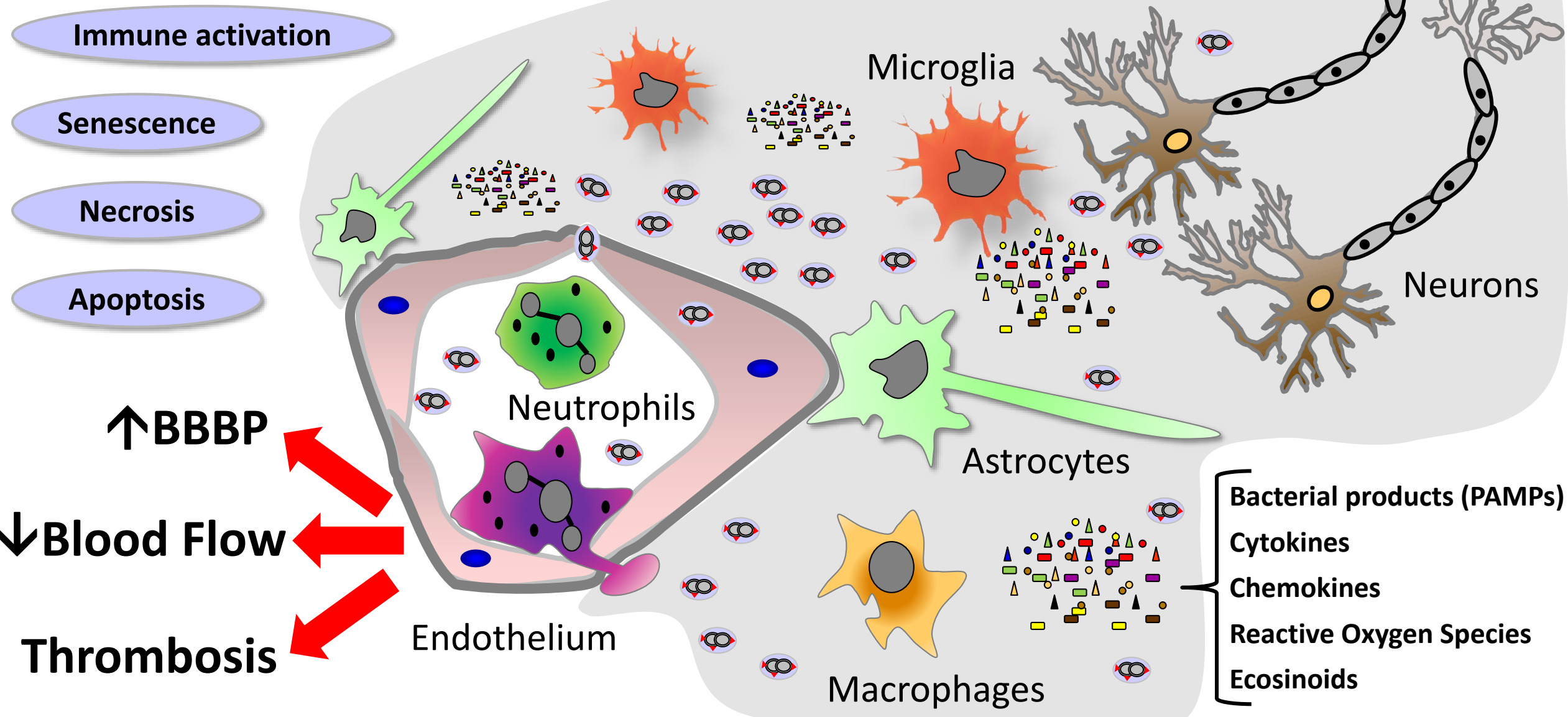


Adjunctive corticosteroids for acute bacterial meningitis in Africa – do we need more evidence?

