

Reducing variation case studies 2023-2024

Implementing anti-seizure medication weaning plans at discharge

Organisation

Great Ormond Street Hospital for Children

Project team

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Project aim

To make sure that by May 2024, for all children (0-18 years) admitted to Great Ormond Street Hospital (GOSH) and started on antiseizure medications (ASM) after acute symptomatic seizures, there will be a plan in their discharge summaries to start weaning ASM or consider weaning within a period of 2-3 months, if this is clinically appropriate.

Background/rationale

The paediatric epilepsy service at GOSH is a busy service which provides specialised inpatient and outpatient tertiary care for children and adolescents with complex epilepsy, including ketogenic diet services, video-telemetry and epilepsy surgery service. Furthermore, there is provision of professional advice and guidance to the local paediatric teams as well as support for cases with diagnostic and management challenges through the refractory epilepsy specialist clinical advisory service.

Acute symptomatic seizures are seizures occurring in close temporal relationship with an acute central nervous system insult, (acute insults to the central nervous system represent some of the most common neurological disorders and often lead to long-term disability). Although treatment with ASM may be needed in the acute phase, they are usually not associated with future risk of epilepsy.

There is a dearth of literature and data showing that shorter vs longer duration of treatment may have a similar impact on recurring risk of seizure in some situations and that there are no differences in neurocognitive profile (having the ability to think and reason) at 24 months from early stop of medications in neonates with acute symptomatic seizures.

However, there are no established guidelines about the duration of treatment with ASM and there is currently considerable heterogeneity in daily practice, a fact which increases the risk of polypharmacy (when a person is taking many different medications at the same time) and any potential ASM-associated adverse events.

What was the problem?

The team's project aim was to address a real-life issue with direct clinical impact on patient care and help establish Trust guidelines on weaning ASM in infants, children and young people with acute symptomatic seizures and reduce variation in daily clinical practice, as well as unnecessary medication burden.

What was the solution?

The cohort criteria to implement ASM weaning plans within discharge papers for all children and young people from neonates up to 18 years old. Typically, at least one qualifying child or young person is seen weekly. The team provided educational training to colleagues at GOSH, including consultants and nurses in neurology, neurosurgery, inpatient wards, and intensive care units. This training involved creating and emailing PowerPoint slides to relevant staff and arranging one-to-one sessions, which proved particularly engaging and beneficial.

Reflecting on feedback, the team planned to increase one-to-one training sessions with additional hospital departments, incorporating necessary information into discharge summaries via electronic patient record systems. They aimed to ensure that discharge summaries included a medication weaning plans for all children with acute symptomatic seizures. Additionally, they checked if the weaning process began a few months post-discharge and compared treatment durations before and after the project.

To support sustainability, the team developed a "smart phrase" within their Trust's EPIC IT system to automatically pull text into clinical notes by typing in the smart phrase in the system. The weaning medication plan will then appear in the clinical notes.

