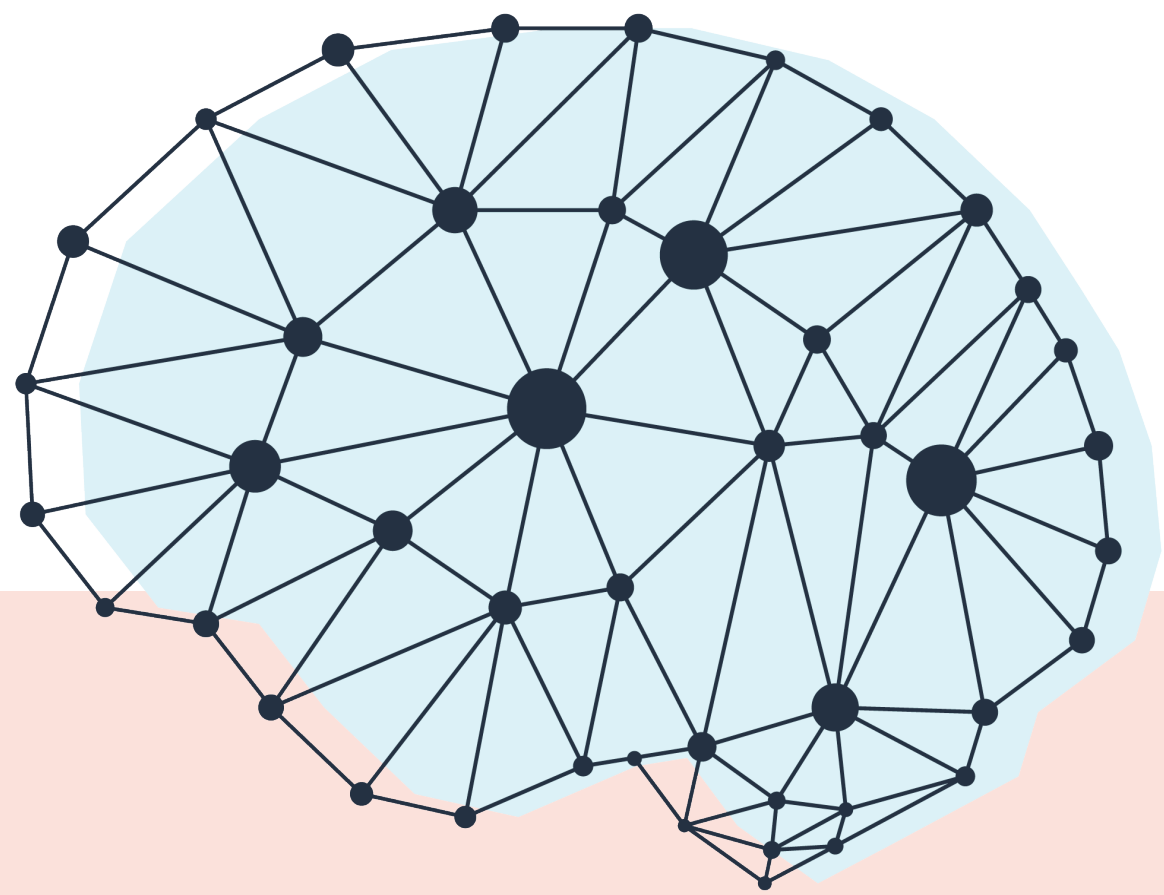


# Functional Non-Epileptic Attack

## Narrative Review and Recommendations for Paramedic Care

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### Introduction

A functional non-epileptic attack (FNA) is type of functional neurological disorder (FND) characterised by paroxysmal, involuntary changes in movement, responsiveness and / or sensation.<sup>1</sup> FNAs are not caused by ictal epileptiform activity, but rather a complex interplay of biological, psychological and social factors.

Despite the absence of structural brain pathology, patients experience their symptoms as real. It is a condition that causes significant distress and disability for patients.<sup>2</sup> FNAs are a common problem that ambulance paramedics are likely to encounter in the prehospital setting. However, stigma and lack of understanding are barriers to good patient outcomes.<sup>3</sup>

### Research Aims

To offer paramedics an evidence-based approach to the assessment and care of patients experiencing a suspected FNA.

### Methods

**Search Terms:** functional non-epileptic attack OR functional seizure OR psychogenic non-epileptic seizure OR pseudo-seizure OR disassociation

**Data Sources:** PubMed, Medline, Google Scholar

**Selection Criteria:** English language articles published within the previous 10 years

### Results

A total of 29 studies were selected for inclusion. The findings highlight the complexity of FNA as a biopsychosocial condition with multifactorial aetiology, and the need for a multidisciplinary approach to care.

