

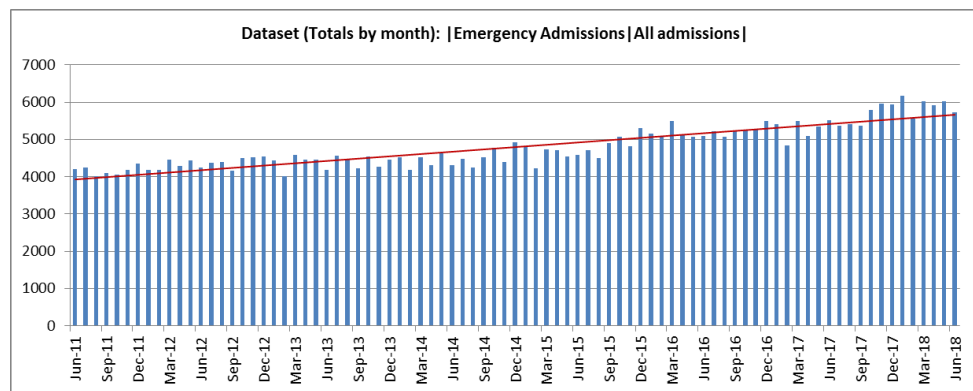
The Somerset respiratory dashboard: what does it tell us, and how might the data shape future care?

Somerset CCG Respiratory Programme Group has developed a disease dashboard in collaboration with the Clinical Support Unit (Ebuka Nrialeke). Included are admission and outcomes data (based on HRG codes) for asthma, COPD, pneumonia, respiratory conditions as a whole, and all-cause admissions. The dashboard data are viewable by age decile, by admission to acute Trust, from Federation groups or from individual general practices. Outcome measures include length of stay and 30/90-day readmission.

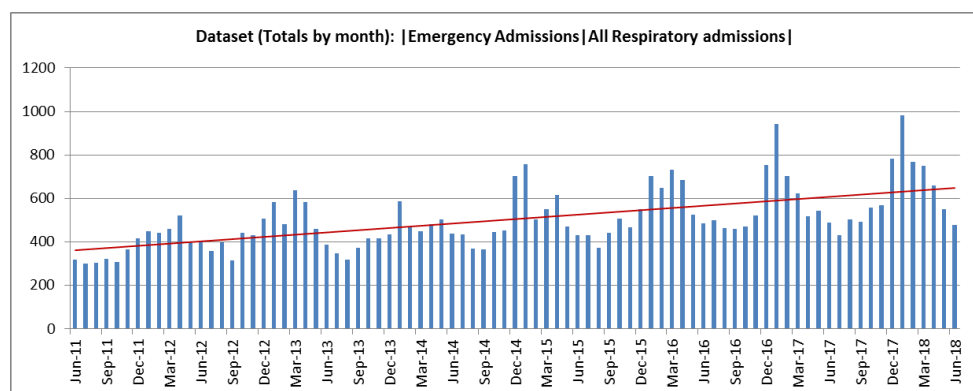
Within this brief paper we outline some data trends, observable from run-charts over the last few years. We show data examples and suggest some mitigating strategies.

1. Admissions: patients of all ages

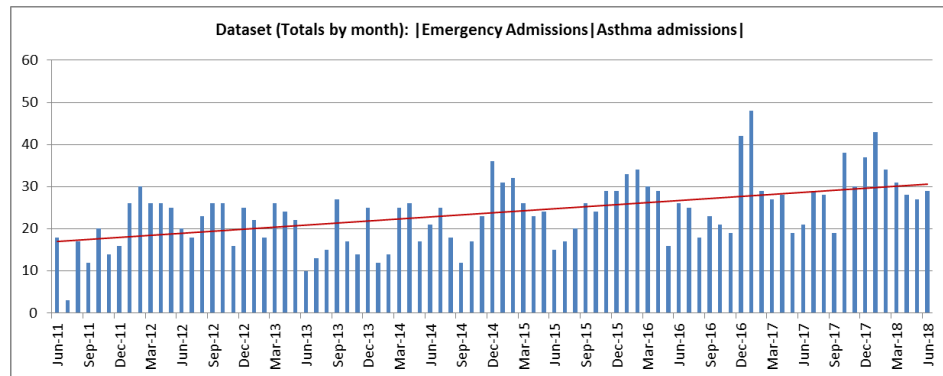
- a. All-cause admissions are increasing inexorably:



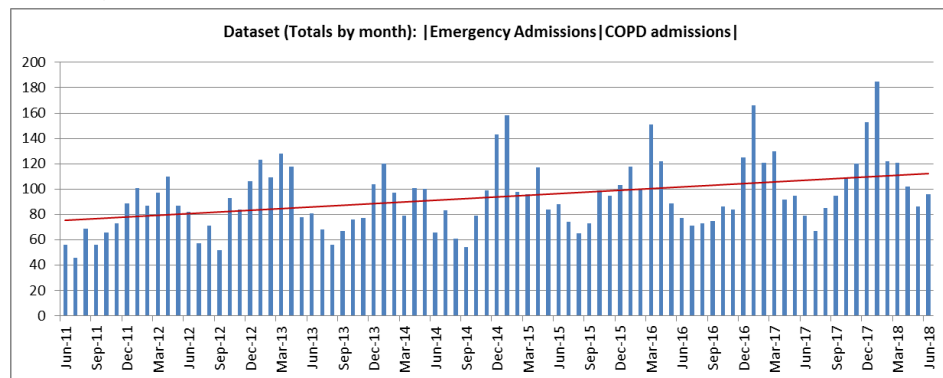
- b. All-cause respiratory admissions are increasing inexorably, but with obvious winter peaks:



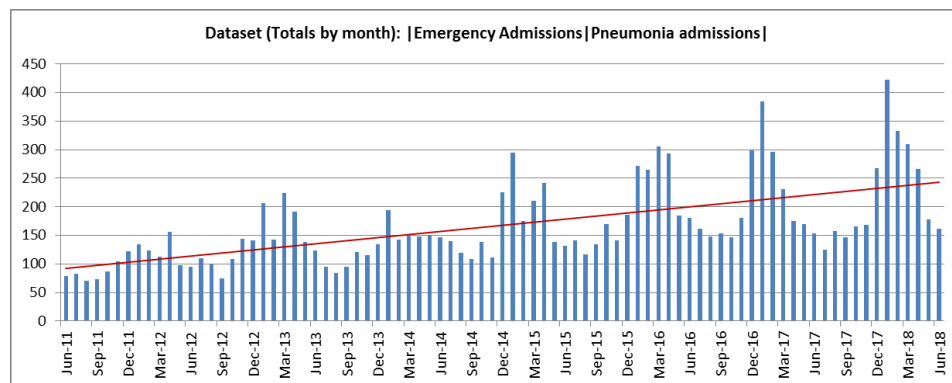
- c. Asthma admissions are increasing, perhaps more modestly, with less discrete seasonal peaks:



- d. COPD admissions are increasing, with peaks that commence in autumn and last throughout winter and well into spring (there is only true respite in the summer months):

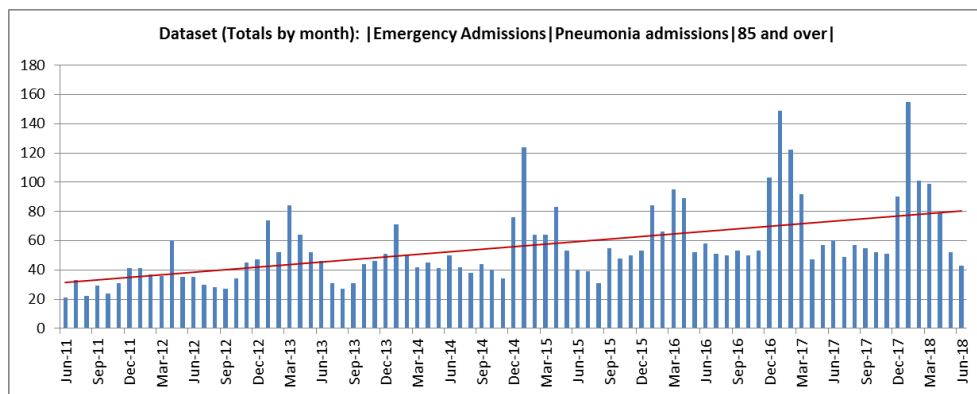
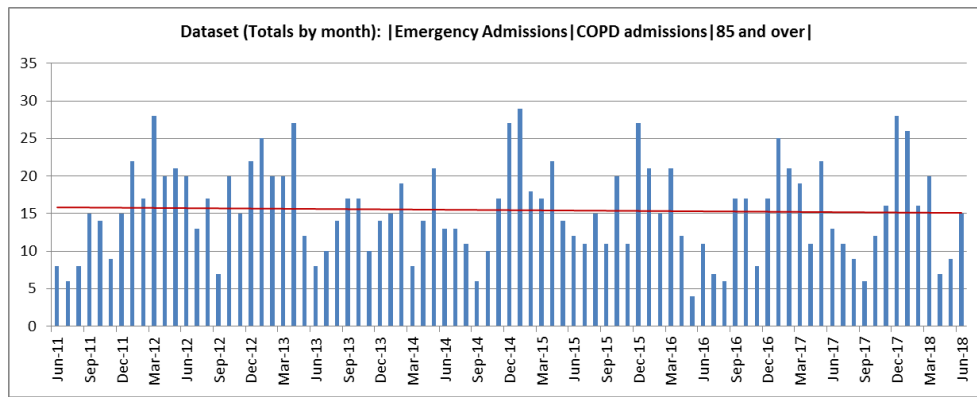


- e. Pneumonia admissions are rising steeply, with narrower and more discrete winter peaks:

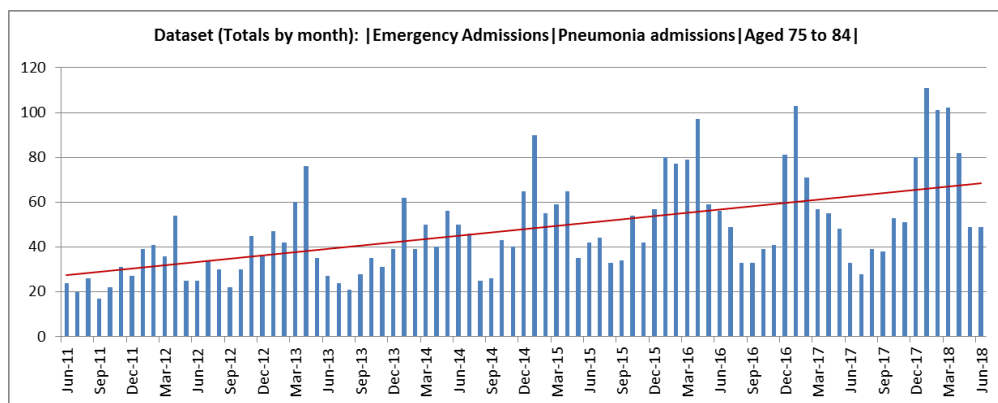
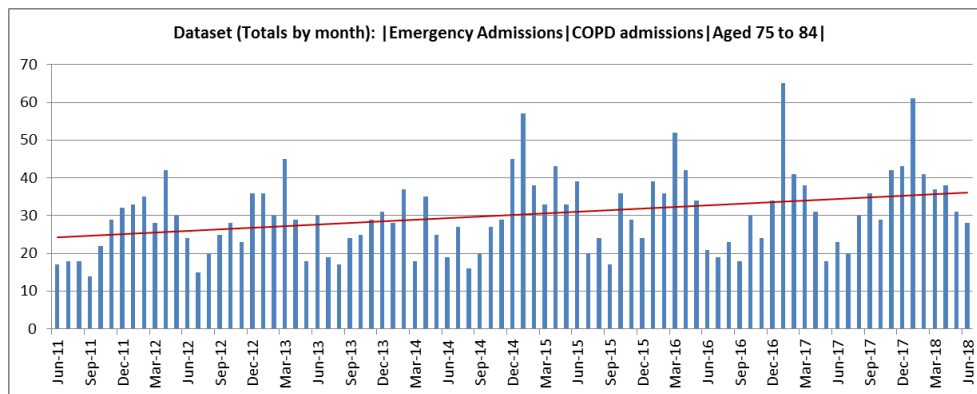


2. Admissions: by age decile

- a. *Aged 85 and above*: there has been a year-on-year increase in admissions for this age group. Although all-cause respiratory admissions are increasing, with increasingly narrow winter peaks, there have been only modest increases in asthma and COPD admissions for this age group. By contrast, pneumonia admissions are increasing steeply, with sharp winter peaks:



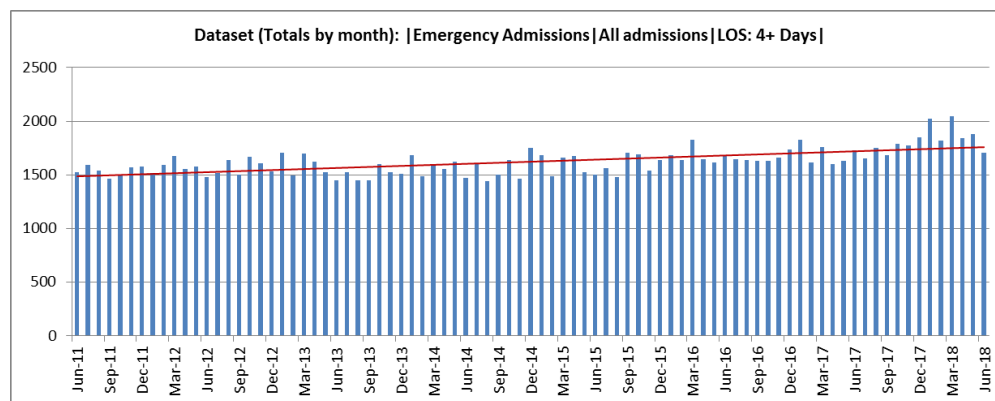
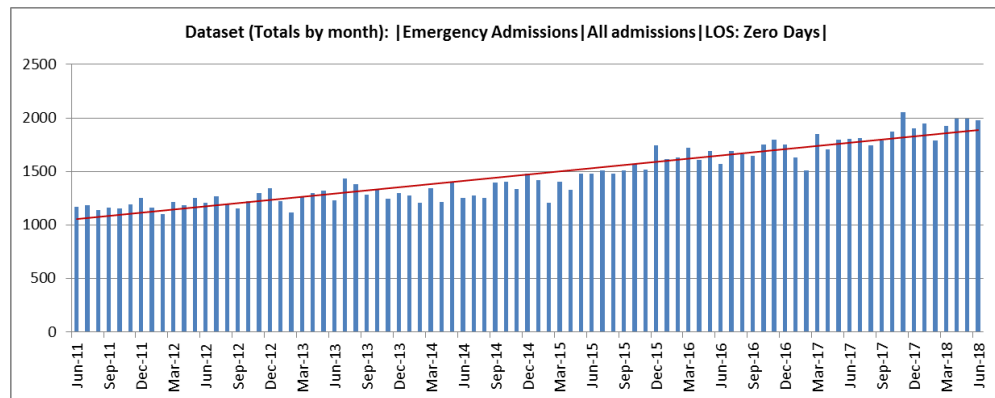
- b. *Aged 75-84*: the same holds true for this age group, though there has been a gradual and more sustained increase in COPD admissions, in contrast to the near-steady state for patients aged 85 or above:



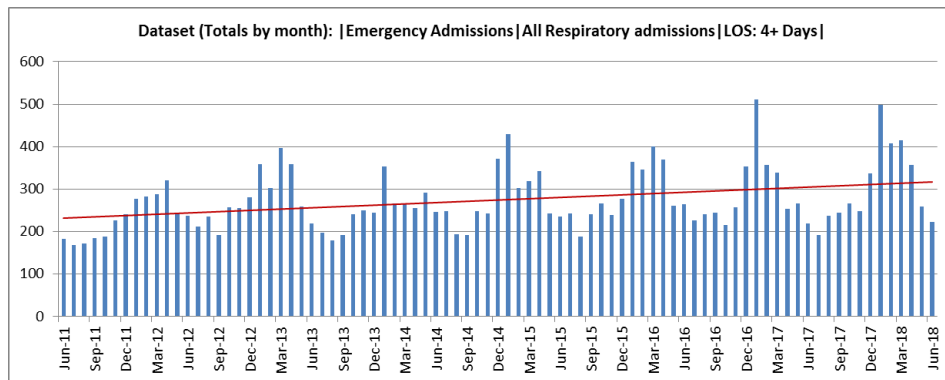
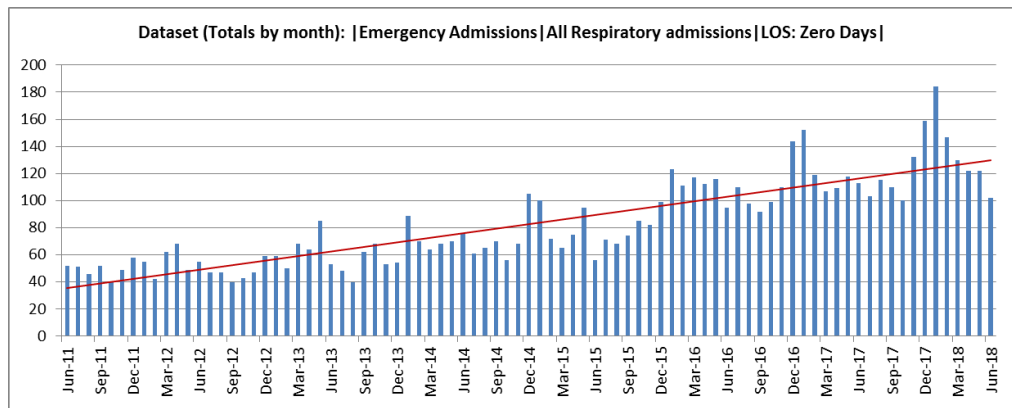
- c. *Aged 65-74*: steep year-round increases are notable across this age group for all-cause admissions, all-cause respiratory admissions (particularly autumn and winter), asthma, COPD (mainly autumn and winter) and pneumonia (winter peaks).
- d. *Aged 55-64*: there has been a gradual increase in admissions year-on-year for this age group, though a more recent increase in winter asthma admissions.
- e. *Aged 45-54*: there has been a general increase in all-cause, respiratory and specific respiratory conditions over the last few years.

3. Length of stay

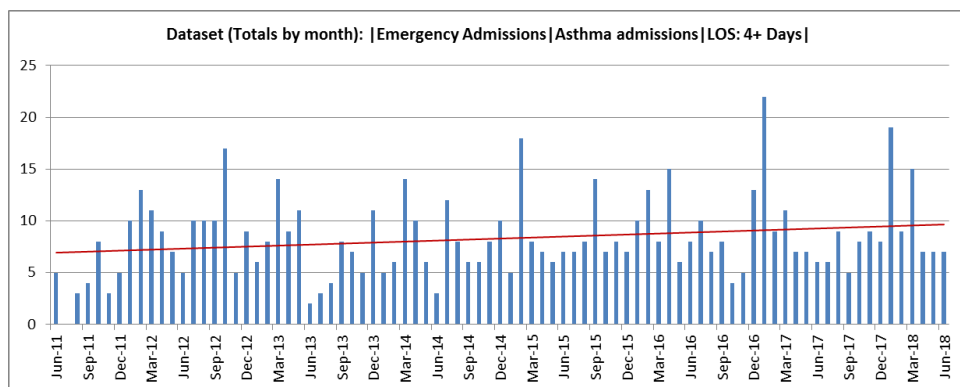
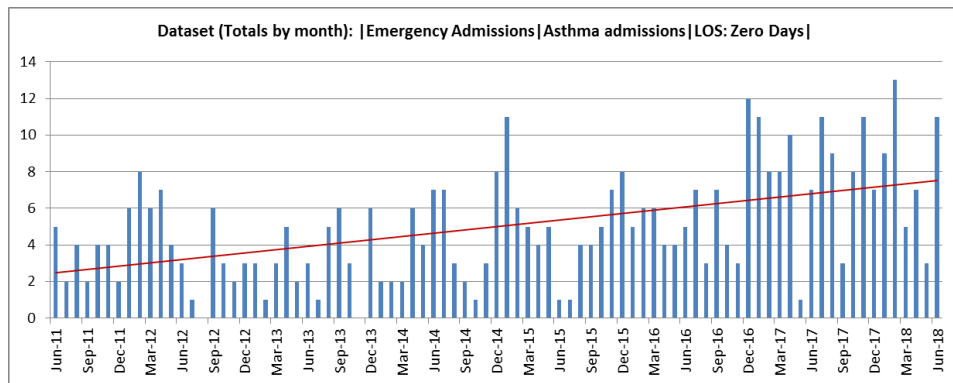
- a. *All-cause admissions*: the steep rise in admissions across all age groups associates in particular with episodes of zero (ie less than 24 hours) and 1-day length of stay, most noticeably the former. Episodes of 2-3 days' duration have also increased, but the rise is less obvious. Stays of 4 or more days are broadly similar:



- b. *All-cause respiratory admissions*: the steep increase in admissions again associates with short lengths of stay, particularly of zero days, with episodes of 4 or more days rising more slowly:

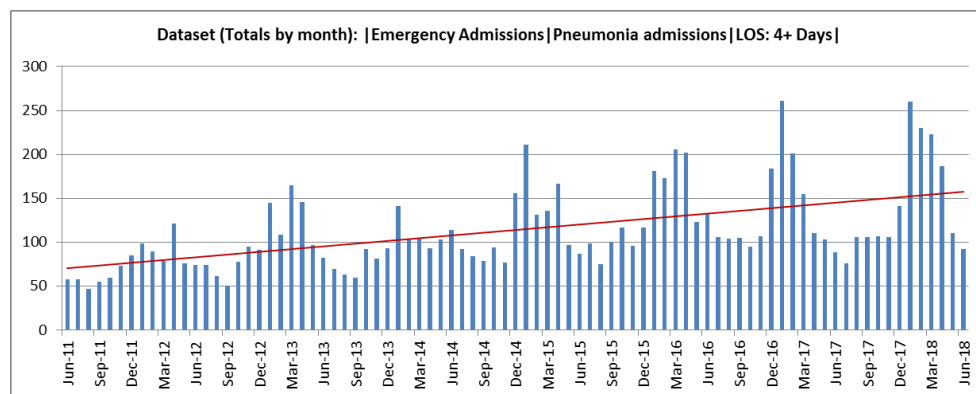
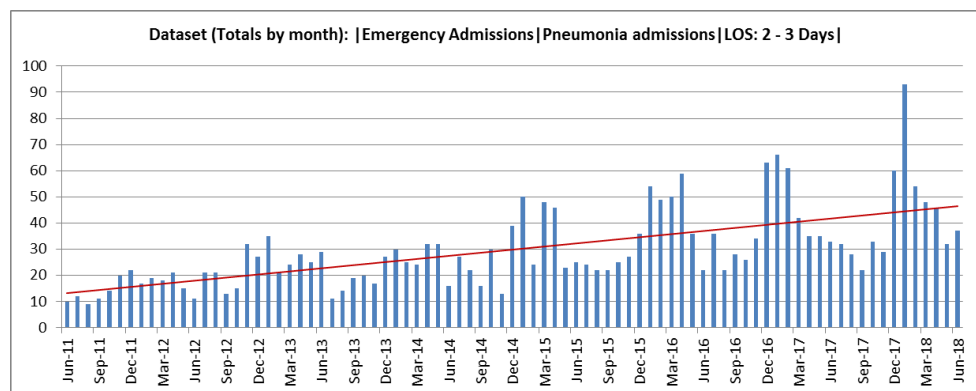
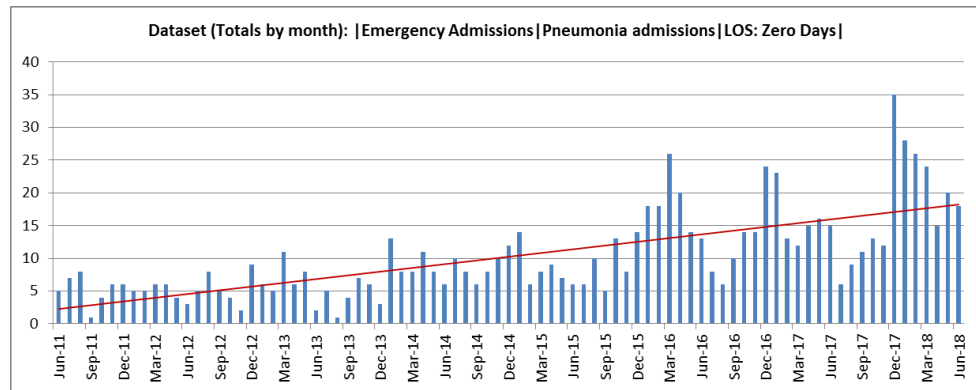


- c. *Asthma*: there have been only modest rises in asthma admissions, but the above pattern is repeated:



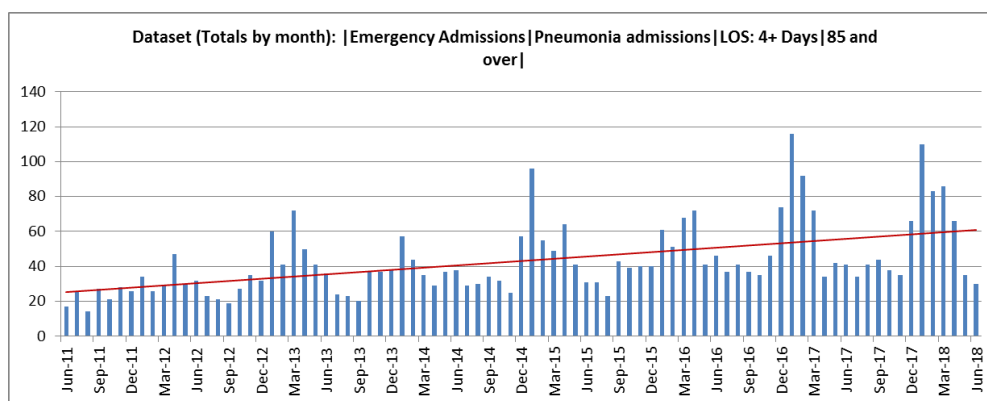
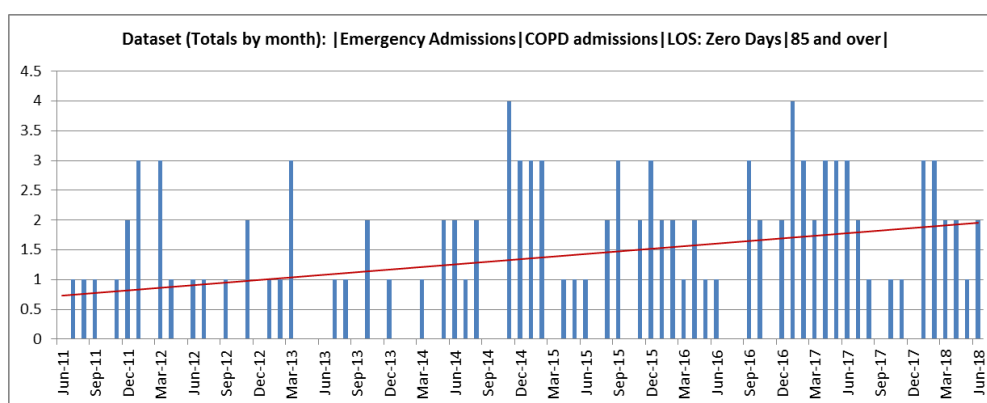
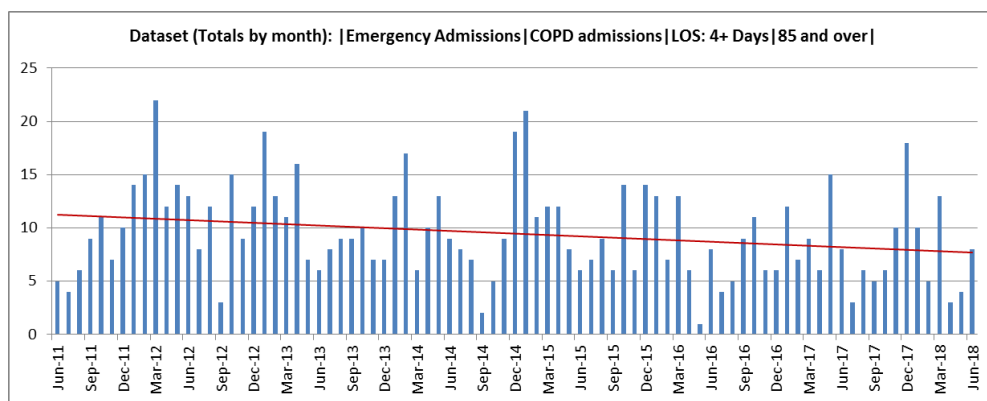
- d. *COPD*: the above pattern is repeated for COPD admissions.

- e. *Pneumonia*: notably, and in contrast to other respiratory conditions, the steep rise in pneumonia admissions is accounted for by episodes of longer duration as well:



4. Length of stay by age decile

- a. *For patients aged 85 and over*: although there has been no significant change in the number of asthma admissions, the small rise in COPD comprises episodes of mainly shorter length of stay, seemingly at the expense of those with longer-duration (ie over 4 days), which have reduced. By contrast, the steep rise in pneumonia admissions comprises stays across the piece, including episodes of 4 days or more:

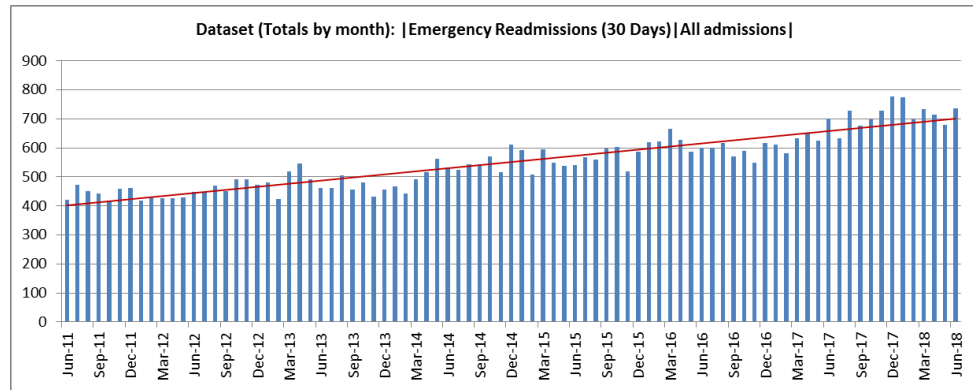


- b. *For patients aged 75 to 84:* asthma admissions are broadly stable and have little impact on length of stay. There are steep increases in zero length of stay admissions (particularly all-cause and all-cause respiratory) in this age group, with the rise in pneumonia spread across the piece.
- c. *For patients age 65 to 74:* the rise in all-cause and all-respiratory admissions is accounted for mainly by episodes of zero (in particular), 1-day and 2-3 days' duration. Again, the exception is pneumonia, which associates with increases across the piece.
- d. *For patients aged 55-64:* this age decile makes only a small contribution to the overall rise in admissions. Zero lengths of stay account for the bulk of the rise in admissions within this age decile.

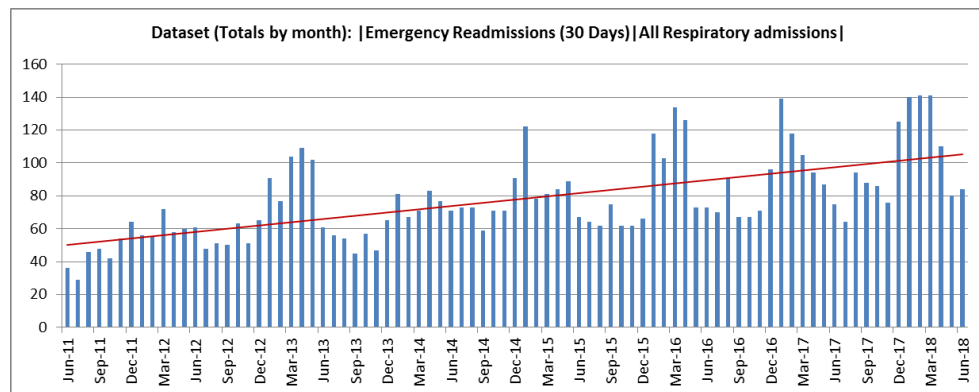
- e. *For patients aged 45-54:* the rise in admissions associates mainly with episodes of shorter duration. This age decile doesn't impact greatly on the overall rise in admissions.