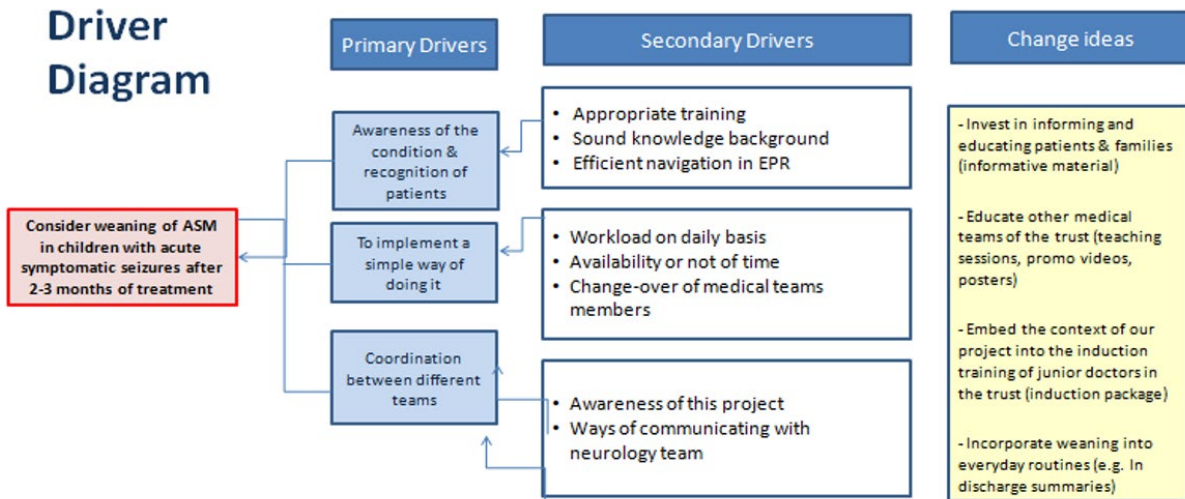
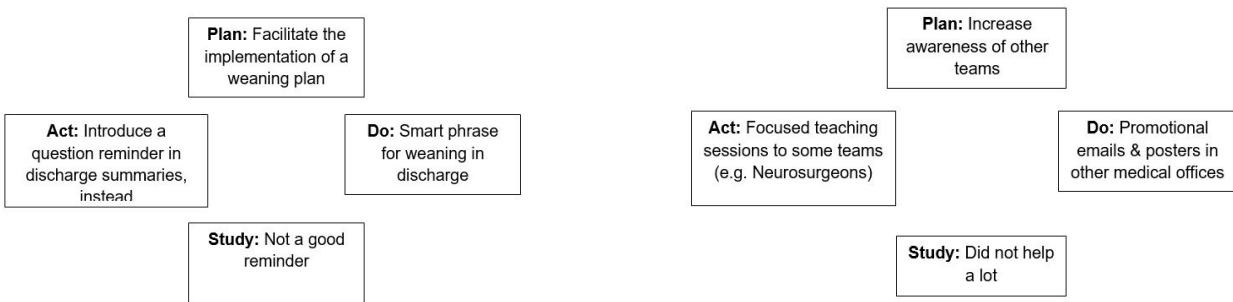
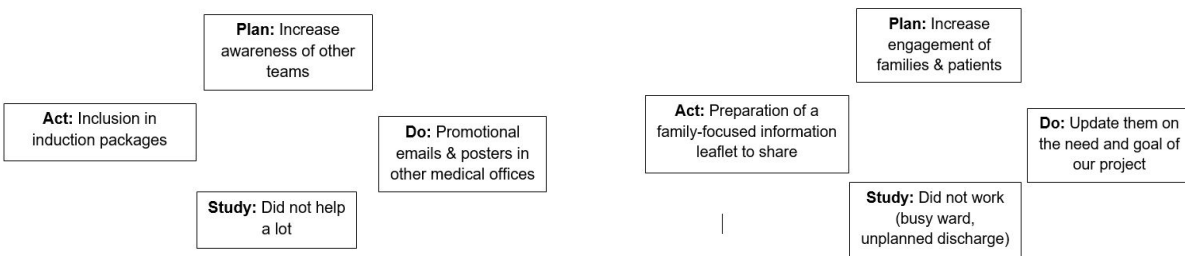


Figure 1: Team driver diagram that provides a clear statement of their project aim, with primary and secondary drivers that visually display the team’s theory of what “drives”, or contributes to, the achievement of a project aim.



Figures 2 and 3: Show small Plan, Do, Study, Act (PDSA) cycles of change ideas for implementation of weaning plans and methods to increase awareness of their improvement project amongst colleagues and Trust healthcare professionals.



Figures 4 and 5: Show small PDSA cycles of change ideas for patient engagement.

Stakeholder Map

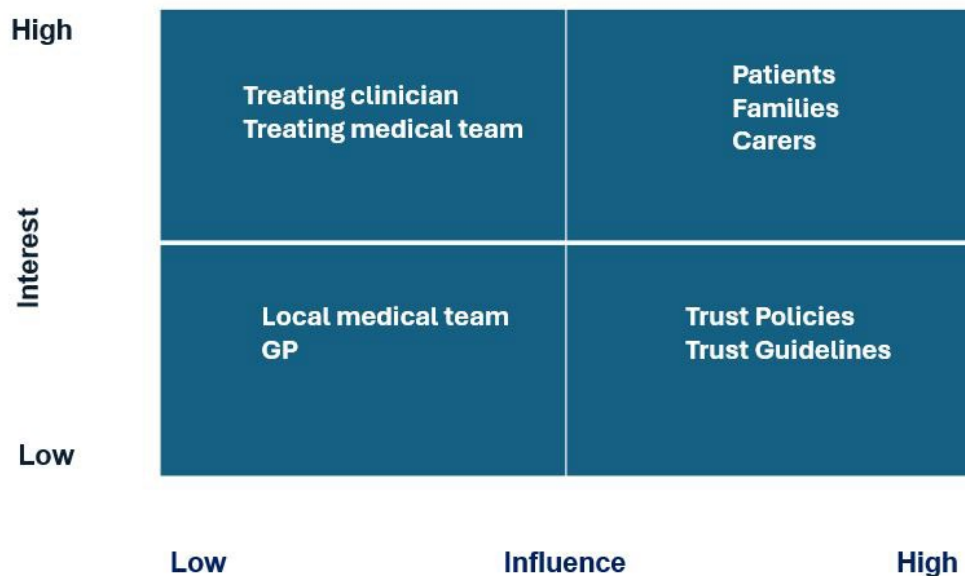


Figure 6: Shows the project stakeholder map, which provides analysis of stakeholders that are of influence/interest to the project. Stakeholders are plotted on the grid to guide the actions the team should take for involving and communicating with them.