### Discussion

#### Epidemiology

- FNAs incur a significant health burden upon the Australian health care system, and the average cost of undiagnosed FNA per patient is reported to be \$26,468.<sup>4</sup> Delays in diagnosis increase the risk of recurrent FNAs, medical disability, unemployment and overall poor QoL.<sup>5</sup>
- FNAs are extremely common. In one study from Queensland, approximately 26.5% of patients presenting to the emergency department (ED) for presumed seizures were eventually diagnosed with FNA.<sup>6</sup>
- Studies report high rates of iatrogenic harm in this patient cohort through unnecessary interventions including sedation, intubation, and arterial line insertion. The consequences of such treatment including nosocomial infection and death have been well-reported.<sup>4,7-9</sup>

#### Pathophysiology

- Once believed to be a purely psychological disorder, more recent studies support a neurobiological basis for FNA.
- Several studies under imaging have shown that patients who experience FNA appear to have abnormal functional connectivity between the regions of the brain involved in perception, attention and volition.<sup>10-14</sup> Patients with FNA appear to have an abnormally high degree of unconscious attention directed at their illness, with prior expectations serving to reinforce symptoms.<sup>11,15</sup>
- Patients frequently suffer from psychiatric illness such as anxiety, depression and PTSD.<sup>16,17</sup> However, meta-analysis concludes that there is limited evidence to establish a causal relationship between psychiatric illness and FND. Therefore, it is not necessary for paramedics to go looking for a psychological cause when assessing for potential FNA.<sup>18</sup>
- Comorbid neurological disorders are common, including acquired brain injury, Parkinson’s disease, and even epilepsy.<sup>19,20</sup>

#### Assessment

- Differentiating FNAs from epileptic seizures can be challenging in the emergency setting, as VEEG remains the gold standard for diagnosis.<sup>21</sup>
- However, in expert hands, the diagnosis of an FNA can be made with a high level of accuracy based on the event semiology alone.<sup>7,22</sup> Table 1 provides a guide for distinguishing functional versus epileptic seizures.
- Assessment must be thorough with every encounter, as patients with a history of FNA can still develop organic neurological pathologies.

#### Treatment

- A healthy therapeutic relationship based on trust, mutual respect and open communication is a protective factor in patient engagement.<sup>3,23</sup>
- Speaking to the patient about their symptoms in an optimistic, non-judgemental way is itself an important component of care. Importantly, the traditional term “pseudo-seizure” should not be used as it is considered to be a pejorative. Table 2 provides a guide for respectful terminology.<sup>11,24,25</sup>
- Patients without a confirmed diagnosis may need to be transported to ED, where they may be referred to a neurologist for diagnostic confirmation.<sup>11,26</sup>
- Typical avenues for treatment include counselling, cognitive behavioural therapy, mindfulness-based therapies and physiotherapy.<sup>27-29</sup>
- By providing an accurate description of events, paramedics can help to reduce the risk of misdiagnosis and subsequent iatrogenic harm in patients who do not yet have a formal diagnosis.
- Once a diagnosis is confirmed, paramedics can advocate for a relapse management plan that would empower the patient to better manage their symptoms in the community.

Table 1. Common Features of FNAs

CLINICAL SIGN	
Forced eye closure during ictal peak	+++
Prolonged duration	++
Fluctuating course	++
Ictal awareness / memory of seizure	++
Ictal/postictal weeping	++
Asynchronous limb movements	++
Side to side head shaking	++
Response to stimuli during ictal period	++

+++ = highly reliable; ++ = reliable; + = suggestive

Adapted from Finklestein et al.<sup>11</sup>

Table 2. Preferred Terminology

INAPPROPRIATE	APPROPRIATE
<ul style="list-style-type: none"><li>• Pseudo-seizure</li><li>• Hysteria</li><li>• Conversion disorder</li></ul>	<ul style="list-style-type: none"><li>• Functional non-epileptic attack</li><li>• Functional seizure</li><li>• Disassociation</li><li>• Psychogenic non-epileptic seizure</li></ul>

Adapted from Finklestein et al.<sup>11</sup>; Asadi-Pooya et al.<sup>24</sup>; and Loewenverger et al.<sup>23</sup>

### Conclusion

Through excellent pre-hospital assessment, paramedics can improve patient outcomes. A good description of the presenting illness can help to support a timely diagnosis of FNA and avoid iatrogenic harm. Additionally, this review highlights the importance of being kind and respectful, communicating with empathy, and working towards a relapse management plan for patients with frequent exacerbations.

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