

Piloting Living Systematic Reviews in traumatic brain injury

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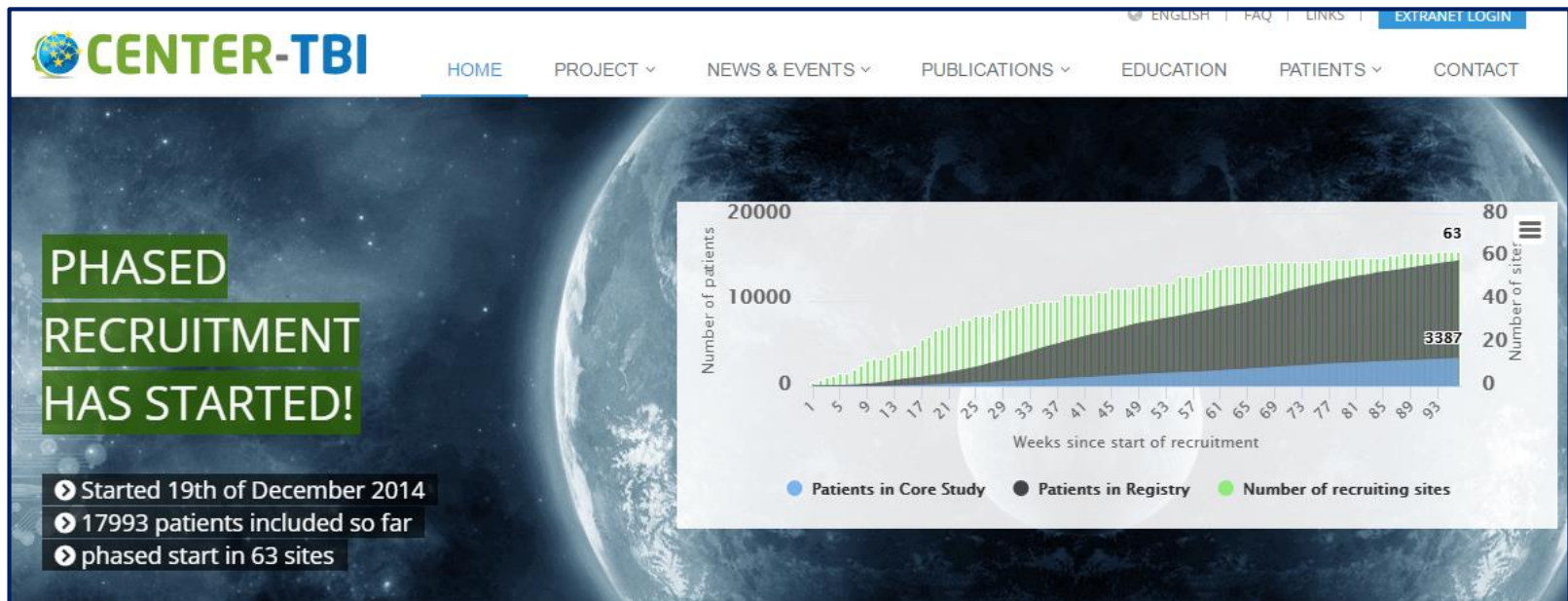
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CENTER-TBI

- Collaborative European NeuroTrauma Effectiveness Research in Traumatic Brain Injury (2013 to 2020)
- Observational study (n = 5,400 in core study + n > 15,000 registry)
- Aim: better characterise TBI and identify most effective treatments
- Funding: EU FP 7 program



Living Systematic Reviews in CENTER-TBI

Published

- Adherence to guidelines in TBI (Cnossen. 2016. J Neurotrauma)
- Epidemiology of TBI in Europe (Brazinova. 2016. J Neurotrauma)

Submitted or underway

- Biomarkers (diagnostic and prognostic)
- Genetic markers (prognostic x 2)
- Decompressive craniectomy (effectiveness)
- Neuroimaging (prognostic)
- Prognostic models (prognostic)



Searches for CENTER-TBI LSRs

Frequency

- Three-monthly (each search feeds directly into an update)

Sources

- Full re-run of all databases
- But monitoring for redundancy of databases once updates begin
- Review of searches ~ two years

Logistics

- Auto-alerts delivered to lead author / program manager
- Online, centrally-accessible platform (Covidence)

Database monitoring

STUDY	YEAR	EMBASE	Medline	WoS	Scopus	CINAHL	PsycINFO
Bulger, et al. (2002) p1870	2002	•	•	•	•	•	n
Fakhry, et al. (2004) p492	2004	Y	Y	Y	Y	Y	n
Härtl, et al. (2006) p1250	2006	•	•	•	•	•	n
Shrvat, et al. (2006) p109	2006	•	Y	Y	Y	•	n
Ravindran, et al. (2007) p181	2007	•	Y	Y	Y	n	n
Rusnak, et al. (2007) p64	2007	Y	Y	Y	Y	n	n
Heskestad, et al. (2008) p1309	2008	Y	Y	Y	Y	Y	n
Mauritz, et al. (2008) p575	2008	•	•	•	•	Y	•
Franschman, et al. (2009) p1147	2009	Y	Y	Y	Y	Y	n
Griesdale, et al. (2010) p43	2010	Y	Y	Y	Y	n	Y

