

Preliminary analyses of anonymised UK hospital episode statistics data to inform a research protocol on surgical management of severe pressure ulcers

Introduction: In April 2018, the NIHR sought to commission an “efficient cohort study” to identify patients in whom surgical interventions for severe pressure ulcers (SPU) may be indicated and to identify interventions suitable for evaluation of clinical effectiveness. We analysed anonymised hospital episode statistics acute patient care data (HES-APC) to inform a research plan. We wished to estimate numbers of admissions with a SPU and describe the admitted patients, whether managed surgically or not.

Methods:

- We requested anonymised HES-APC data describing first (“index”) hospital admissions with ICD-10 diagnosis codes L89.2, L89.3 or L89.9, i.e. full skin thickness SPUs, over 9 years (01 Oct 2007 to 30 Sep 2016). We requested data again to include code L89.X (any pressure ulcer).
- We analysed index admissions over 9 years, to explore long term trends in admissions and surgical debridement and reconstruction (01 Oct 2014 to 30 Sep 2016), linking HES episodes for 6 months before and after admission.
- Index admissions were identified as continuous spells, with an SPU diagnosis code in any episode in the spell.
- Reconstructive surgery was defined as any surgical procedure leading to epithelial closure of the wound, typically distant or local flaps of skin and muscle/fascias (OPCS codes S17-S27). Debridement was ascertained separately (OPCS code S57.1).

Results:

- SPUs were only reliably coded from Apr 2013 (**Figure 1**). Before, only code L89.X was identified. Similar annual totals suggest few non-SPUs were coded in earlier years.
- Of 75,338 index admissions in most recent two years (Oct 2014 to Sep 2016), 40%, 14% and 46% were coded as L89.2, L89.3 and L89.9 respectively (**Figure 1**).
- Only 165 patients (0.2% of index admissions; **Figure 2A**) had reconstructive surgery during the admission; 63 had reconstructive surgery in a subsequent admission, including six who had been coded as having reconstructive surgery during the index admission.
- Reconstructive surgery (some multiple operations) occurred in 37, 55 and 92 index admissions coded as L89.2, L89.3 and L89.9.
- Surgical debridement only was coded more frequently (OPCS code S57.1, 2274 patients from Oct 2014 to Sep 2016, 3.1% of index admissions; (**Figure 2B**).
- Patients who had reconstructive surgery were about 20 years younger and had fewer comorbidities than those who did not; about half had other diagnoses that included paraplegia, tetraplegia, spinal injuries or sequelae of transport accidents.