Rob Heyderman

Rationale for Steroids - Pathogenesis of Bacterial Meningitis



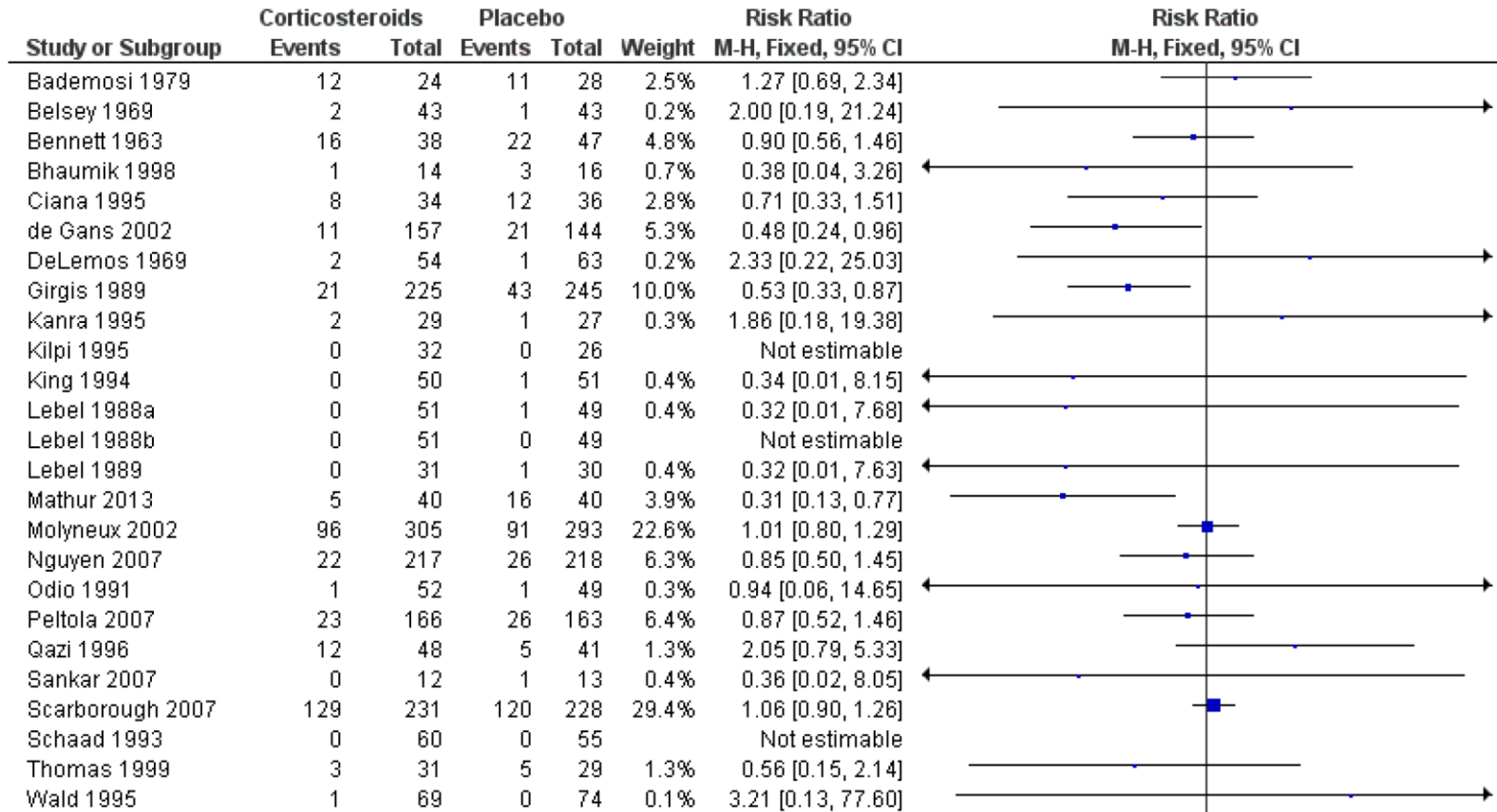
Dexamethasone as Adjunctive Therapy in Bacterial Meningitis

