Somerset
NHS Foundation Trust

Yeovil District Hospital
Higher Kingston
Yeovil
BA21 4AT

[redacted]

Date 19/10/2026

Mrs Vanessa McKinley
Area Coroner for the County Somerset

Sent via email: [redacted]

Dear Mrs McKinley

REGULATION 28 REPORT- PREVENTION OF FUTURE DEATHS- Mr Peter Leech

I am writing in response to your correspondence dated 2nd September regarding Regulation 28 of the Coroner's (Investigations) Regulations 2013, following the investigation into the death of Mr Peter Leech which commenced on the 19th January 2026 and was concluded at inquest on 2nd September 2026.

I would like to extend my sincere condolences to Mr Leech's family; we have carefully considered the findings and recognise the importance of addressing the issues raised to reduce the risk of similar incidents occurring in the future. This review has been undertaken by [redacted] Consultant Neurologist, with a specialist interest in epilepsy, in conjunction with [redacted] Neurology/Stroke Clinical Director.

The Prevention of Future Deaths report identified concerns regarding the prescribing and monitoring of proton pump inhibitor (PPI) medication in a patient with a well-established history of seizures. Although electrolyte disturbance and an associated increased risk of seizures are recognised but rare side effects of PPIs, the medication was initiated during a Trust hospital admission without clear guidance to the GP regarding duration of treatment. As a result, the prescription was continued long term in primary care, and the GP reported being unaware of the medication's potential to increase seizure risk, raising concerns about communication of prescribing information and medication review processes across care settings.

(a) The evidence established that proton pump inhibitor medication has a rare but recognised side effect of causing electrolyte disturbance and thereby lowering the threshold for epileptic seizures.

With long term use, Omeprazole can rarely lead to hypomagnamaesia (low levels of magnesium in the body) as magnesium absorption is impaired in the gut. This in turn can lead

to low calcium levels, and hypocalcaemia has been documented to provoke generalised seizures. Low calcium levels is a recognised reversible cause for status epilepticus and within Somerset NHS Foundation Trust this possibility is listed amongst other reversible causes on our status epilepsy guideline. Our Medical Team is thus prompted to check the necessary bloods in such an event.

The risk of adverse effects of omeprazole is higher in males and the elderly population (Luk CP., et al. 2013). The prevalence of hypomagnesemia is high in subjects with additional risk factors including the presence of malignancy, diabetes, hypertension, heart failure or the use of specific drugs such as diuretics, immunosuppressants, lithium, and digoxin (Markovits, N., et al. 2014). We acknowledge the fact, that Mr Leech had some of these additional risk factors.

In the event of a seizure due to electrolyte abnormality, it is common practise to treat the electrolyte abnormality and use short term antiseizure medication. These patients would then carry a diagnosis of a provoked seizure. They do not necessarily have epilepsy.

Regarding the epilepsy cohort in the UK, a large population cohort study was done in 2016. 'Risk of seizure associated with use of acid-suppressive drugs: an observational cohort study (Saez et al.)' was published in Epilepsy Behaviour in September 2016. UK population health data was collected from The Health Improvement Network and in this retrospective observational study 8605 patients with seizure were matched to 4000 controls. Logistic regression was used to calculate odds ratio and 95% confidence intervals. The results, after adjustment, showed no association between current PPI use and seizure risk in the overall population (OR: 1.05; 95% CI: 0.87-1.27), the subcohort with epilepsy (OR: 0.87; 95% CI: 0.49-1.53), and the subcohort without epilepsy (OR: 1.05; 95% CI: 0.87-1.28). There were no associations between current acid-suppressive drugs use and seizure risk in the overall population (OR: 1.16; 95% CI: 0.62-2.18) and the subcohort without epilepsy (OR: 1.02; 95% CI: 0.51-2.01).

We would therefore argue that a proton pump inhibitor does not directly cause seizures, and therefore a diagnosis of epilepsy is not a contraindication to concomitant proton pump inhibitor treatment.

