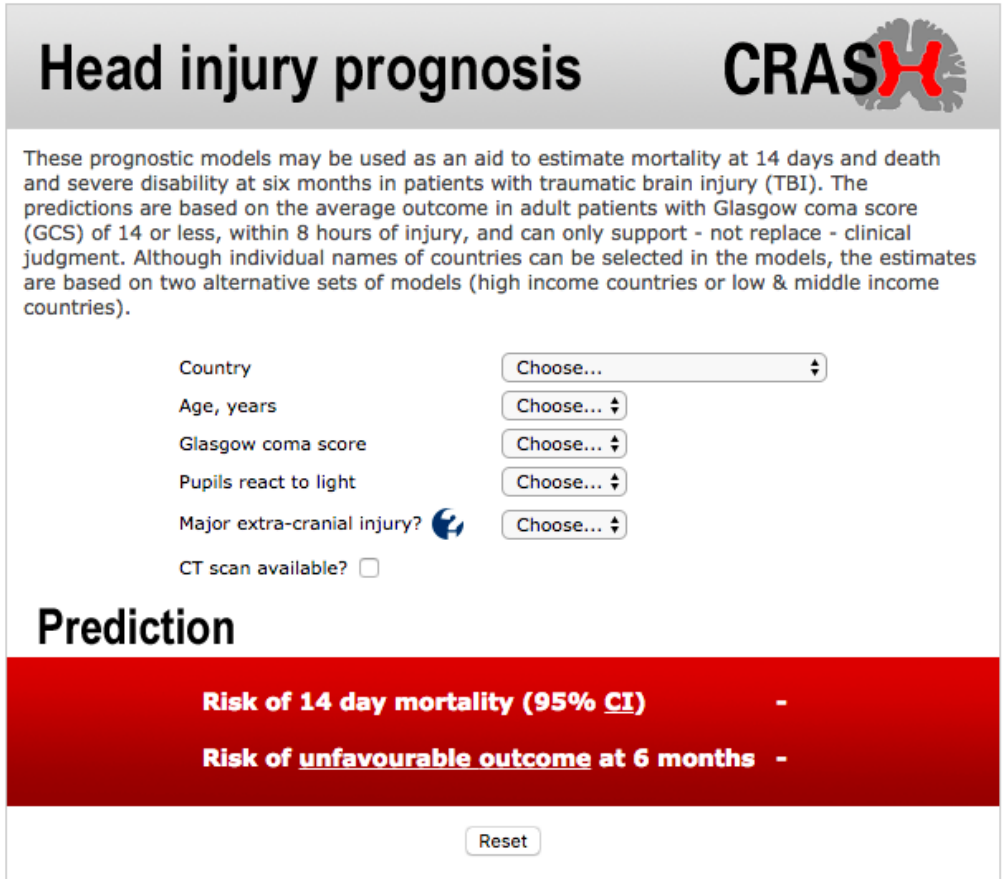
GlobalSurg

PaedSurg Africa

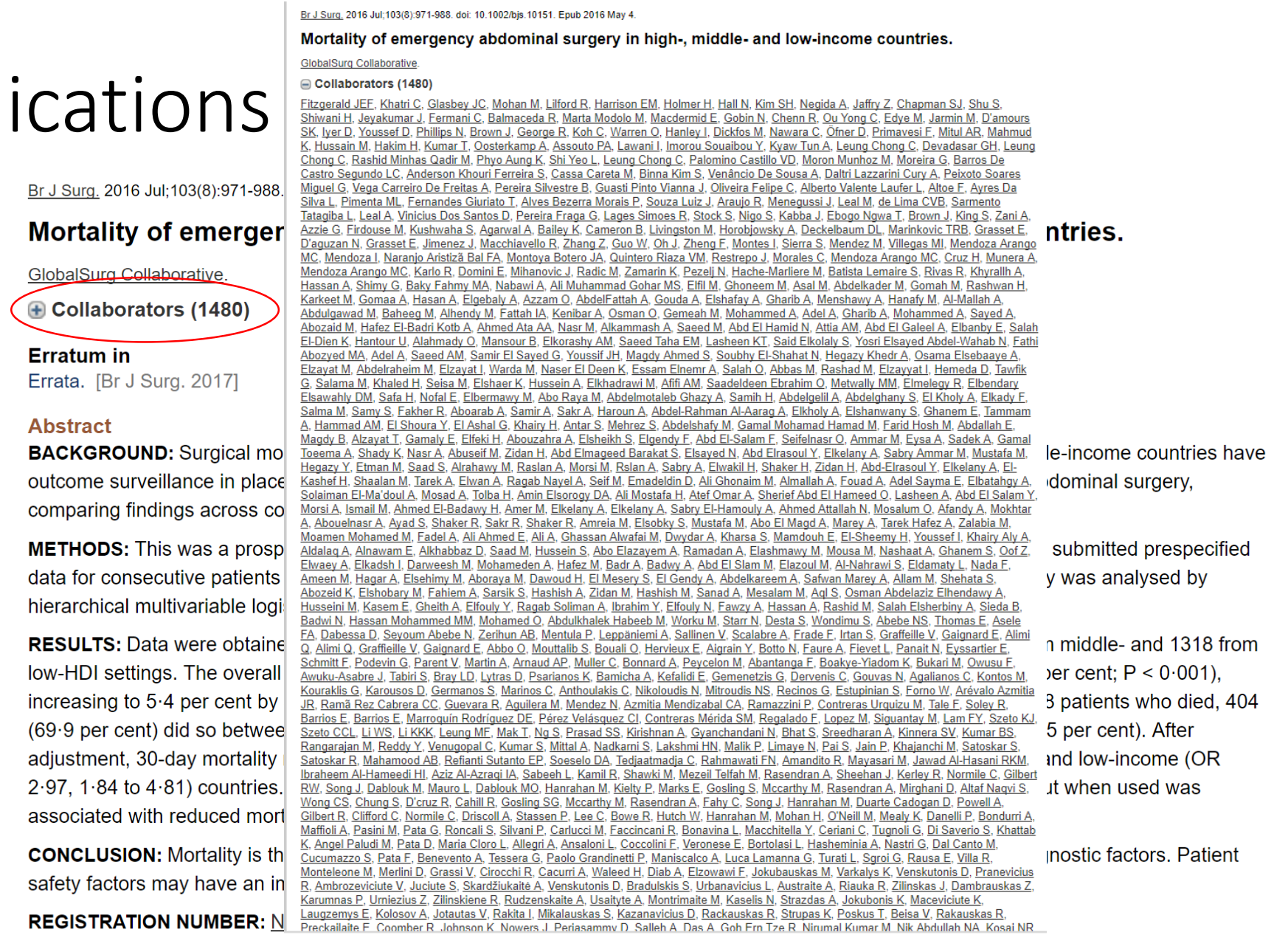
BNTRC

Primary outcome measure

14-day mortality



Publications



Br J Surg. 2016 Jul;103(8):971-988.

