How do prescriptions change over an ICU admission?

And does knowing the answer tell us anything useful for future patients?

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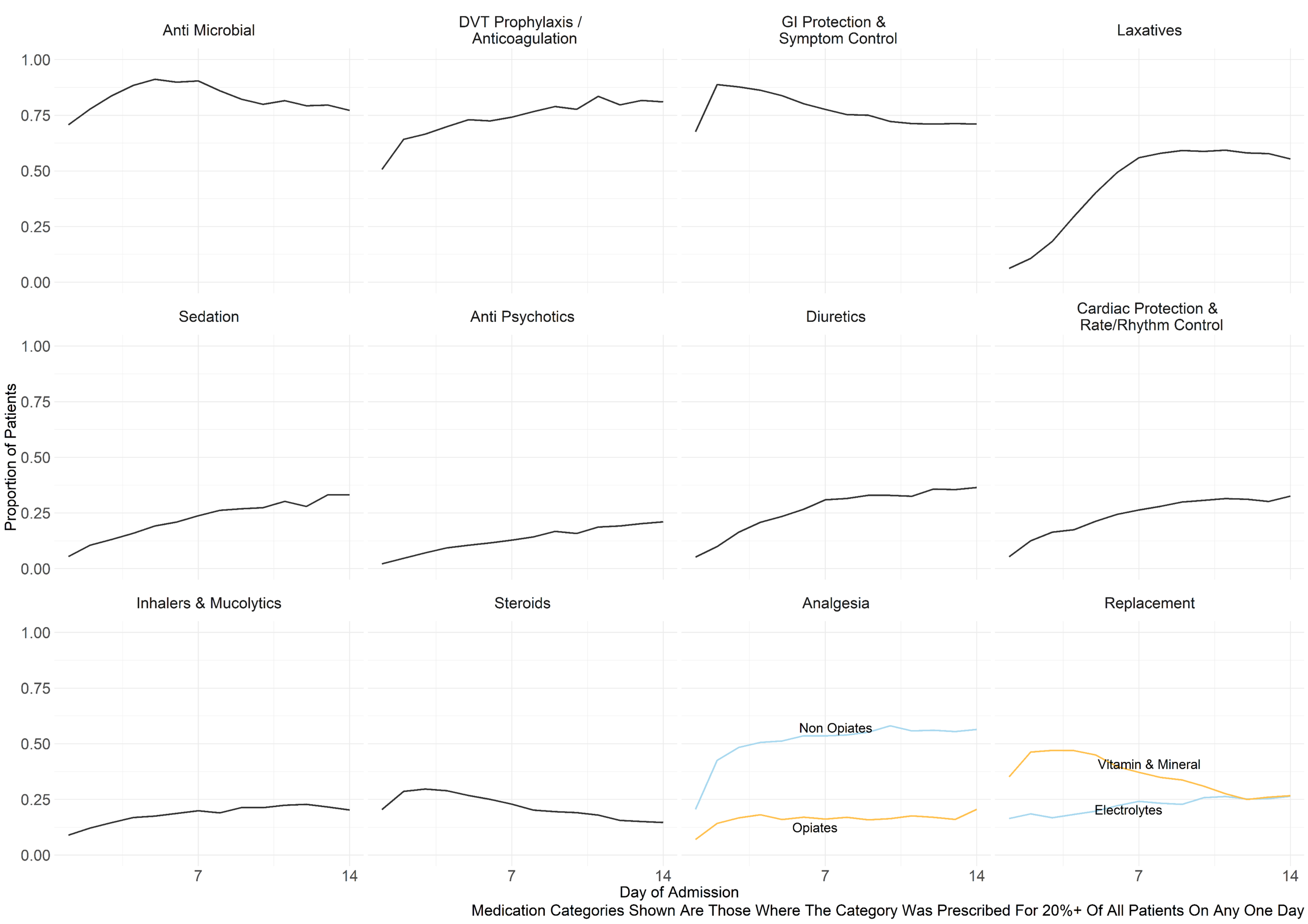

We analysed the data of 3722 patient admissions to Intensive Care at the Queen Elizabeth University Hospital, Glasgow, with 320,000 medications prescribed (Information governance approval gained, ethical review discussed but not required). Data was extracted from the ICU clinical database system (Philips Carevue) then analysed using R (version 4.0.4). Admissions were from the time period: May 2015 to July 2020**.** This analysis was performed by facilitators at an Introduction to R course, to demonstrate to students the ease of large dataset manipulation and presentation with R.

The figure above shows some narrative of the first two weeks in a typical intensive care admission. As patients recover from acute illness their usual cardiac prescriptions are restarted. Pre-existing and new diuretics are (re)started, offloading fluid following the initial period of fluid resuscitation. As their bleeding risk (either from critical illness or surgery) subsides, anticoagulation or DVT prophylaxis is restarted. Antimicrobial use remains high, perhaps indicating the reason for continued admission. Other trends seen may be muddied by our dataset only including intermittent medication prescriptions, as opposed to continuous infusions. The increase in sedation and antipsychotics could represent weaning and replacement of continuous sedative infusions or may be a sign of increasing incidence of delirium later in a critical illness.

Figures like the one above may show opportunities for quality improvement in a unit. We see by the second week in ICU more than half of patients are receiving laxatives. This could recommend a change in practice, to include laxatives as part of the standard “admission set” of medications. If the increase in sedatives and anti-psychotics is due to delirium in critical illness, then preventing constipation and discomfort in our patients may help reduce the incidence of that, and so reduce the need for these less benign sedative medicines.

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