Matthijs Brouwer, Peter McIntyre, Kameshwar Prasad, Diederik van de Beek
The Cochrane Library, Issue 9, 2015; DOI: [10.1002/14651858](https://doi.org/10.1002/14651858)

- **25 trials in acute bacterial meningitis (4121 participants)**
 - **16 in children**
 - **7 in adults**
 - **2 children and adults**
- **22 used dexamethasone; 3 used hydrocortisone or prednisone**
- **9 were performed in low-income countries; 16 in high-income countries**

Dexamethasone as Adjunctive Therapy in Bacterial Meningitis: MORTALITY

The Cochrane Library, Issue 9, 2015; DOI: 10.1002/14651858



Total (95% CI) 2064 2057 100.0% **0.90 [0.80, 1.01]**

Total events 367 409

Heterogeneity: Chi² = 26.68, df = 21 (P = 0.18); I² = 21%

Test for overall effect: Z = 1.80 (P = 0.07)

RR 0.90, 95% CI 0.80-1.01

0.1 0.2 0.5 1 2 5 10
Favours corticosteroids Favours placebo

Dexamethasone as Adjunctive Therapy in Bacterial Meningitis: sub-group analyses

The Cochrane Library, Issue 9, 2015; DOI: [10.1002/14651858](https://doi.org/10.1002/14651858)

- **Reduced mortality** in *S. pneumoniae* meningitis (RR 0.84, 95% CI 0.72 to 0.98) **NOT** *H. influenzae* or *N. meningitidis* meningitis
- **Overall reduced severe hearing loss** in children with *H. influenzae* meningitis (RR 0.34, 95% CI 0.20-0.59) **NOT non-*Haemophilus* meningitis**
- **In high-income countries**
 - **Reduced severe hearing loss** (RR 0.51, 95% CI 0.35 to 0.73)
 - **Any hearing loss** (RR 0.58, 95% CI 0.45 to 0.73)
 - **Short-term neurological sequelae** (RR 0.64, 95% CI 0.48 to 0.85)
- **No beneficial effect in low-income countries**

The High Mortality for Childhood & Adult Meningitis in SSA

Molyneux et al

The Pediatric Infectious Disease Journal • Volume 33, Number 2, February 2014

THE NEW ENGLAND JOURNAL OF MEDICINE

Dex:
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RESEARCH ARTICLE

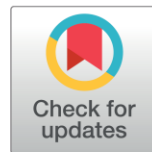
Goal directed therapy for suspected acute bacterial meningitis in adults and adolescents in sub-Saharan Africa

Emma C. Wall^{1,2,3*}, Mavuto Mukaka^{1,4,5}, Brigitte Denis¹, Veronica S. Mlozowa¹, Malango Msukwa¹, Khumbo Kasambala¹, Mulinda Nyrienda⁶, Theresa J. Allain⁷, Brian Faragher², Robert S. Heyderman^{1,3}, David G. Lalloo²

1 Malawi-Liverpool-Wellcome Trust Clinical Research Programme, Blantyre, Malawi, **2** Liverpool School of Tropical Medicine, Pembroke Place, Liverpool, United Kingdom, **3** Division of Infection and Immunity, University College London, London, United Kingdom, **4** Mahidol Oxford Tropical Medicine Research Unit (MORU), Bangkok, Thailand, **5** Oxford Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine Research Building, University of Oxford, Oxford, United Kingdom, **6** Adult Emergency and Trauma Centre, Ministry of Health, Queen Elizabeth Central Hospital, Blantyre, Malawi, **7** Department of Medicine, College of Medicine, Blantyre, Malawi

* These authors contributed equally to this work.