Mortality of emerger

GlobalSurg Collaborative.

Collaborators (1480)

Erratum in

Errata. [Br J Surg. 2017]

Abstract

BACKGROUND: Surgical mo

outcome surveillance in place

comparing findings across co

METHODS: This was a prosp

data for consecutive patients

hierarchical multivariable logi

RESULTS: Data were obtaine

low-HDI settings. The overall

increasing to 5·4 per cent by

(69·9 per cent) did so betwee

adjustment, 30-day mortality

2·97, 1·84 to 4·81) countries.

associated with reduced mort

CONCLUSION: Mortality is th

safety factors may have an in

REGISTRATION NUMBER: N

Br J Surg. 2016 Jul;103(8):971-988. doi: 10.1002/bjs.10151. Epub 2016 May 4.

Mortality of emergency abdominal surgery in high-, middle- and low-income countries.

GlobalSurg Collaborative.

Collaborators (1480)

Fitzgerald JEF, Khatri C, Glasbey JC, Mohan M, Lilford R, Harrison EM, Holmer H, Hall N, Kim SH, Negida A, Jaffry Z, Chapman SJ, Shu S, Shiwani H, Jeyakumar J, Fermani C, Balmaceda R, Marta Modolo M, Macdermid E, Gobin N, Chenn R, Ou Yong C, Edye M, Jarmin M, D'amours SK, Iyer D, Youssef D, Phillips N, Brown J, George R, Koh C, Warren O, Hanley I, Dickfos M, Nawara C, Öfner D, Primavesi F, Mitul AR, Mahmud K, Hussain M, Hakim H, Kumar T, Oosterkamp A, Assouto PA, Lawani I, Imorou Souaibou Y, Kyaw Tun A, Leung Chong C, Devadasar GH, Leung Chong C, Rashid Minhas Qadir M, Phyo Aung K, Shi Yeo L, Leung Chong C, Palomino Castillo VD, Moron Munhoz M, Moreira G, Barros De Castro Segundo LC, Anderson Khouri Ferreira S, Cassa Careta M, Binna Kim S, Venâncio De Sousa A, Daltri Lazzarini Cury A, Peixoto Soares Miguel G, Vega Carreiro De Freitas A, Pereira Silvestre B, Guasti Pinto Vianna J, Oliveira Felipe C, Alberto Valente Laufer L, Altoe F, Ayres Da Silva L, Pimenta ML, Fernandes Giuriato T, Alves Bezerra Morais P, Souza Luiz J, Araujo R, Menegussi J, Leal M, de Lima CVB, Sarmento Tatagiba L, Leal A, Vinicius Dos Santos D, Pereira Fraga G, Lages Simoes R, Stock S, Nigo S, Kabba J, Ebogo Ngwa T, Brown J, King S, Zani A, Azzie G, Firdouse M, Kushwaha S, Agarwal A, Bailey K, Cameron B, Livingston M, Horobjowsky A, Deckelbaum DL, Marinkovic TRB, Grasset E, D'aguzan N, Grasset E, Jimenez J, Macchiavello R, Zhang Z, Guo W, Oh J, Zheng F, Montes I, Sierra S, Mendez M, Villegas MI, Mendoza Arango MC, Mendoza I, Naranjo Aristizã Bal FA, Montoya Botero JA, Quintero Riaza VM, Restrepo J, Morales C, Mendoza Arango MC, Cruz H, Munera A, Mendoza Arango MC, Karlo R, Domini E, Mihanovic J, Radic M, Zamarin K, Pezelj N, Hache-Marliere M, Batista Lemaire S, Rivas R, Khyrallh A, Hassan A, Shimy G, Baky Fahmy MA, Nabawi A, Ali Muhammad Gohar MS, Elfil M, Ghoneem M, Asal M, Abdelkader M, Gomah M, Rashwan H, Karkeet M, Gomaa A, Hasan A, Elgebaly A, Azzam O, AbdelFattah A, Gouda A, Elshafay A, Gharib A, Menshawy A, Hanafy M, Al-Mallah A, Abdulgawad M, Baheeg M, Alhendy M, Fattah IA, Kenibar A, Osman O, Gemeah M, Mohammed A, Adel A, Gharib A, Mohammed A, Sayed A, Abozaid M, Hafez El-Badri Kotb A, Ahmed Ata AA, Nasr M, Alkammash A, Saeed M, Abd El Hamid N, Attia AM, Abd El Galeel A, Elbanby E, Salah El-Dien K, Hantour U, Alahmady O, Mansour B, Elkorashy AM, Saeed Taha EM, Lasheen KT, Said Elkolaly S, Yosri Elsayed Abdel-Wahab N, Fathi Abozyed MA, Adel A, Saeed AM, Samir El Sayed G, Youssif JH, Magdy Ahmed S, Soubhy El-Shahat N, Hegazy Khedr A, Osama Elsebaaye A, Elzayat M, Abdelraheim M, Elzayat I, Warda M, Naser El Deen K, Essam Elnemr A, Salah O, Abbas M, Rashad M, Elzayyat I, Hemeda D, Tawfik G, Salama M, Khaled H, Seisa M, Elshaer K, Hussein A, Elkhadrawi M, Afifi AM, Saadeldeen Ebrahim O, Metwally MM, Elmelegy R, Elbendary Elsawahly DM, Safa H, Nofal E, Elbermawy M, Abo Raya M, Abdelmotaleb Ghazy A, Samih H, Abdelgelil A, Abdelghany S, El Kholy A, Elkady F, Salma M, Samy S, Fakher R, Aboarab A, Samir A, Sakr A, Haroun A, Abdel-Rahman Al-Aarag A, Elkholy A, Elshanwany S, Ghanem E, Tammam A, Hammad AM, El Shoura Y, El Ashal G, Khairy H, Antar S, Mehrez S, Abdelshafy M, Gamal Mohamad Hamad M, Farid Hosh M, Abdallah E, Magdy B, Alzayat T, Gamaly E, Elfeki H, Abouzahra A, Elsheikh S, Elgendy F, Abd El-Salam F, Seifelnasr O, Ammar M, Eysa A, Sadek A, Gamal Toeema A, Shady K, Nasr A, Abuseif M, Zidan H, Abd Elmageed Barakat S, Elsayed N, Abd Elrasoul Y, Elkelany A, Sabry Ammar M, Mustafa M, Hegazy Y, Etman M, Saad S, Alrahawy M, Raslan A, Morsi M, Rslan A, Sabry A, Elwakil H, Shaker H, Zidan H, Abd-Elrasoul Y, Elkelany A, El-Kashef H, Shaalan M, Tarek