

Introduction

Steroids are commonly used in critical care for a broad range of conditions; Covid-19, respiratory, cardiovascular, neurological and additionally in our patient cohort, haematological and those immunosuppressed post organ transplantation.⁽¹⁾ Each patient should have an individual treatment regime guided by known best practice guidelines or specialist advice. Adherence is important as exogenous steroid use has well known complications (such as hyperglycaemia and nosocomial infections) and appropriate weaning is key in avoiding relapse cortisol insufficiency in those on long courses.⁽¹⁾ We conducted a quality improvement project (QIP) on our 35-bed general intensive care unit (ICU) with the aim to assess if clear steroid regimes were indicated (including appropriate dose and duration for indications and if necessary, weaning instructions) and if interventions could be introduced to improve quality and patient safety. During the second cycle we introduced long-term immunosuppressant prescribing and monitoring as a secondary outcome.

Materials and Methods:

Data was collected from electronic drug charts and medical notes, team handover lists and junior doctor surveys via Google Forms. Anonymised information was collected on patient demographics, admission, indication for steroid and/or immunosuppressant, dosage, duration, medication plan and monitoring instructions. Data was analysed on Microsoft Excel. The small step changes per cycle are outlined as below:

- Cycle 1: Addition of section on manually updated Microsoft Word handover list
- Cycle 2: Addition of individual subheadings on self-generating handover list
- Cycle 3: Teaching and circulation of drug chart functions to assist in duration regimes and monitoring instructions

References:

1. Young A, Marsh S. Steroid use in critical care. *BJA Educ.* 2018 May;18(5):129.
 2. Brown CL, Mulcaster HL, Triffitt KL, Sittig DF, Ash JS, Reygate K, et al. A systematic review of the types and causes of prescribing errors generated from using computerized provider order entry systems in primary and secondary care. *J Am Med Informatics Assoc.* 2017 Mar 1;24(2):432–40.

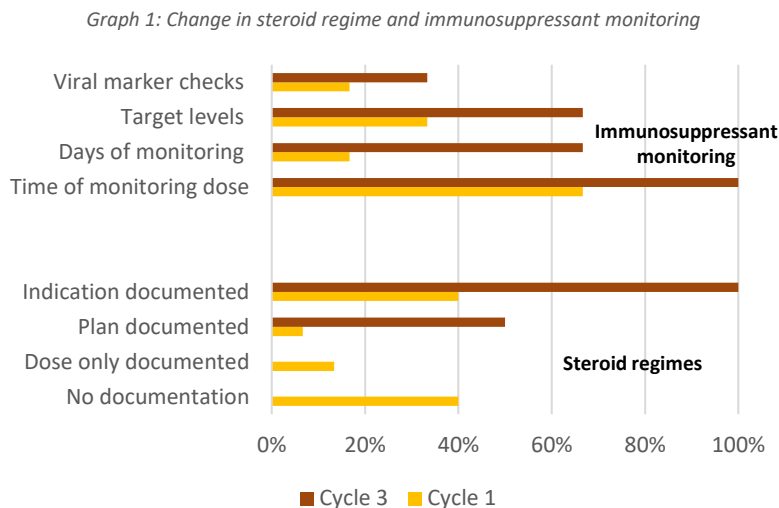


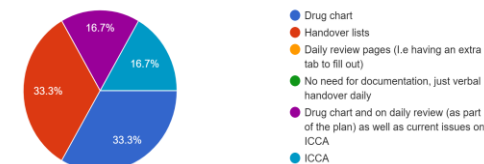
Table 1: Patient cohort on steroid and/or long term immunosuppressant in cycle 1 Sept-Oct 2021

Steroid:	
Covid	3
Shock	4
Asthma	1
Haematological malignancy	1
Hemophagocytic lymphohistiocytosis (HLH)	2
Unclear/ mixed indication	3
Long-term immunosuppressant:	
Kidney transplant	2
Bone marrow transplant	2
HLH	2

Results and Discussion:

In the initial data collection in September – October 2021, there were 15 patients prescribed with steroids and 6 on long-term immunosuppressive therapy. Indications are outlined in Table 1. In 40% (6/15) of patients on steroids, there was no clear documentation of indication, proposed duration and plan and one third of patients on Tacrolimus or Ciclosporin immunosuppression had clear therapeutic drug target levels indicated. Changes from the first two cycles were minimal and a junior doctor survey of proposed changes guided the next steps as 50% of responders preferred to utilise electronic medical notes and drug charts on the IntelliSpace Critical Care and Anaesthesia (ICCA) system, Graph 2. Third cycle data recollection in January-February 2022 (n=8 for steroids, n=3 on immunosuppressants) indicates that performance has improved (Graph 1), with 100% patients on steroids with clear indications (correct doses as per guidelines) and 50% with clear plans (weaning instructions or stop dates) and for those on immunosuppression, 66% had clear monitoring instructions and target levels. Utilising electronic drug chart and medical notes features have an increasing role in reducing errors and improving patient safety.⁽²⁾ Remaining points of improvements for next cycles will be on setting a unit protocol for viral titre monitoring for patients on long-term immunosuppression.

Where do you think is the best place to document plans for steroids and other immunosuppressive agents?
6 responses



Graph 2: team responses to potential interventions

Conclusion:

We have shown that quality of steroid and immunosuppressant prescribing and monitoring can be improved using local measures and team involvement. This is beneficial for patients and staff to reduce unnecessary dosing and complications.

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