* emma.wall@doctors.org.uk



GLYCEROL AND ACETAMINOPHEN AS A THERAPY DID NOT AFFECT THE OUTCOME OF BACTERIAL MENINGITIS IN MALAWI CHILDREN

Elizabeth M. Molyneux, FRCPCH,* Kondwani Kawu Ajib Phiri, MMed,* Yamikani Chimalizeni, MMed Limangeni Mankhamba, MMed,* Edward Schwab Matti Katjaja, ‡ Paul Pensulo, Dip Clin Med,* Lucy Chilton, PhD, † and Heikki Petola, MD§

We investigated the benefit of 2 candidate adjunctive therapies in bacterial meningitis: glycerol, which has shown promise in earlier studies, and acetaminophen, which is reportedly beneficial in adult septicemia. In a hospital in Blantyre, Malawi, we enrolled 360 children aged ≥ 2 months with proven bacterial meningitis (36% HIV infected) in a double-blind, randomized, placebo-controlled trial of glycerol and acetaminophen in a 2×2 factorial design. Of 4 groups, first group received oral glycerol, second received rectal acetaminophen, third received both therapies and the fourth received placebo only. Adjuvant therapies were given for the first 48 hours of antibiotic therapy. Endpoints were mortality and neurological sequelae. Baseline findings were similar across all groups, except that many children had prior antibiotics in the acetaminophen

Interpretation Although no tested regimen improved the final outcomes of these very ill children, studies of longer courses of β -lactam infusion plus paracetamol seem warranted.

Funding The Päivikki and Sakari Sohlberg, the Sigrid Jusélius, and the Paediatric Research Foundations, and the daily newspaper *Helsingin Sanomat*.

OBJECTIVES We compared glycerol to standard antibiotic therapy. Two HIV antibody-based rapid diagnostic tests were done and discordant results were confirmed by a third test. Children <15 months of age with a positive HIV antibody test had HIV infection confirmed by polymerase chain reaction. Randomization was computer generated in permuted blocks of 12. Only cases with BM according to the above criteria were included in the analysis of outcomes.

wenare, helsinki, finland (M. Katjaja PhD)
Correspondence to:
Dr Tuula Pelkonen, Children's Hospital, PO Box 281,
00029 HUS, Helsinki, Finland
tuulapelkonen@hotmail.com

Interpretation Oral glycerol therapy cannot be recommended as an adjuvant therapy in adults with bacterial meningitis in resource-poor settings with a high HIV prevalence.

Funding Meningitis Research Foundation.

main study. 265 patients
ice of the data and safety
the placebo group and
 $p=0.003$. There was no
nd disability by day 40 or
adverse events occurred



Articles

Lancet Infect Dis 2014;
11: 293–300

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February 18, 2014
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See Comment page 257

Department of Medicine,
College of Medicine, Chichiri,
Blantyre, Malawi
(K M B Ajdukiewicz MRCP,
K E Cartwright MRCP,
M Scarborough PhD,
I B Mwambene Dip Med Sci,
P Goodson Dip Med Sci,
M E Molyneux Dip Med Sci,
E E Zijlstra PhD); Morsall Unit,
Department of Infectious
Diseases and Tropical Medicine,
North Manchester General
Hospital, Delaunays Road,
Manchester, UK
(K M B Ajdukiewicz);
Microbiology, Leicester Royal
Infirmary, Infirmary Square,
Leicester, UK (K E Cartwright);
Microbiology, John Radcliffe
Hospital, Headington, Oxford,
UK (M Scarborough); Liverpool
School of Tropical Medicine,
Pembroke Place, Liverpool, UK
(M E Molyneux, D G Lalloo FRCP);
Department of Internal
Medicine, Erasmus Medical
Centre, Rotterdam, The
Netherlands (E E Zijlstra);
Korona Prevention Study.