A, Elwan A, Ragab Nayel A, Seif M, Emadeldin D, Ali Ghonaim M, Almallah A, Fouad A, Adel Sayma E, Elbatahgy A, Solaiman El-Ma'doul A, Mosad A, Tolba H, Amin Elsorogy DA, Ali Mostafa H, Atef Omar A, Sherief Abd El Hameed O, Lasheen A, Abd El Salam Y, Morsi A, Ismail M, Ahmed El-Badawy H, Amer M, Elkelany A, Elkelany A, Sabry El-Hamouly A, Ahmed Attallah N, Mosalum O, Afandy A, Mokhtar A, Abouelnasr A, Ayad S, Shaker R, Sakr R, Shaker R, Amreia M, Elsobky S, Mustafa M, Abo El Magd A, Marey A, Tarek Hafez A, Zalabia M, Moamen Mohamed M, Fadel A, Ali Ahmed E, Ali A, Ghassan Alwafai M, Dwydar A, Kharsa S, Mamdouh E, El-Sheemy H, Youssef I, Khairy Aly A, Aldalaq A, Alnawam E, Alkhabbaz D, Saad M, Hussein S, Abo Elazayem A, Ramadan A, Elashmawy M, Mousa M, Nashaat A, Ghanem S, Oof Z, Elwaey A, Elkadsh I, Darweesh M, Mohameden A, Hafez M, Badr A, Badwy A, Abd El Slam M, Elazoul M, Al-Nahrawi S, Eldamaty L, Nada F, Ameen M, Hagar A, Elsehimy M, Aboraya M, Dawoud H, El Mesery S, El Gendy A, Abdelkareem A, Safwan Marey A, Allam M, Shehata S, Abozeid K, Elshobary M, Fahiem A, Sarsik S, Hashish A, Zidan M, Hashish M, Sanad A, Mesalam M, Aql S, Osman Abdelaziz Elhendawy A, Husseini M, Kasem E, Gheith A, Elfouly Y, Ragab Soliman A, Ibrahim Y, Elfouly N, Fawzy A, Hassan A, Rashid M, Salah Elsherbiny A, Sieda B, Badwi N, Hassan Mohammed MM, Mohamed O, Abdulkhalek Habeeb M, Worku M, Starr N, Desta S, Wondimu S, Abebe NS, Thomas E, Asele FA, Dabessa D, Seyoum Abebe N, Zerihun AB, Mentula P, Leppäniemi A, Sallinen V, Scalabre A, Frade F, Irtan S, Graffeille V, Gaignard E, Alimi Q, Alimi Q, Graffeille V, Gaignard E, Abbo O, Mouttalib S, Bouali O, Hervieux E, Aigrain Y, Botto N, Faure A, Fievet L, Panait N, Eyssartier E, Schmitt F, Podevin G, Parent V, Martin A, Arnaud AP, Muller C, Bonnard A, Peycelon M, Abantanga F, Boakye-Yiadom K, Bukari M, Owusu F, Awuku-Asabre J, Tabiri S, Bray LD, Lytras D, Psarianos K, Bamicha A, Kefalidi E, Gemenetzis G, Dervenis C, Gouvas N, Agalianos C, Kontos M, Kouraklis G, Karousos D, Germanos S, Marinos C, Anthoulakis C, Nikoloudis N, Mitroudis NS, Recinos G, Estupinian S, Forno W, Arévalo Azmitia JR, Ramã Rez Cabrera CC, Guevara R, Aguilera M, Mendez N, Azmitia Mendizabal CA, Ramazzini P, Contreras Urquizu M, Tale F, Soley R, Barrios E, Barrios E, Marroquín Rodríguez DE, Pérez Velásquez CI, Contreras Mérida SM, Regalado F, Lopez M, Siguantay M, Lam FY, Szeto KJ, Szeto CCL, Li WS, Li KKK, Leung MF, Mak T, Ng S, Prasad SS, Kirishnan A, Gyanchandani N, Bhat S, Sreedharan A, Kinnera SV, Kumar BS, Rangarajan M, Reddy Y, Venugopal C, Kumar S, Mittal A, Nadkarni S, Lakshmi HN, Malik P, Limaye N, Pai S, Jain P, Khajanchi M, Satoskar S, Satoskar R, Mahamood AB, Refianti Sutanto EP, Soeselo DA, Tedjaatmadja C, Rahmawati FN, Amandito R, Mayasari M, Jawad Al-Hasani RKM, Ibraheem Al-Hameedi HI, Aziz Al-Azraqi IA, Sabeeh L, Kamil R, Shawki M, Mezeil Telfah M, Rasendran A, Sheehan J, Kerley R, Normile C, Gilbert RW, Song J, Dablouk M, Mauro L, Dablouk MO, Hanrahan M, Kielty P, Marks E, Gosling S, Mccarthy M, Rasendran A, Mirghani D, Altaf Naqvi S, Wong CS, Chung S, D'cruz R, Cahill R, Gosling SG, Mccarthy M, Rasendran A, Fahy C, Song J, Hanrahan M, Duarte Cadogan D, Powell A, Gilbert R, Clifford C, Normile C, Driscoll A, Stassen P, Lee C, Bowe R, Hutch W, Hanrahan M, Mohan H, O'Neill M, Mealy K, Danelli P, Bondurri A, Maffioli A, Pasini M, Pata G, Roncali S, Silvani P, Carlucci M, Faccincani R, Bonavina L, Macchitella Y, Ceriani C, Tugnoli G, Di Saverio S, Khattab K, Angel Paludi M, Pata D, Maria Cloro L, Allegri A, Ansaloni L, Coccolini F, Veronese E, Bortolasi L, Hasheminia A, Nastri G, Dal Canto M, Cucumazzo S, Pata F, Benevento A, Tessera G, Paolo Grandinetti P, Maniscalco A, Luca Lamanna G, Turati L, Sgroi G, Rausa E, Villa R, Monteleone M, Merlini D, Grassi V, Cirocchi R, Cacurri A, Waleed H, Diab A, Elzowawi F, Jokubauskas M, Varkalys K, Venskutonis D, Pranevicius R, Ambrozeviciute V, Juciute S, Skardžiukaitė A, Venskutonis D, Bradulskis S, Urbanavicius L, Austraite A, Riauka R, Zilinskas J, Dambrauskas Z, Karumnas P, Urniezius Z, Zilinskiene R, Rudzenskaite A, Usaityte A, Montrimaite M, Kaselis N, Strazdas A, Jokubonis K, Maceviciute K, Laugzemys E, Kolosov A, Jotautas V, Rakita I, Mikalauskas S, Kazanavicius D, Rackauskas R, Strupas K, Poskus T, Beisa V, Rakauskas R, Preckailaite E, Coomber R, Johnson K, Nowers J, Periasammy D, Salleh A, Das A, Goh Ern Tze R, Nirumal Kumar M, Nik Abdullah NA, Kosai NR