1. Luk CP, Parsons R, Lee YP, Hughes JD. Proton pump inhibitor-associated hypomagnesemia: what do FDA data tell us? Ann Pharmacother. 2013 Jun;47(6):773-80. doi: 10.1345/aph.1R556. Epub 2013 Apr 30. [redacted]

2. Markovits, N., Loebstein, R., Halkin, H., Bialik, M., Landes-Westerman, J., Lomnicky, J. and Kurnik, D. (2014), The association of proton pump inhibitors and hypomagnesemia in the community setting. The Journal of Clinical Pharmacology, 54: 889-895. [redacted]

3. Sáez ME, González-Pérez A, Gaist D, Johansson S, Nagy P, García Rodríguez LA. Risk of seizure associated with use of acid-suppressive drugs: An observational cohort study. Epilepsy Behav. 2016 Sep;62:72-80. [redacted]

(b) Mr Leech had a well-established history of seizures which had at times led to hospital admission

Mr Leech was diagnosed with epilepsy in July 2024 and Levetiracetam was started as an in-patient. This was during his time at the Somerset Neuro Rehabilitation Centre (SNRC) where he recovered from a craniotomy and tumour resection done in April 2024. A complication of this procedure was a right parieto-occipital bleed. This structural brain abnormality would pose a high risk for him to develop epilepsy at a later stage. The documented seizure type for starting Levetiracetam were a number of atypical absences, and he was put on a dose of 1500 mg twice a day.

He was admitted to Musgrove Park Hospital in December 2024 post seizures. These were documented to be tonic clonic seizures with intermittent myoclonic jerks. The discharge letter says 'status epilepticus' as diagnosis but we did not find any supporting documents to establish that. He received Diazepam in the ambulance and in A+E and seizure activity was stopped. His behaviour was unsafe. He was intubated for a safe transfer to the CT scan. On this admission, he had a concomitant aspiration pneumonia and bacteraemia. Electrolyte derangement was noted and replaced until all were within normal range. Causes of hypocalcaemia are numerous. Low magnesium levels which Mr Leech had are a common cause.

His Levetiracetam dose was reduced in the community on 18 December 2024 to 1250 mg twice a day. He received a Neurology review, and his antiseizure medication was optimised to increase his Levetiracetam to a higher dose of 1500 mg twice day. His infrequent use of Ibuprofen was stopped to reduce the risk of bleeding.

Following his discharge in January 2025 he was then reviewed in our epilepsy clinic in April 2025 where the clinic letter states he had no further seizure events whilst on the high dose of Levetiracetam.

In May 2025 he was admitted to hospital after a cluster of seizures. He had a fixed gaze, and his left foot was twitching. At the time he was on treatment for an eye condition. In patient neurology advice recommended the addition of Lacosamide 50 mg BD. In November 2025 a GP clinical summary shows Lacosamide 50 mg BD on the acute medication side.

A year later, on 8 January 2026, he was admitted after a seizure, and an electrolyte imbalance was identified. He had been unwell for a week. He also was noted to be hypoxic with widespread pulmonary infiltration. He was drowsy and unresponsive and on 10 January an individualised end of live care plan was commenced. Seizure control was good, and he received his usual Levetiracetam dose intravenously. He was medically unwell and did not recover.

In summary, according to our hospital documentation there were 4 seizure episodes in his lifetime, a diagnosis made following brain surgery and post op intracranial bleed. Every seizure admission was accompanied by a medical illness. There is no documented history of seizure activity whilst at home in between the admissions.

As an Epilepsy Specialist, [redacted] has referred to his seizures as a breakthrough seizure due to reversible causes. Patients with epilepsy have an increased risk of a seizure when they become medically unwell. This is well documented. In the grand scheme of managing epilepsy, he would be classed as well controlled epilepsy. It is unfortunate that he was not a well man

post brain surgery and with his comorbidities and disability he would be at risk for infections as he advances with age.

(c) The proton pump inhibitor medication was started during an admission in one of the Trust's hospitals

Mr Leech had known Ischaemic heart disease. He had received 2 coronary stents in 2007. He was also known to have Atrial Fibrillation, Hypertension, Diabetes Mellitus – all risk factors for a stroke. He was put on anticoagulation in the form of Rivaroxaban since Jun 2016 as per Cardiology recommendation on top of his Aspirin. He had Lansoprazole at the time.