What were the challenges?

The project experienced the following challenges:

- Ensuring the intervention's success required substantial personal involvement from the team, prompting a review of their capacity.
- The team found engaging patients challenging as the team primarily interacted with medical and nursing staff within the Trust. Frequent doctor changes, unplanned discharges, and transfers to local hospitals hindered communication with families. Additionally, many patients who are referred for tertiary care are discharged once stable due to bed capacity issues.
- Patients with acute symptomatic seizures are often too unwell for the team to discuss the project with them and their families, as they are typically experiencing significant anxiety and concerns about the epilepsy condition, therefore complicating engagement with families.
- Initial plans to update families orally proved impractical due to busy schedules and unplanned discharges. Therefore, the team created a family-focused information leaflet and planned to collate feedback from families on the leaflet.
- The project lead changed jobs during the duration of the project but remained in contact with the team. A new team member joined the project and was tasked with familiarising themselves with the work undertaken and the current project activities. The team discussed the sustainability of the project and its continuity despite team changes.

What were the results?

- The project highlights the importance of collaborative care and structured weaning plans for patients with acute symptomatic seizures.
- Patient identification: 32 eligible patients identified.
- Weaning plans provided: 16 patients received weaning plans.
- Prompt and successful implementation of weaning plans is based on the engagement of patients, families, carers and liaison with local medical teams.
- The project achieved an increase in the number of cases with weaning plans included within discharge plans for children and young people seen by the neurosurgical and acute neurology teams without direct intervention from their teams.
- A training video has been created and shared with select staff members.
- There are plans to release the training video more broadly, along with guidelines on medication weaning, after further review.
- Posters were created to be displayed within clinics to raise the profile of the project.
- Further reviews and guidelines on medication weaning are being developed for broader dissemination.

PDSA cycles

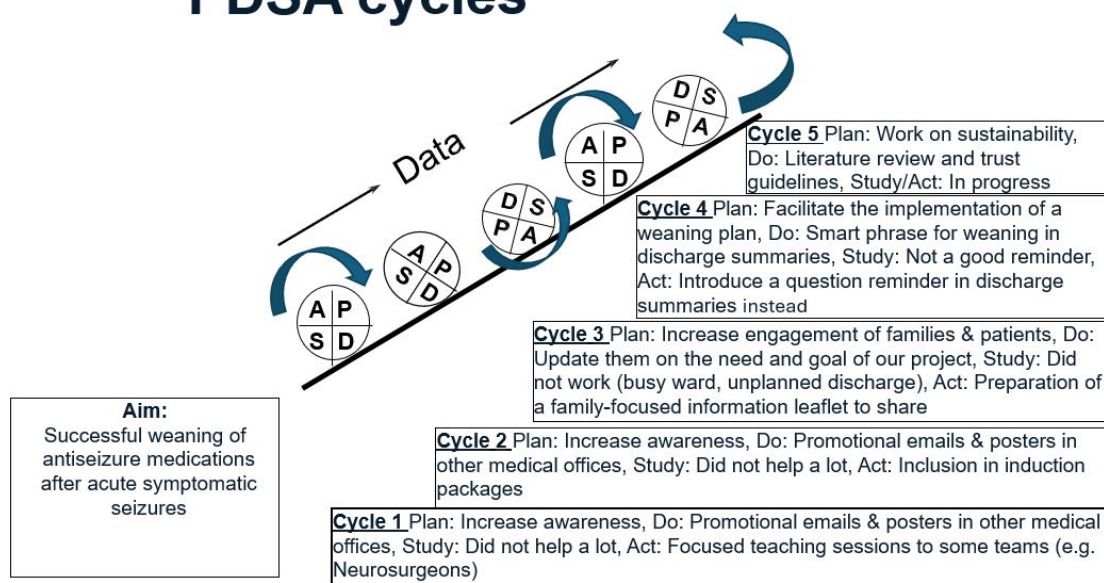


Figure 7: Plan, Do, Study, Act (PDSA) cycles of change ideas listed within the driver diagram were tested.