...ntries.

...le-income countries have
...dominal surgery,

... submitted prespecified
...y was analysed by

...n middle- and 1318 from
...per cent; P < 0·001),
...3 patients who died, 404
...5 per cent). After
...and low-income (OR
...ut when used was

...nostic factors. Patient

The American Experts are extremely important!

2017 ASCO ANNUAL MEETING

Making a Difference in Cancer Care *WITH YOU*

JUNE 2-6, 2017

McCormick Place | Chicago, Illinois

#ASCO17

HEALTH SERVICES RESEARCH AND QUALITY OF CARE

VALUE

Developing Resource-Stratified Guidelines in Oncology to Improve Cancer Care Worldwide

MAY 29, 2015

Cancer incidence is increasing at a fast pace around the world. Nowadays, a disproportionate share of cancer cases and deaths occur in low- and middle-income countries (LMIC), which generally have limited resources available to treat the disease. According to the GLOBOCAN data from the International Agency for Research on Cancer, there were 14.1 million cases and 8.2 million cancer deaths globally in 2012. The number of cases is expected to reach 23.6 million in 2030, and most of this burden will fall on LMICs.[1,2]

Key Points

Resource-stratified guidelines are necessary to effectively fill health care needs and maximize outcomes in limited-resource regions.

There are major disparities in cancer control across the world. The ratio between cancer deaths and the total number of cases is 47% in high-income countries and 66% in LMICs, which invest but a fraction of what high-income countries do in cancer prevention and management. For example, the economic burden from cancer in the United States, United Kingdom, and Japan is $183-$460 per patient, but in South America, India, and China the

A Guideline-Created Unfreedom for Women with Breast Cancer

Richard R. Love[1,2*] and Reza Salim[1]

[1]Amader Gram Cancer Care and Research Center, Rampal, Bangladesh
[2]Department of Mathematics, Statistics and Computer Science, Marquette University, Milwaukee, WI, USA

*Corresponding author: Richard R. Love, Email: richardibcrf@gmail.com; rezasalim02@yahoo.com

Understanding the Practice of Medicine in Low- and Middle-Income Countries (LMIC)

In discussions of cancer care globally, there appears to be a genuine lack of awareness of circumstances in LMICs and the impact of high-income country guidelines, along with slighting of the important roles that poverty, human rights, education, the absence of responsible governance, and corruption play in the practice of clinical medicine, resulting in equity-insensitive, out-of-touch recommendations. There importantly, the narrow perceptions of quality assessment in guidelines creation, the ignoring of broad organizational values, and the absence of due diligence by high-income country experts in suggesting guidelines for low- and middle-income countries perpetuate this "unfreedom" [21]. "The culture of medicine will have to be transformed" if we are to be true to our values and measurably improve outcomes for poor women with breast cancer worldwide [26].

The end justifies the means

We have to accept to be less Rigorous , to have limited data bases and different methodology to produce guidelines useful for areas of the World where TBI is an endemic disease

Just a 2% decrease mortality in these countries means hundred thausands lifes saved each year