Following his brain surgery in May 2024 he had a prolonged inpatient rehabilitation stay at Dene Barton Hospital. Omeprazole 20 mg OD was started for gastric protection on 10/9/24 given he was on direct oral anticoagulant medication (DOAC) and non-steroidal anti-inflammatory drugs (NSAID) (for his heart condition).

(d) No guidance was given to the GP about the duration of the prescription of this medication and the GP continued to prescribe it on a continuing basis

[redacted]understanding from stroke medicine is that a low dose PPI of 20 mg is standard use as gastroprotection in conjunction with formal anticoagulation. Concurrent use of a PPI reduces the risk of gastrointestinal complications in patients taking long-term aspirin and/or oral anticoagulation (Ahn HJ, et al. 2022).

Mr Leech was on Rivaroxaban for his AF, and he required NSAID for his coronary stent patency. This is standard practise in medicine and would not raise specific concerns if the use of a PPI is intended long term. It forms part of primary prevention against peptic ulcer disease.

To paraquote, BMJ Best Practise "PPIs are the best choice for gastric protection. Several risks with long-term use of PPIs have been highlighted in studies. Based on current data, the overall benefits of PPI treatment outweigh the potential risk in most patients. There is no defined role for screening for possible adverse effects or for avoidance of acid suppression because of possible side effects." It is good practise to prescribe any new drug for appropriate indication and if foreseeable limit its use to the warranted therapeutic duration of therapy.

4. Ahn HJ, Lee SR, Choi EK, et al. Protective effect of proton-pump inhibitor against gastrointestinal bleeding in patients receiving oral anticoagulants: a systematic review and meta-analysis. Br J Clin Pharmacol. 2022 Nov;88(11):4676-87.

(e) The GP's evidence was that he was not aware of the increased risk of seizure caused by the medication

As argued above in question (a), PPI's do not directly increase the risk of seizures. Clinical reasoning dictates certain confounding factors and circumstances can lead to an electrolyte abnormality. Some people can be at higher risk from adverse effects of the PPI. This in rare cases can lead to seizures in people susceptible to seizures. As the data from the UK Health Network shows, epilepsy patients are not more at risk in comparison to the general population.

All medication has side effects. Part of our medical training dictates to be vigilant when undertaking a medication review for whatever reason. There is NICE guideline NG5 from 2015 on Medicines optimisation: the safe and effective use of medicines to enable the best possible outcome.

The British National Formulary (BNF) is always up to date online and can be found on bnf.nice.org.uk

It does not mention seizures under caution or side effect of omeprazole.
It lists risks of low Sodium, or low Magnesium as rare or very rare.
A common side effect are gastrointestinal disorders
It does advise monitoring Magnesium concentrations during prolonged treatment with a PPI.
This we could highlight in our discharge letters when starting a PPI longterm.

[redacted] points out that PPI prescribing guidance is different when used in peptic ulcer disease. These comments relate to this case only.

This simple fact highlights an example that within the medical profession we have medications that are licensed for different purposes, and the same drug may be used in differing doses for different reasons, all taken within a clinical context.

Conclusion

We have given careful consideration to the concerns raised in the Prevention of Future Deaths report. While we recognise the rare association between prolonged PPI use and electrolyte disturbance, our professional assessment is that the evidence in this case does not demonstrate that the PPI directly caused, or materially increased the risk of, Mr Leech's seizures. The medication was prescribed for an appropriate gastroprotective indication, and the documented seizure episodes occurred within the wider context of established epilepsy, structural brain injury and acute medical illness.

We respectfully therefore do not agree with the report's central clinical conclusion. We do, however, recognise the importance of ensuring that the indication, intended duration and monitoring requirements for medication initiated in secondary care are explicitly communicated to primary care. This represents a valid area for improvement, and the Trust will use the learning from this case to strengthen the clarity and consistency of its prescribing and discharge documentation.

Yours Sincerely

[redacted]

[redacted]
Chief Executive
Somerset NHS Foundation Trust