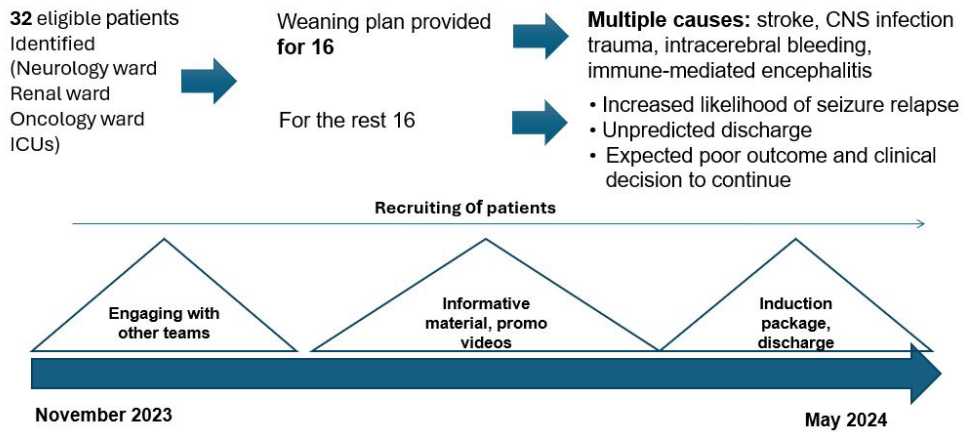


Figure 8: Data results on the number of children and young people who successfully had weaning plans included within discharge papers.

What was the outcome?

- Written weaning medication plans were successfully provided for 16 patients.
- Introduced a reminder smart phrase in discharge summaries to consider weaning ASM when appropriate.
- Launched a promotional educational video across the Trust to raise awareness about weaning ASM.
- Developed and distributed informative material for families and patients.
- Organised and delivered teaching sessions throughout the Trust.
- There are plans to submit a poster at future congresses.
- The team intend to write a paper on the quality improvement project itself, not a literature review.

ACUTE SYMPTOMATIC SEIZURES IN CHILDREN

Seizures occurring in close temporal relationship with an acute CNS insult e.g. within the first 7 days of cerebrovascular disease (stroke), traumatic brain injury, CNS infection

Acute phase

Chronic phase

Treatment with anti-seizure medication is needed

Is treatment with anti-seizure medications needed?

FACTS

- Shorter VS longer duration of treatment may have similar impact on recurrence risk in some situations
- Long-term risk of epilepsy not affected
- No differences in neurocognitive profile at 24months from early stop of medications in neonates
- More complex in autoimmune encephalitis
- Emerging role for EEG

Our suggestions

- After 2-3 months of treatment with 1 or more anti-seizure medications after acute symptomatic seizures, consider:
 - How is the patient? Clinically stable? Seizure-free?
 - Length of seizure/traitors?
 - How severe were the seizures?
 - What was the cause of acute symptomatic seizures?
 - What is the risk of recurrence estimated to be?
 - Medical co-morbidities, adverse events
 - Family/Carers' views
- If weaning is decided:
 - SLOW (over 2-3 months)
 - Update about risks
 - Provide safety-netting advice
 - Put a plan in the discharge summary

Poster for medical offices

Promotional video

Acute symptomatic seizures in children
A video to increase awareness

Produced by GOSH NeuroDev February 2024

Informative leaflet for families

ACUTE SYMPTOMATIC SEIZURES & YOUR CHILD: WHAT YOU NEED TO KNOW

- Are they real seizures?
 - They are still seizures but they happen closely (usually 1-7 days to an insult in the brain (e.g. trauma, infection stroke).
 - They usually do not result in epilepsy.
 - Medications may be initially started to prevent seizures. BUT long-term treatment is not usually necessary.
 - What is someone takes unnecessary medications? Don't forget that medications have adverse events!
- What will happen with discharge?
 - Your child will take anti-seizure medication for some time.
 - You will be given a plan for gradual reduction and weaning.
 - Your local medical team will be aware.
 - If seizures re-appear, the plan will change & longer treatment will be needed.

Figure 9: Shows examples of project outcomes.

What were the learning points?

- The team have started to consider the practical benefits of their research projects.
- Projects build bonds among team members.
- The team have learned how to improve quality while working clinically.
- The team think in a sustainable way.
- Busy wards can generate valuable ideas!

I have to say that I enjoy these discussions we have because I have done quite a lot of research in the past, but I think this element of aiming for improvement, showing improvement and implementing improvement is something new for me. So, I'm happy that I'm trained in this area as well. So, I think it's a privilege.

Dr Maria Gogou, Senior Clinical Fellow Paediatric Neurology, GOSH

Next steps and sustainability

- The project will be included in the induction package for junior doctors.
- There are plans to conduct a systematic literature review to establish and write up a clinical guideline.
- The team will re-audit the practice in our trust after completion of this project.
- Their team aims to present our work in national and international meetings and publish a paper.

Want to know more?

If you would like to know more about this project, please contact:

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