Niccolo' Macchiavelli , Florence, 1513

Take home messages

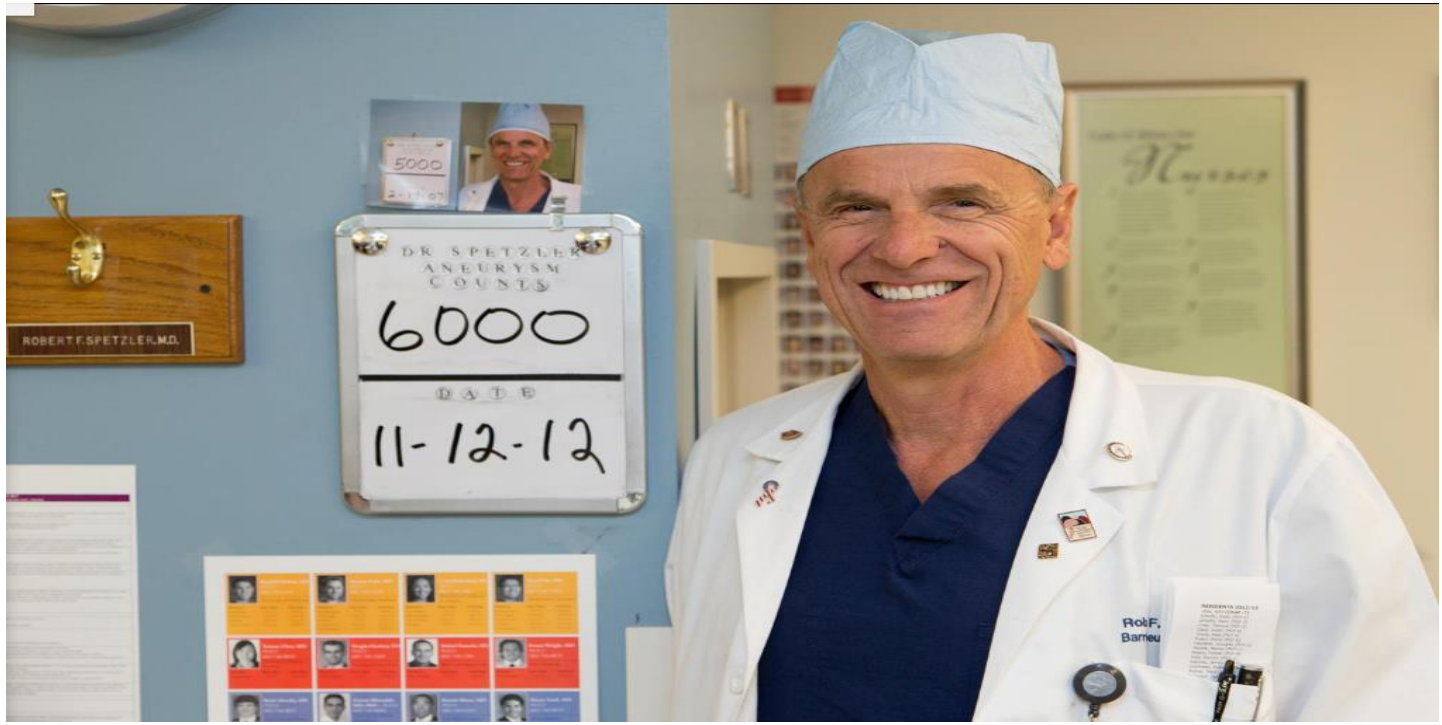
- We have to translate our large experience into practical suggestion which can be used even in that part of the world where TBI is endemic
- This requires a new approach which , together with the evidence based , must take into account also common sense and good clinical practice
- It is possible to collect data in some of these countries and it is possible to test different clinical management , we just have to move from perfection to new limited targets
- We cannot teach to drive a motorbyke if our driving school is based on Ferraris

Il fine giustifica i mezzi

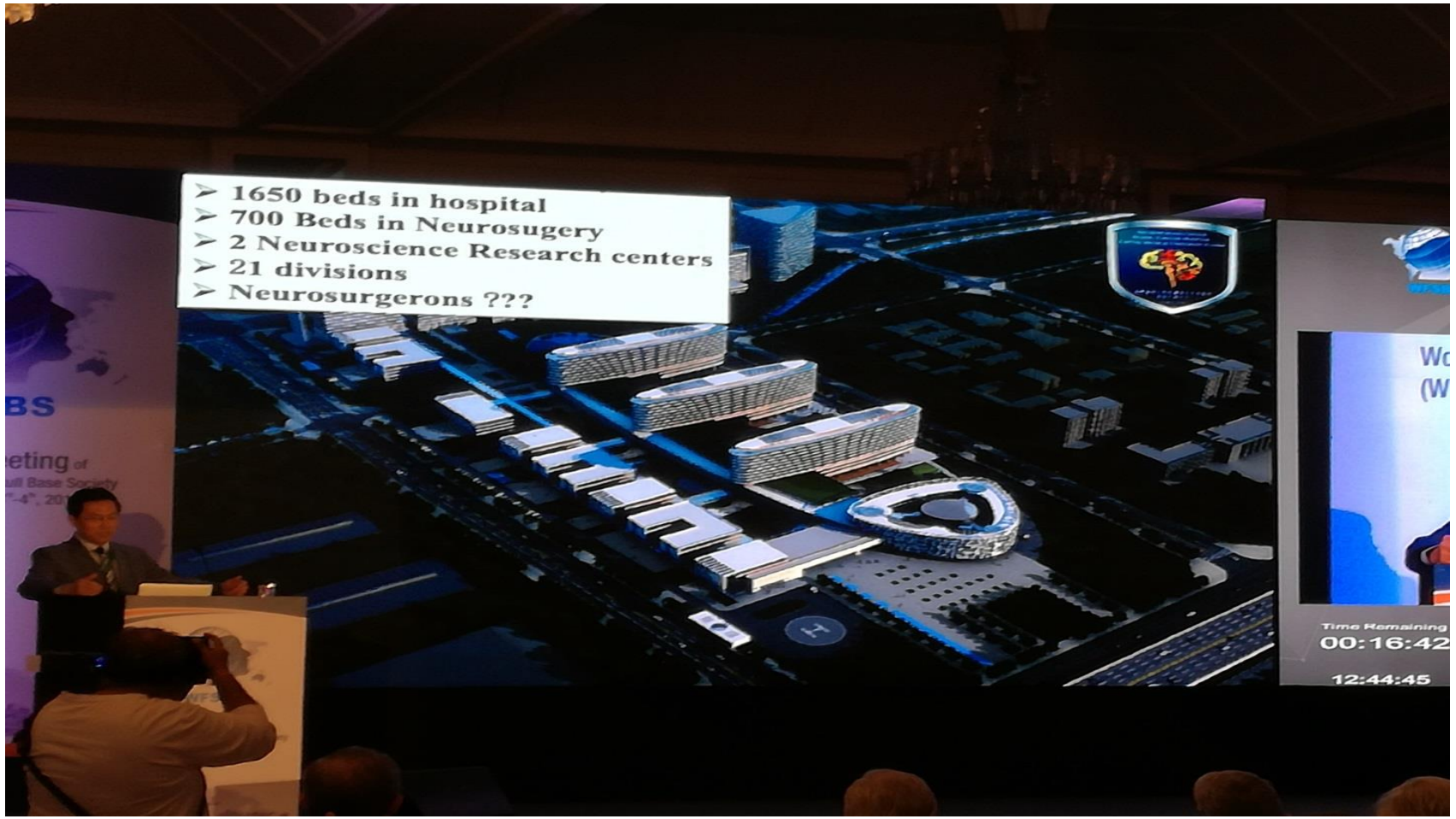
- Now or never more in the next century
- Walt Johnson , a Neurosurgeon with a backgroud of neurotrauma , is the Cghief Officier of the Global Surgery at the WHO
- I am , with a strong Neurotrauma Background, the President of the World Federation of Neurosurgical Societies
- Alex Valadka and Shelly Timmons , both with a Neurotrauma Back ground , are President and President Elect of the AANS
- Peter Hutchinson from Cambridge (RescueICP study) is mostly influencial in the European Association of Neurological Surgeons

