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A Systematic Review of Treatment Strategies for Percutaneously Introduced Marine Toxins and Venoms

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Background:

- Marine envenomations are common worldwide and can lead to severe morbidity[1-3]
- Effects of marine envenomations can range from mild to severe and can include paralysis, cardiac depression and neurological toxicity, and can be fatal[3]
- There is a rising prevalence of travel and ecotourism, thus leading to increased risk of exposure to marine stings and penetrating marine injuries
- We aim to synthesize existing evidence around diagnosis, treatment, and prevention of marine envenomations into a clinical resource

Methods:

- Four electronic databases were searched: PubMed (NCBI), Medline (OVID), EMBASE (OVID), and BioSIS (Web of Science) from database inception to August 2019 using combinations of the search terms ‘marine’ and ’envenomation’
- The search was restricted to humans only
- We included observational studies, case reports, case series, and cohort studies, as well as clinical trials and therapeutics tolerability and efficacy
- Abstracts and full-text articles will be systematically double screened by two reviewers and subsequently by a tertiary arbitrator
- The GRADE approach will be employed to assess quality of studies reporting therapeutic interventions
- Evidence will be summarized using descriptive measures for each intervention type
- Data will be grouped and summarized for ease of clinician use by marine organism, syndrome, prevention, and therapeutic strategies, and according to geographic location and species
- Meta-analysis will be performed as appropriate with random effects model

Results: *collated from analysis of 136 abstracts selected for full text review up until October 31, 2019*

Figure 1: PRISMA flow diagram

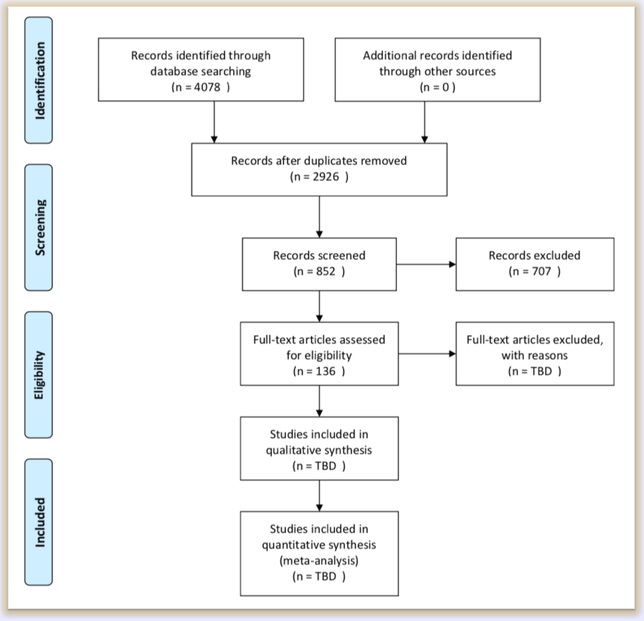


Figure 2: Workflow highlighting breakdown of abstracts by database

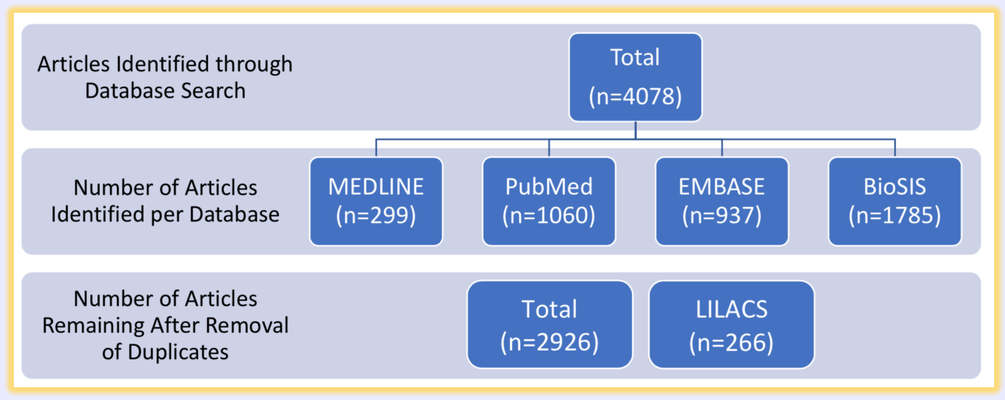


Figure 3:

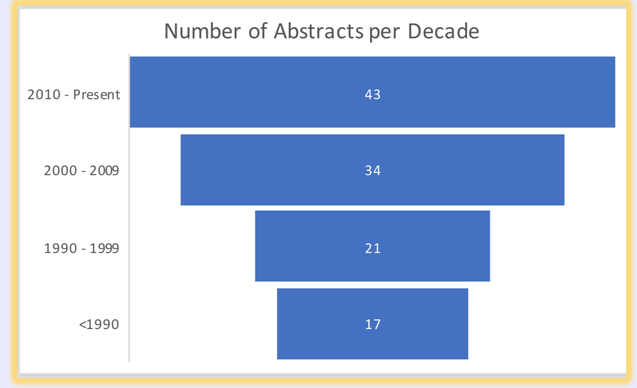
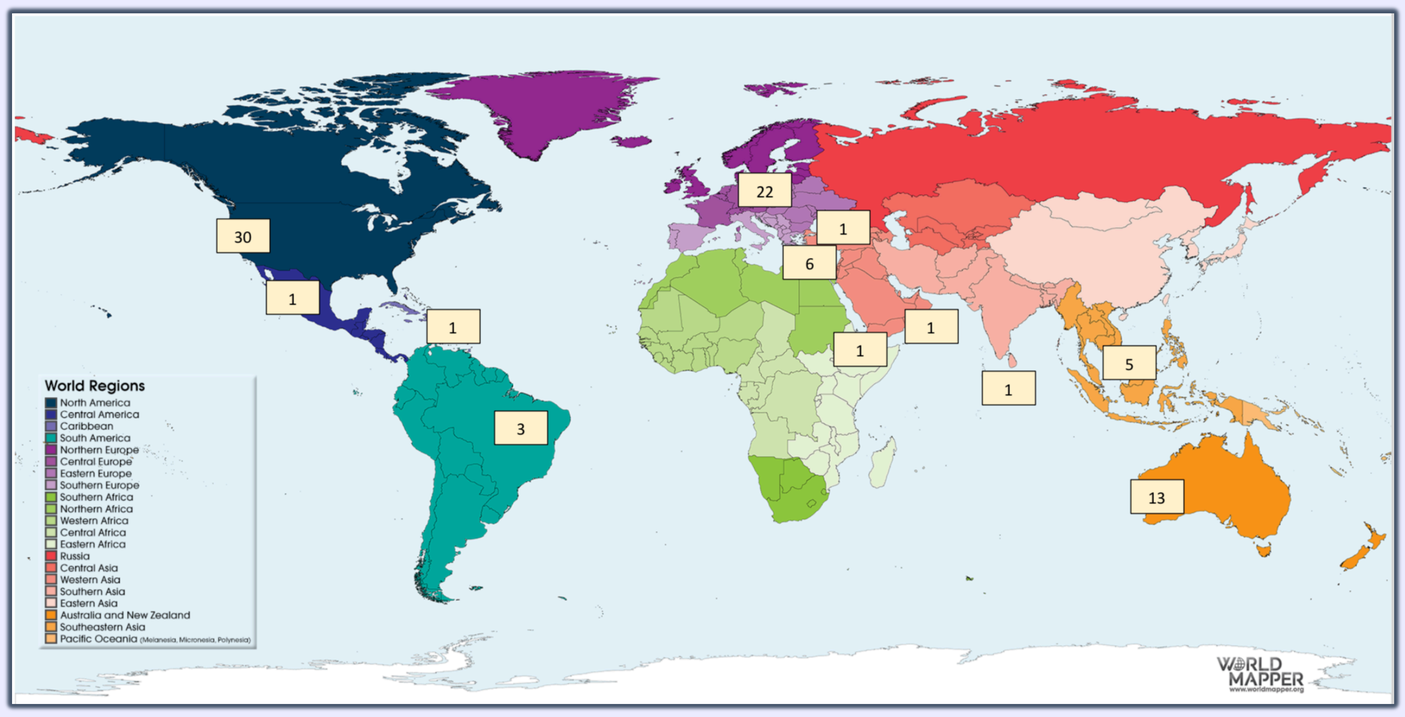


Table 1: Breakdown of type of marine envenomation

Etiology	*Total N*
Jellyfish	47
Scorpaenidae	24
(Lionfish)	*11*
(Stonefish)	*10*
(Scorpionfish)	*3*
Stingrays	21
Sea Snakes	15
Fish (other)	13
Sea Snails	7
Weeverfish	7
Sea Urchins	6
Octopus	6
Sea Anemones and Corals	6
Fish (other, cartilaginous i.e poisonous sharks, eagle-ray)	3
Sponge	2

Figure 4: Geographical areas from which marine envenomations were acquired



Discussion and Conclusion:

- With increased globalization and the rising number of clinicians electing to train or work in areas where marine envenomations are common, it is important to synthesize the current evidence around clinical epidemiology, presentation, and management for marine envenomations
- Thus far in our search, jellyfish, scorpaenidae, and stingrays are the leading etiological agent for marine envenomations, and geographical areas of interest for the envenomations include North America, Australia, and Europe
- This synthesis will subsequently help to develop updated public health protocols to ensure timely and effective medical intervention for marine envenomations

References:

1. Bushaw-Newton KL, Sellner KG. Harmful Algal Blooms. NOAA’s State of the Coast Report 1999. Silver Spring, MD: National Oceanic and Atmospheric Administration
2. Shoemaker RC, Hudnell HK. Possible Estuary-Associated Syndrome: Symptoms, Vision and Treatment. Environ Health Perspect 2001; 109(5): 539-545
3. Recreational water exposure. Travel and Recreation. Boggild and Wilson.

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