Figure 1: Index admissions by pressure ulcer ICD-10 code

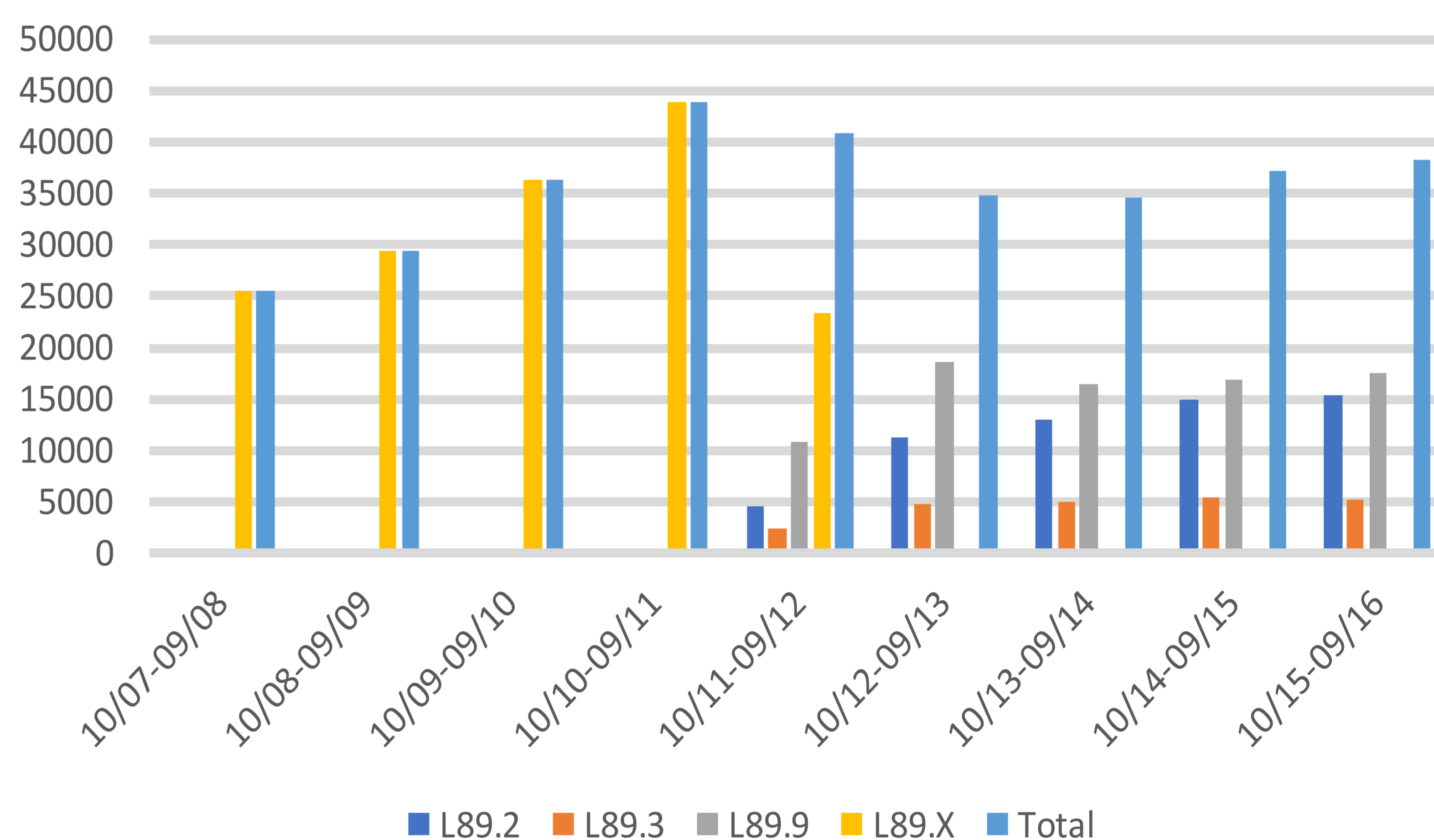


Figure 2A: S code with/without debridement code

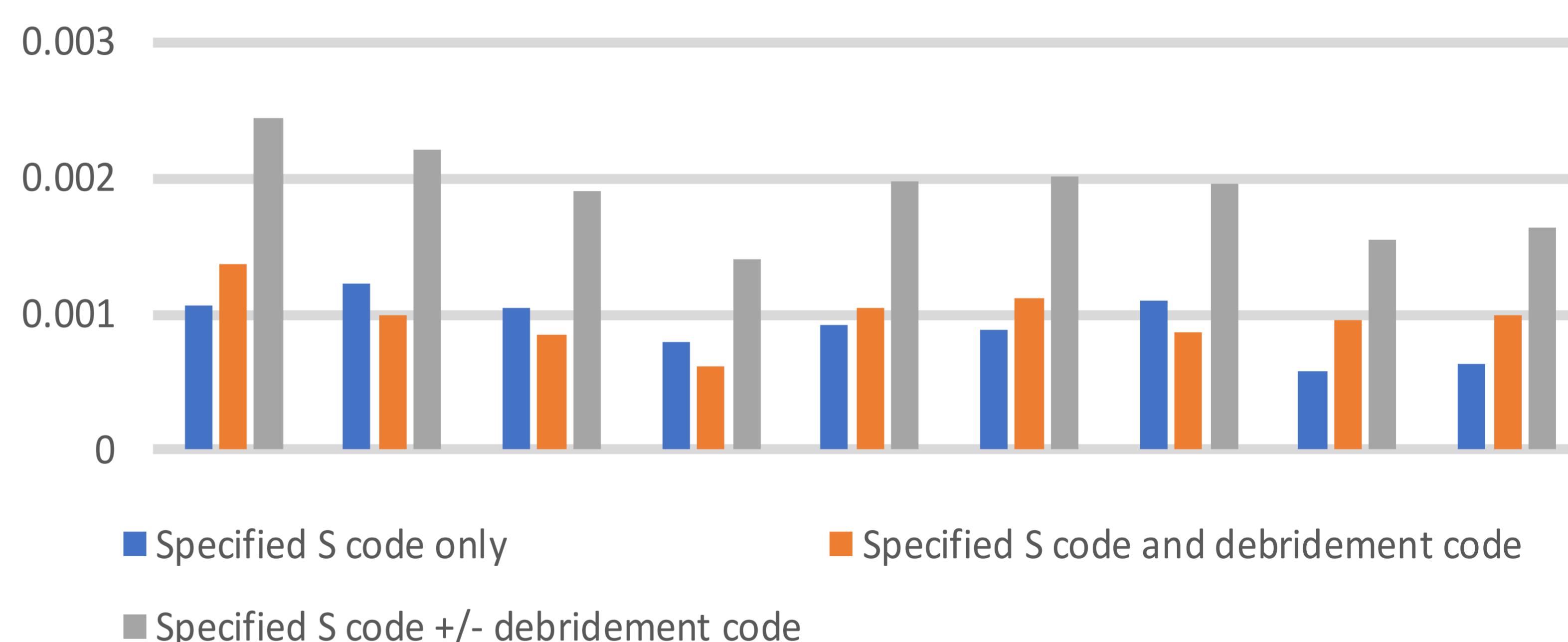
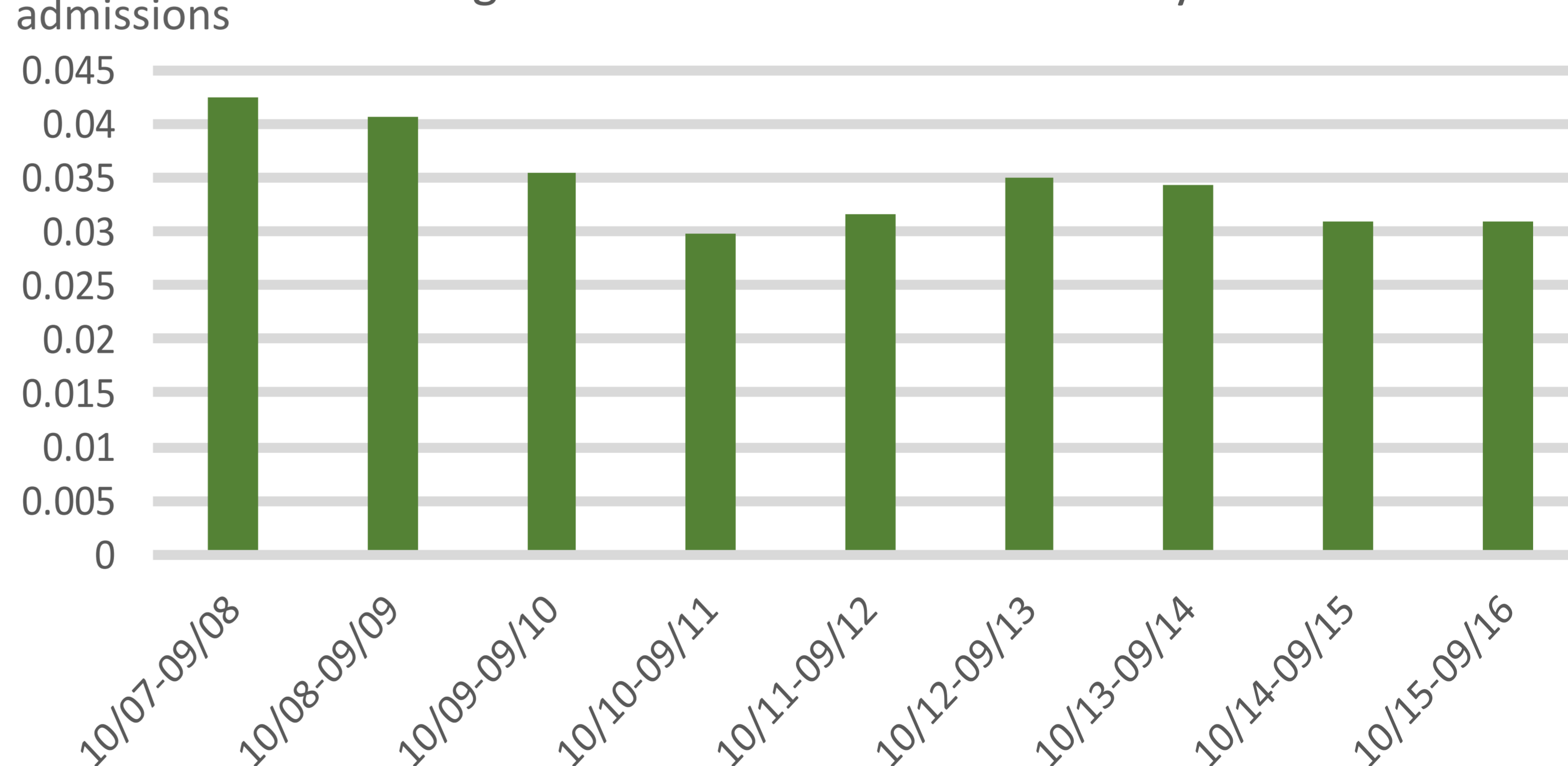


Figure 2B: Debridement code only



Discussion: Our ability to identify SPU and reconstructive surgery in HES-APC led us to propose a retrospective efficient cohort study based on linked HES-APC and mortality data (NHS Digital) and CPRD-Gold data from the Clinical Practice Research Datalink. Our proposal was funded and will start on 1 Nov 2019. As well as the secondary data analyses, it will:

- update two systematic reviews,
- survey the views of professionals about the use of reconstructive surgery (community nurses, tissue viability nurse specialists, plastic surgery nurse specialists and plastic surgeons), and
- establish where there is consensus among professionals about research priorities for evaluating the use of reconstructive surgery for SPUs, including the target populations and the specific interventions to be evaluated.