The largest Centers

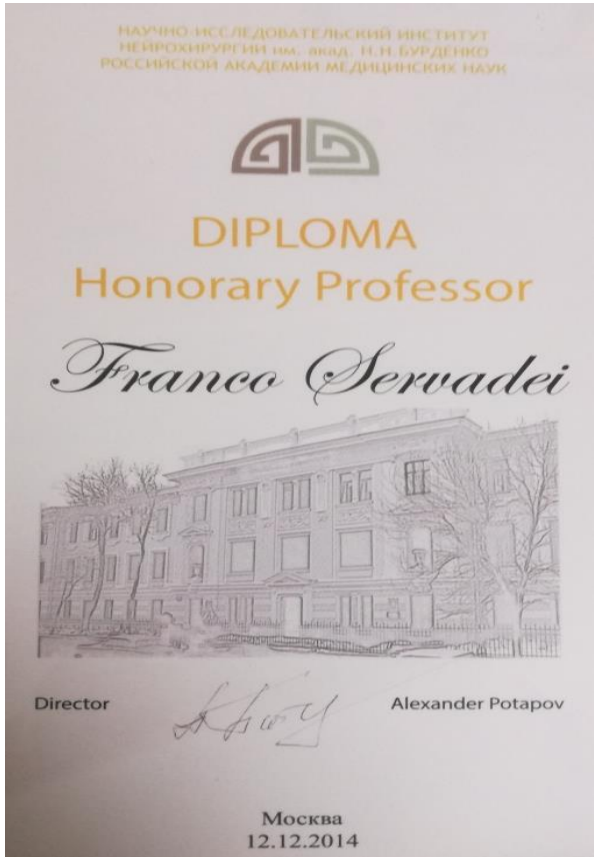
Barrow Neurosurgical Istitute plus Children's Hospital Phoenix, AZ
8000 brain and spine surgeries per year
Prof Robert Spetzler



Beejing Neurosurgical Institute Tiatan Hospital
15000 surgeries per year without spine surgery
All possible technology
Director prof Zhao



Burdenko Neurosurgical Institute Moskow , 9 Divisions of Neurosurgery , 13000 operations per year including spine (2 divisions)
Director prof Konovalov and prof Potapov



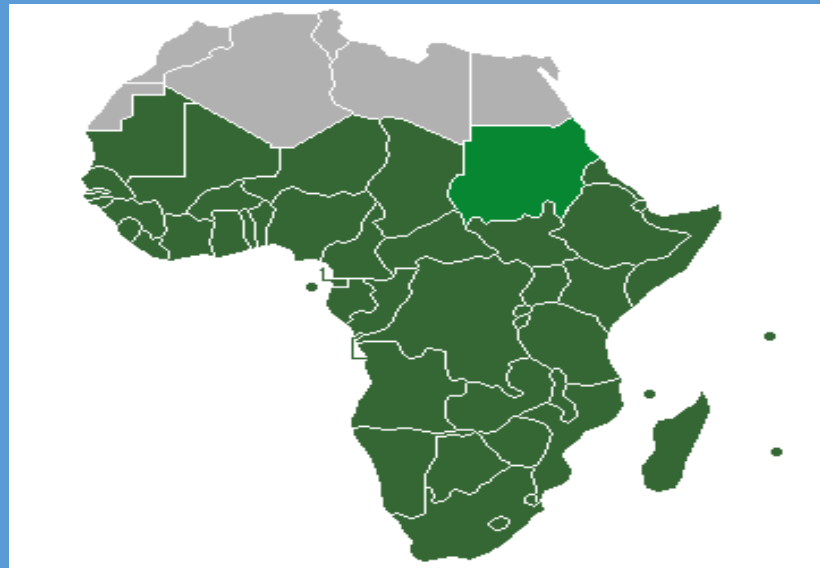
Africa : the Ruandan story typical of Sub-Sharian Africa

Ruanda neurosurgical center established 31 July 2010

Two Hospitals with Neurosurgical services

Tree Neurosugeons

Surgeon to Population rate : one to four millions



RESULTS: 2. Neurosurgeons by region and income group

- ✓ **49,940 practicing neurosurgeons worldwide** (98.9% identified via the WFNS-sponsored electronic survey)

- ✓ The greatest population of neurosurgeons resides in the Western Pacific region, with China and Japan alone accounting for more than 18,000 neurosurgeons

- ✓ **Europe and the United States/Canada** have the next largest populations of neurosurgeons, with **10,719 and 5,296** neurosurgeons, respectively

- ✓ In the African region, with a population of 990 million, 488 neurosurgeons were identified.

44% of neurosurgeons worldwide
reside in high-income countries.