Y	Found in database through search
•	Does not appear in database
n	Appears in database but not found in search

Author team structure

- Lead author + core author team
- Expert panel (content experts)
- Methodological support (SR expert, co-author across all LSRs)

Phased evolution of teams

- If new lead author, previous lead author remains part of expert panel

Workload

- So far, screening ~ 75 citations, ~ 1 new included study, 3-monthly

Adherence to Guidelines in Adult Patients with Traumatic Brain Injury: A Living Systematic Review

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Emma Tavender,⁴ Dashiell Gantner,² Fiona Lecky,⁵ Ewout W. Steyerberg,¹ and Suzanne Polinder¹

- First publish as standard SR
- 3-monthly online updates, in Supplementary Material
- New manuscript no more frequently than every 12 months



CENTER TBI LSR Publishing model

Maximise visibility / findability

- Initial SR appears in PubMed
- Include *Living Systematic Review* in title
- New manuscript type: *Living Systematic Review*
- Standard editorial comment about LSR approach after abstract

Minimise workload for authors and editors

- Three-monthly updates via Supplementary Material
- Each new update incorporates and replaces previous updates
- Updates and copy-edited by journal
- Outside peer review

JOURNAL OF NEUROTRAUMA 33:1–30 (Month XX, 2016)
Mary Ann Liebert, Inc.
DOI: 10.1089/neu.2015.4.126

Living Systematic Review

Epidemiology of Traumatic Brain Injury in Europe: A Living Systematic Review

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Marek Majdan,¹ Marek Psota,¹ Wouter Peeters,² Valery Feigin,³ Alice Theadom,³
Lubomir Holkovic,¹ and Anneliese Synnot^{4,5}

Abstract

This systematic review provides a comprehensive, up-to-date summary of traumatic brain injury (TBI) epidemiology in Europe, describing incidence, mortality, age, and sex distribution, plus severity, mechanism of injury, and time trends. PubMed, CINAHL, EMBASE, and Web of Science were searched in January 2015 for observational, descriptive, English language studies reporting incidence, mortality, or case fatality of TBI in Europe. There were no limitations according to date, age, or TBI severity. Methodological quality was assessed using the Methodological Evaluation of Observational Research checklist. Data were presented narratively. Sixty-six studies were included in the review. Country-level data were provided in 22 studies, regional population or treatment center catchment area data were reported by 44 studies. Crude incidence rates varied widely. For all ages and TBI severities, crude incidence rates ranged from 47.3 per 100,000, to 694 per 100,000 population per year (country-level studies) and 83.3 per 100,000, to 849 per 100,000 population per year (regional-level studies). Crude mortality rates ranged from 9 to 28.10 per 100,000 population per year (country-level studies), and 3.3 to 24.4 per 100,000 population per year (regional-level studies.) The most common mechanisms of injury were traffic accidents and falls. Over time, the contribution of traffic accidents to total TBI events may be reducing. Case ascertainment and definitions of TBI are variable. Improved standardization would enable more accurate comparisons.

Key words: epidemiology; living systematic review; traumatic brain injury

This article is published as a Living Systematic Review. All Living Systematic Reviews will be updated at approximately three month intervals, with these updates published as supplementary material in the online version of the Journal of Neurotrauma.

Three-monthly updates (Supplementary Material)

Adherence to Guidelines in Adult Patients with Traumatic Brain Injury: Living Systematic Review Update 2

This article is published as a Living Systematic Review. All Living Systematic Reviews will be updated at approximately three month intervals, with these updates published as supplementary material in the online version of the Journal of Neurotrauma. (To review original article click here.)

TABLE 1. LIVING SYSTEMATIC REVIEW HISTORY

<i>Version</i>	<i>Search date</i>	<i>Number of new included studies</i>	<i>Implications for conclusions</i>
Original	October 2014	22	n/a
Update 1	September 2016	This update: 7 Cumulative for updates: 7	<ul style="list-style-type: none">• Adherence to ICP monitoring guidelines was higher in studies published in 2015 and 2016 than reported in the original review• The association between guideline adherence and clinical outcome became more uncertain due to the inclusion of a high-quality study that did not find an association between adherence and outcome
Update 2	January 2017	This update: 1 Cumulative for updates: 8	<ul style="list-style-type: none">• As update 1

Publishing considerations for LSRs

Authorship/citation considerations

- Initial journal publication = new citation
- 3-monthly Supplementary Material \neq new citation
- \geq Yearly (data-driven) new manuscript = new citation

- New manuscripts either
 - Short commentary (if not much has changed)
 - Or full SR update (if data warrants)

- Infrequent new citations allow
 - Acknowledgement of ongoing workload
 - Acknowledgement of new co-authors
 - But not dispersing review citations across too many DOIs

Reflections

- Careful selection of author teams and topics!
 - Sufficiently skilled author teams that can sustain the commitment?
 - Is the topic high priority / emerging evidence?
 - Better suited to straightforward reviews for now (already a complex undertaking!)
- Central, online data storage critical
 - Easy for records to go astray
 - Avoids loss of data when authors move on
- Needs proactive project management
- Important to link with some kind of policy/practice output

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Alexandra Brazinova, Trnava University

Anne Parkhill, consultant

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