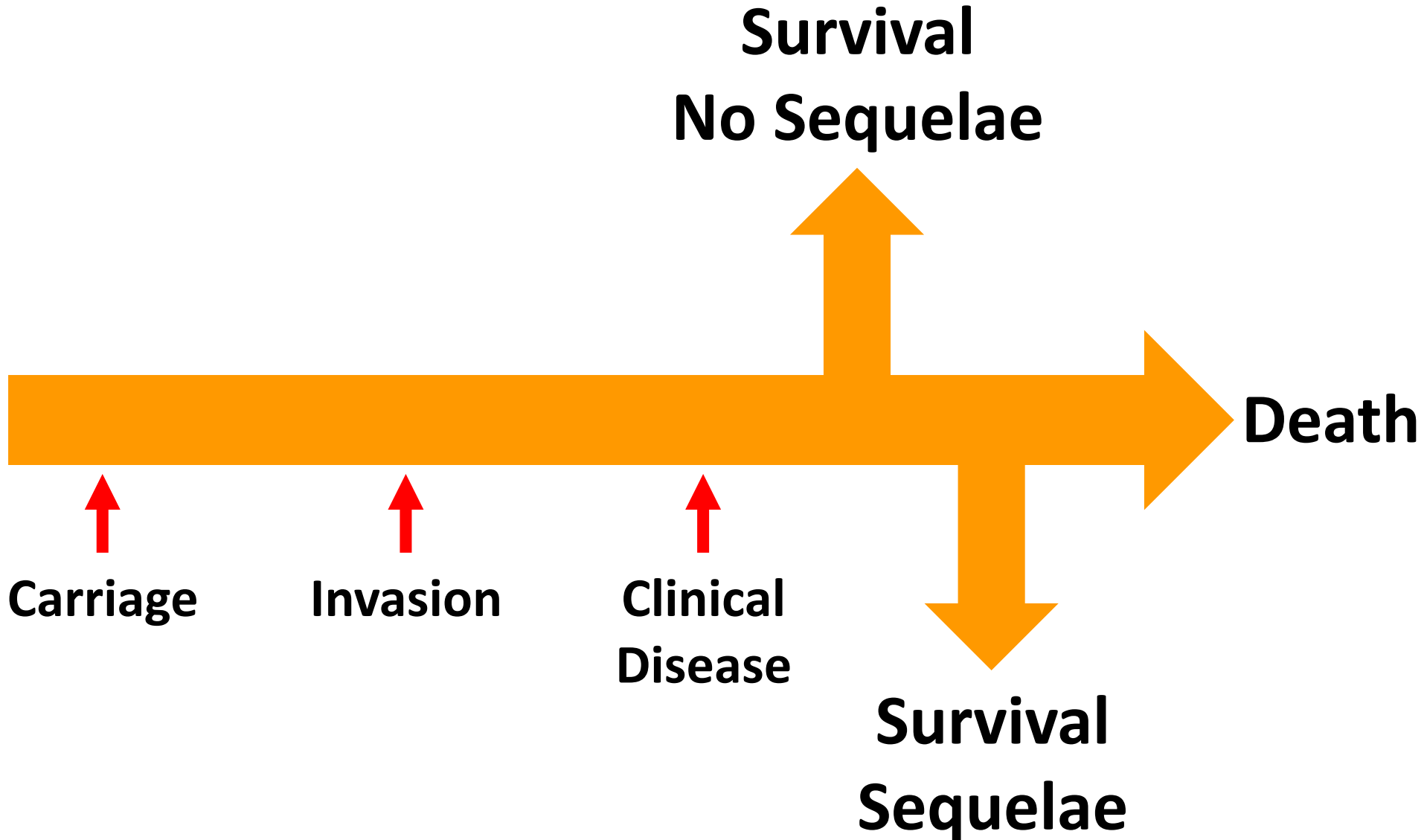
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The Survival Road for Bacterial Meningitis



Is there sufficient equipoise in this highly vulnerable population?

- Are we trying to shortcut deficiencies in healthcare seeking, access healthcare and health systems?
- Will corticosteroids work in this setting?
- Could steroids be harmful (adverse event reporting has been selective)?

Adjunctive corticosteroids for acute bacterial meningitis in Africa – do we need more evidence?

VOTE

NO

- Improve community recognition
- Improve access
- Health Systems interventions
- Identify novel targets & interventions