The concept of GLOBAL Neurosurgery

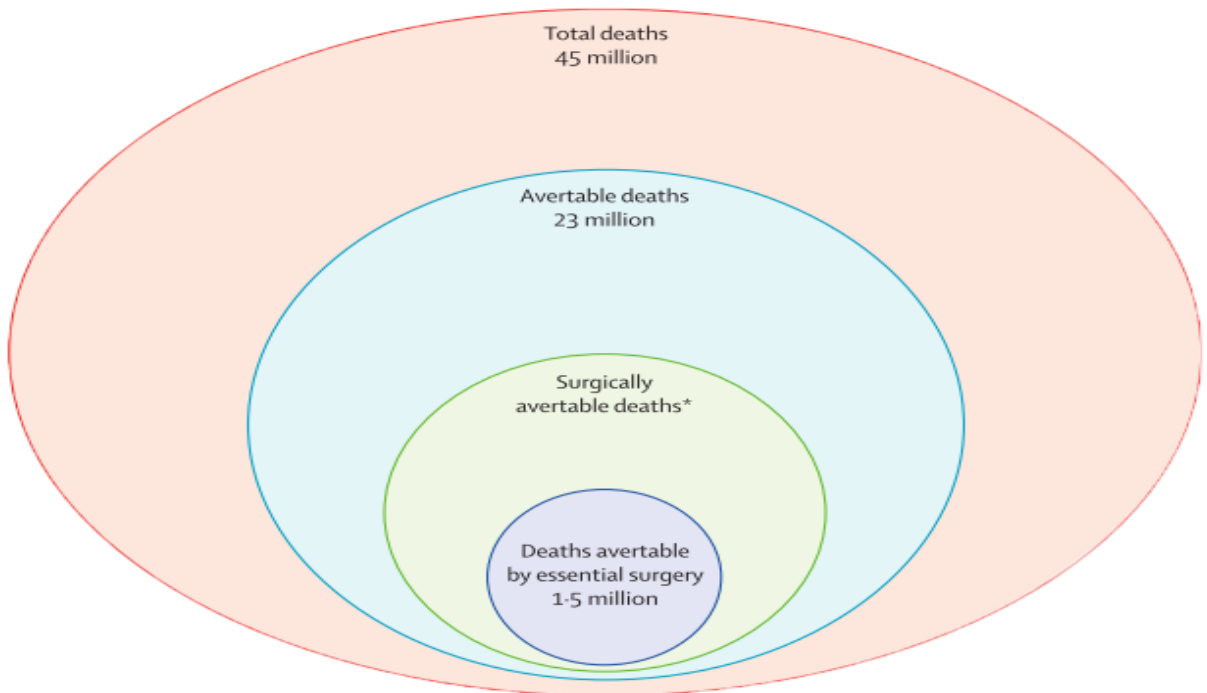

THE LANCET Commission on Global Surgery

Lancet. 2015 May 30;385(9983):2209-19. doi: 10.1016/S0140-6736(15)60091-5. Epub 2015 Feb 5.

THE LANCET

Essential surgery: key messages from Disease Control Priorities, 3rd edition.

Mock CN[1], Donkor P[2], Gawande A[3], Jamison DT[4], Kruk ME[5], Debas HT[6]; DCP3 Essential Surgery Author Group.



THE LANCET

Lancet. 2015 May 30;385(9983):2209-19. doi: 10.1016/S0140-6736(15)60091-5. Epub 2015 Feb 5.

Essential surgery: key messages from Disease Control Priorities, 3rd edition.

Mock CN[1], Donkor P[2], Gawande A[3], Jamison DT[4], Kruk ME[5], Debas HT[6]; DCP3 Essential Surgery Author Group.

Among these surgeries, 4 fall into the competence of neurosurgeon

- Fracture reduction
- Use of traction
- Burr hole Hematoma evacuation
- Shunt for congenital hydrocephalus

Emergencies

Global Neurosurgery: the current capacity and deficit in the provision of essential neurosurgical care.

Executive Summary of the Global Neurosurgery Initiative at the Program in Global Surgery and Social Change

Michael C. Dewan, M.D,Abbas Rattani, M.Be.,Graham Fieggen, M.D.,
Miguel A. Arraez, M.D., Ph.D ,Franco Servadei,^ M.D ,Frederick A. Boop, M.D.
Walter D. Johnson, M.D., M.B.A., M.P.H.Benjamin C. Warf, M.D,
Kee B. Park, M.D.

Global Neurosurgery Initiative – Program in Global Surgery and Social Change
Department of Global Health and Social Medicine | Harvard Medical School | Boston, MA, USA

^Department of Neurosurgery
Humanitas University and Research Institute | Milan, Italy

In press Journal of Neurosurgery

Methods: 1. identification of volume of neurosurgical disease

country registries

third-party modeled data

meta-analyzed published data

combined to generate:

Volume of 10 common neurosurgical disease:

1. brain
2. spinal tumors,
3. hydrocephalus,
4. traumatic brain injury,
5. traumatic spinal injury,
6. neural tube defects,
7. stroke,
8. CNS vascular anomalies,
9. CNS infections,
10. epilepsy.

RESULTS: 1. Neurosurgical cases by region and income group

13.8 million new operative cases worldwide each year

22.6 million new consultative cases worldwide each year

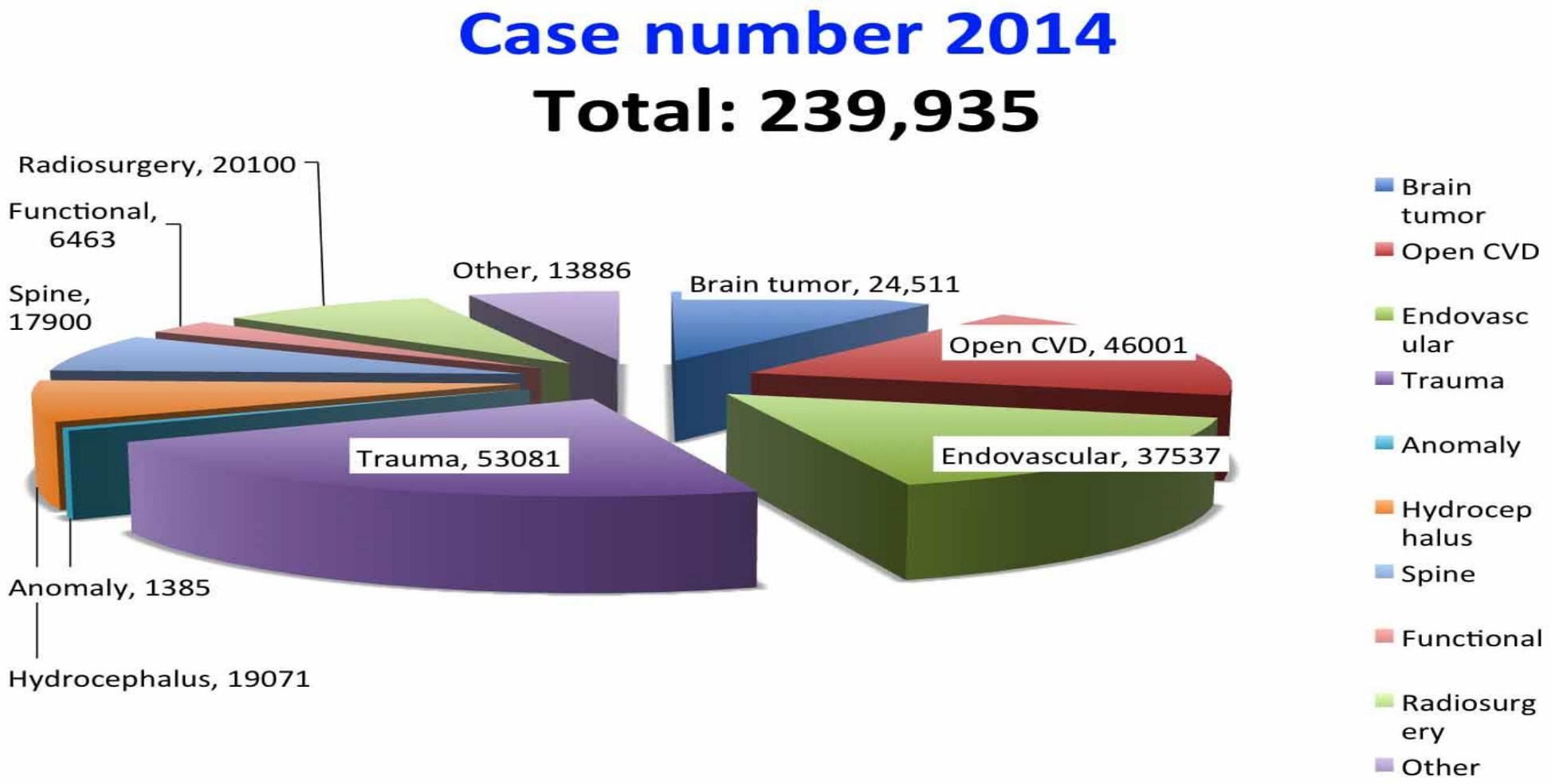
Regional population proportions:

3.5 million in South-East Asia
3.7 million in Western Pacific
2 million in Africa
1,1 million in Europe and Eastern Mediterranean
1,8 million in Latin America
665,000 in the United States and Canada

Type of pathology proportions:

45 % surgery for TBI (burr holes, craniotomy/craniectomy, etc.)
20 % stroke
7 % hydrocephalus
5 % brain tumors
2,2 % aneurysm, avm
0,1 % spinal tumors

Japan workload 2014 courtesy of prof Morita



Are we still publishing about guidelines and TBI ?? Yes about 70 papers per year

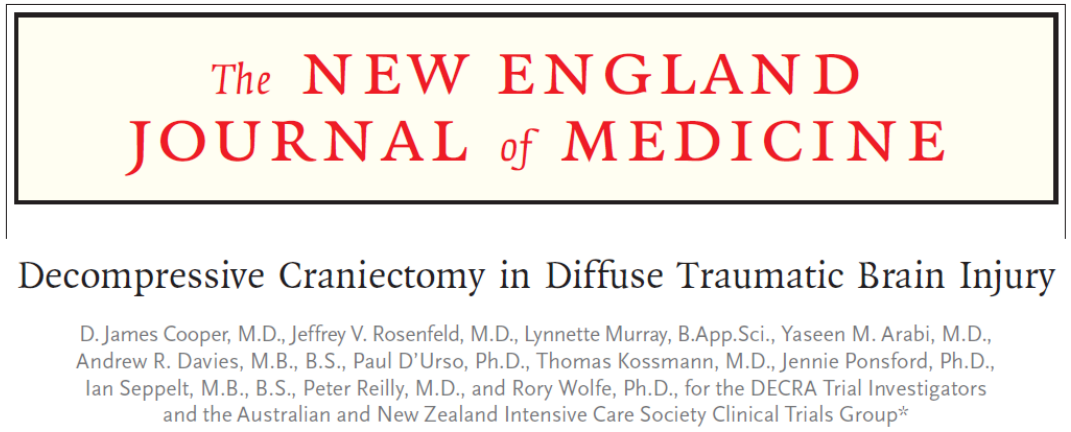

04
05

We do not have to invent the future improvement of our guidelines

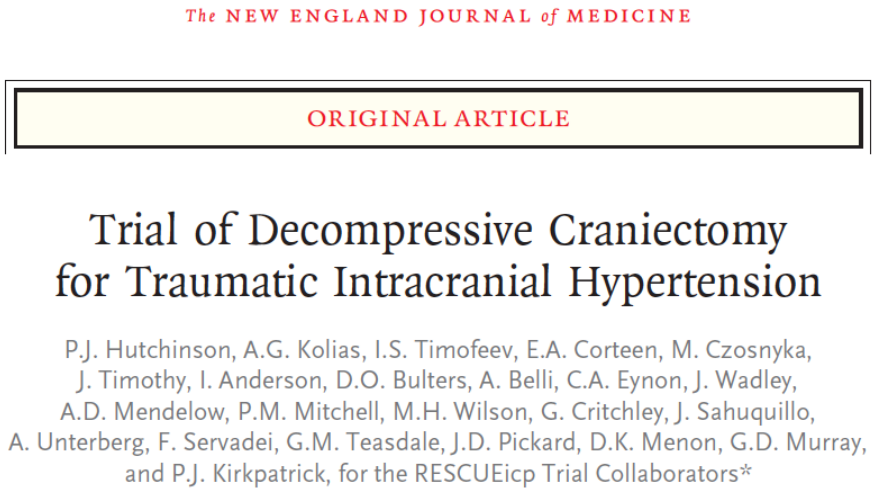
We just have to look around

TBI research – mostly in HICs

- Decompressive craniectomy trials



DECRA
155 patients
100% in HICs



RESCUEicp
408 patients
91% in HICs

BEST-TRIP trial – all patients from LMICs

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 DECEMBER 27, 2012 VOL. 367 NO. 26

A Trial of Intracranial-Pressure Monitoring in Traumatic Brain Injury

Randall M. Chesnut, M.D., Nancy Temkin, Ph.D., Nancy Carney, Ph.D., Sureyya Dikmen, Ph.D., Carlos Rondina, M.D., Walter Videtta, M.D., Gustavo Petroni, M.D., Silvia Lujan, M.D., Jim Pridgeon, M.H.A., Jason Barber, M.S., Joan Machamer, M.A., Kelley Chaddock, B.A., Juanita M. Celix, M.D., Marianna Cherner, Ph.D., and Terence Hendrix, B.A.