5. 30-day readmissions

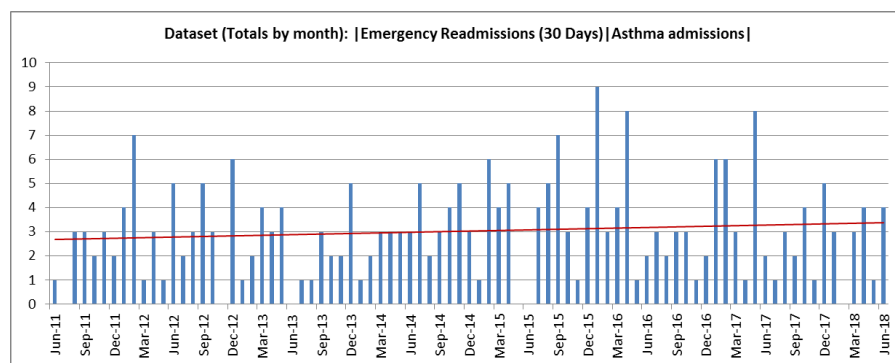
- a. *All-cause readmissions* - are increasing:



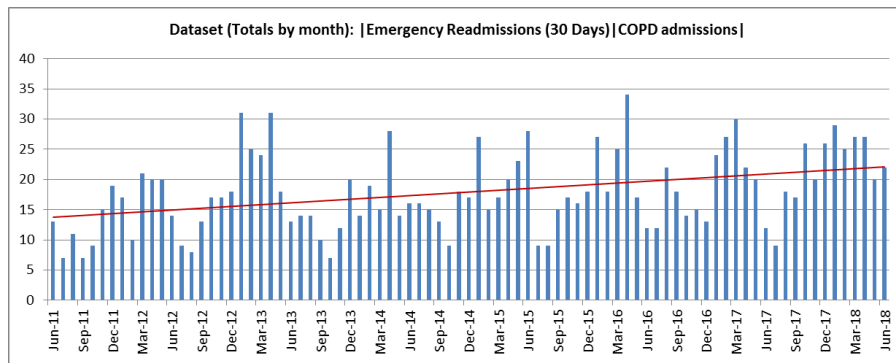
- b. *All-cause respiratory readmissions* - are increasing, with winter peaks:



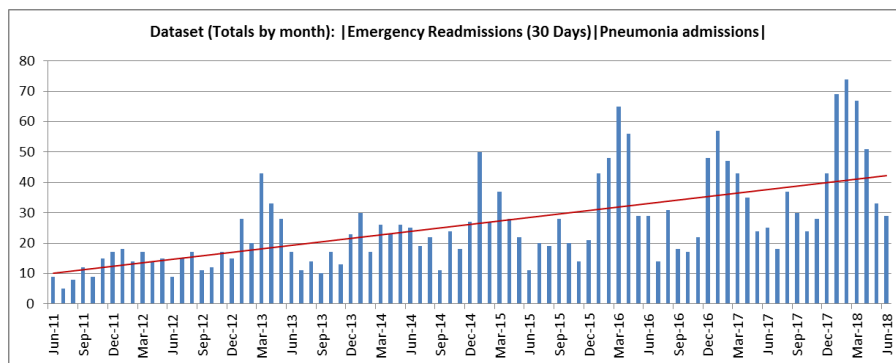
- c. *Asthma readmissions* - haven't changed, without obvious increase across the piece:



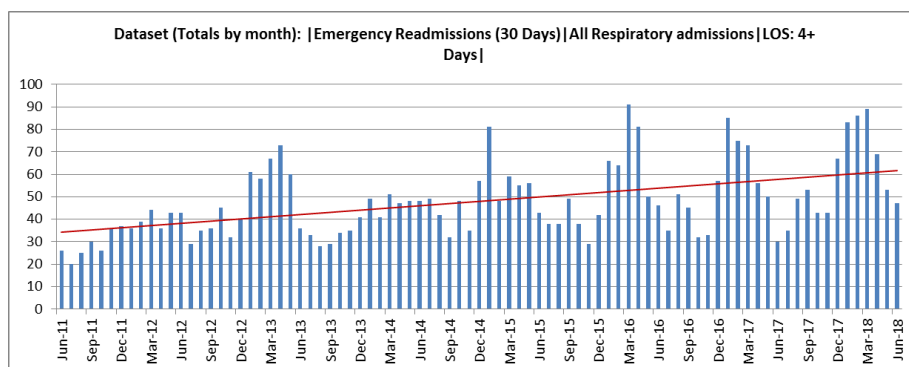
- d. *COPD readmissions* - are increasing, with summer respite only:



e. *Pneumonia readmissions* - are increasing steeply, with winter and spring peaks:

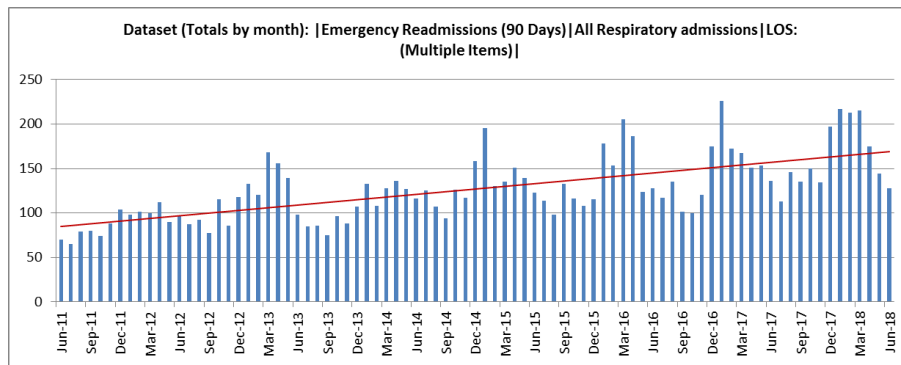


f. *Length of stay for readmitted patients* - the increase in readmissions associates with lengths of stay across the piece, including a significant rise in episodes of 4 or more days' duration:



6. 90-day readmissions (patterns similar to 30-day readmissions)

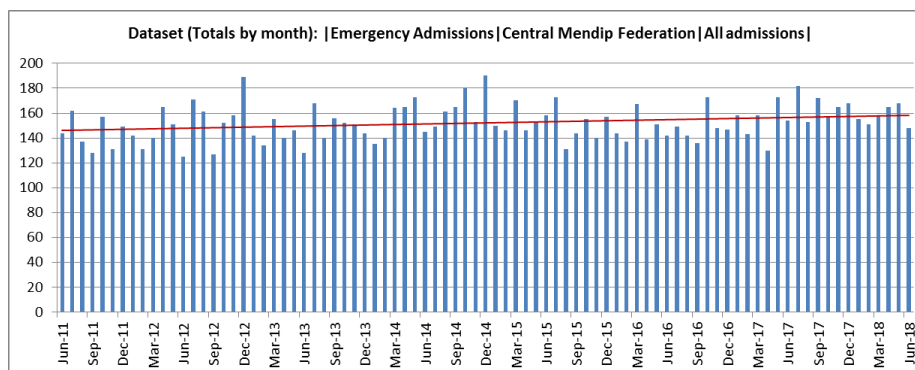
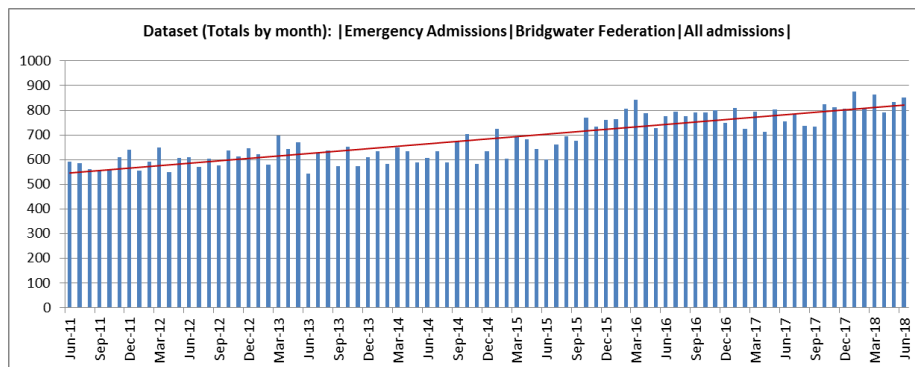
- All-cause readmissions* - are increasing
- All-cause respiratory* - are increasing steeply, but with summer respite:

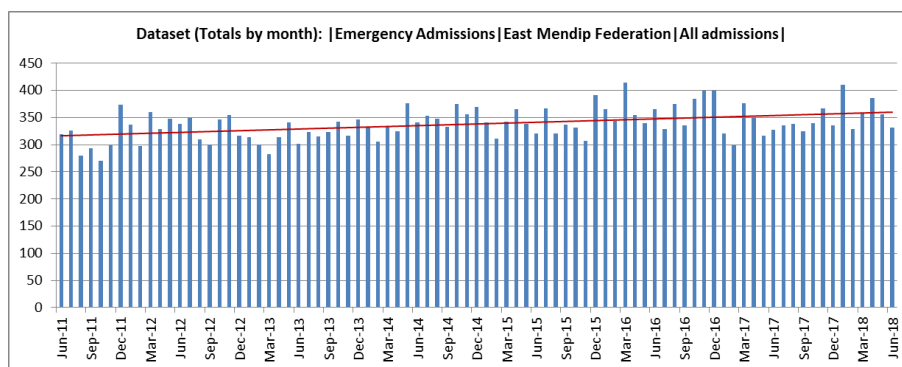


- c. *Asthma readmissions* - slight increase only
- d. *COPD readmissions* - a moderate increase, with summer respite
- e. *Pneumonia readmissions* - are increasing steeply, with winter peaks
- f. *Length of stay for readmitted patients* - the increase in readmissions associates with lengths of stay across the piece, including a significant rise in episodes of 4 or more days' duration.

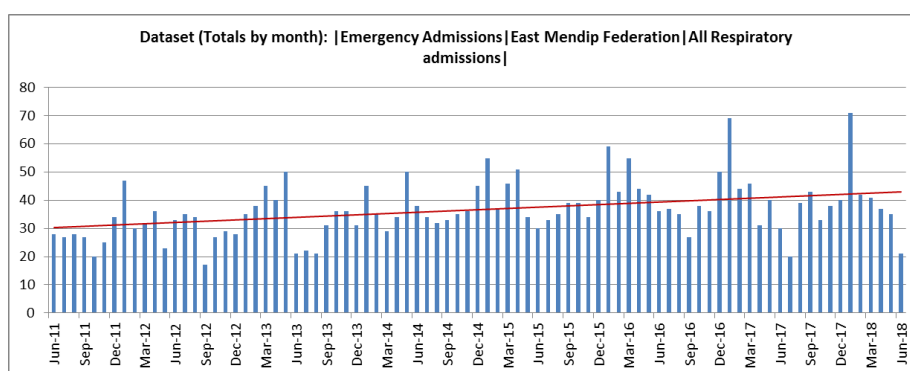
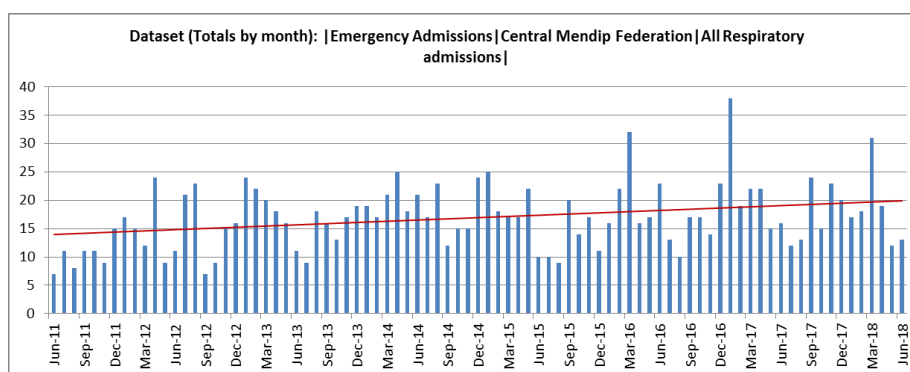
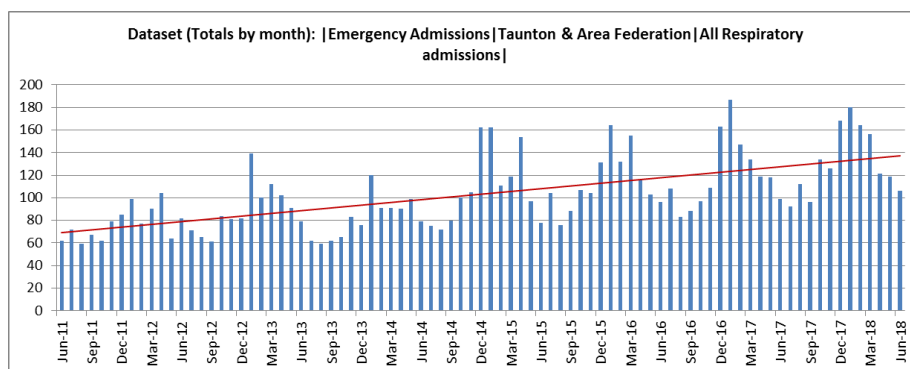
7. Geographic differences: variation by Federation

- a. *All-cause admissions* - Steeper increases in all-cause acute admissions are observable from each Federation, with the exception of Central and East Mendip:



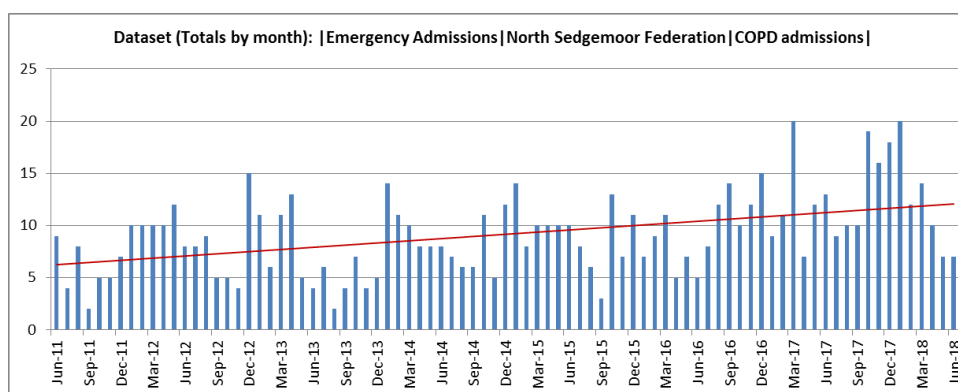
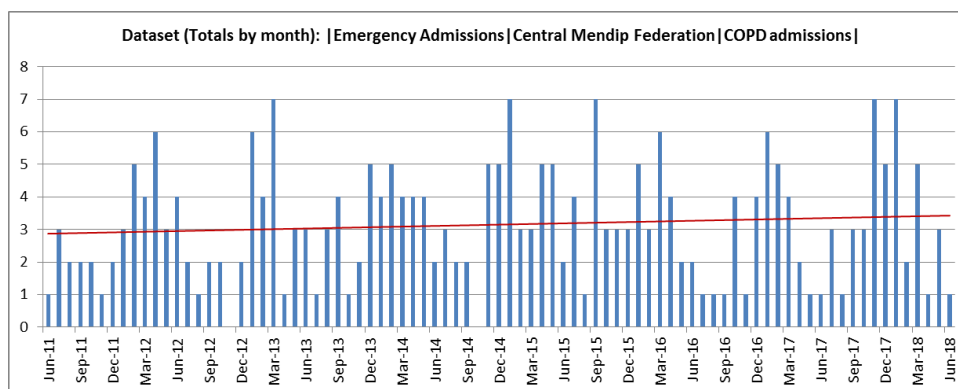
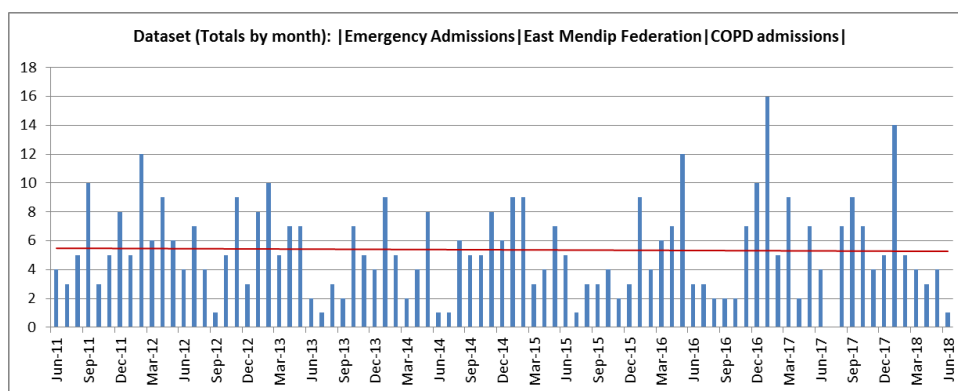


- b. *All-cause respiratory admissions* - The same pattern follows for all-cause respiratory admissions:

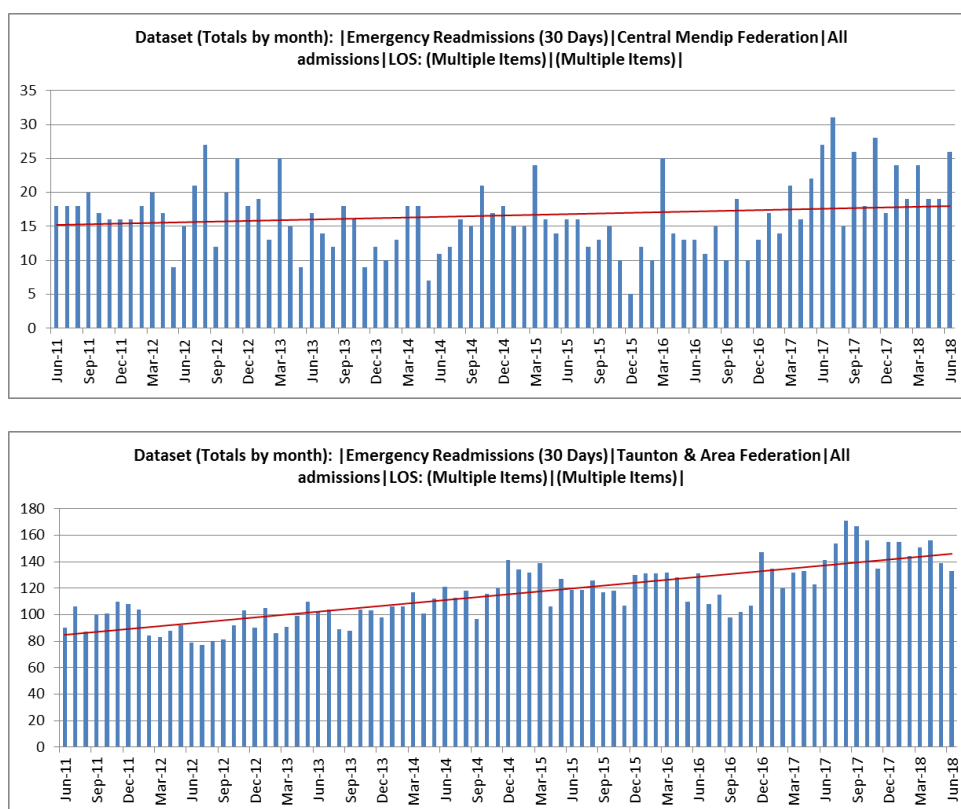


- c. *Asthma*: Central Mendip has very few asthma admissions. The relatively small increase in asthma admissions arises from South Somerset, Taunton and Bridgwater Federations in the main.

- d. *COPD* - Admissions for COPD have reduced from East Mendip (albeit small numbers) and have risen only slightly from Central Mendip. The rise in COPD admissions is accounted for mainly by patients from Bridgwater, North Sedgemoor, South Somerset, Taunton and West Somerset Federations:



- e. *Pneumonia*: Patients from all Federations contribute to the significant rise in pneumonia admissions.
- f. *30-day readmissions* - the rise in 30-day readmissions is least from Central and East Mendip:



- g. *90-day readmissions*: the rise in 90-day readmissions seems least from Central and East Mendip, with the same patterns observed as for 30-day readmissions.

8. Summary

Admissions continue to increase inexorably, though there is variance across age deciles and disease type. The increase in asthma admissions is less obvious than that for pneumonia and COPD. The increase in admissions is accounted for by a marked rise in episodes of short duration, except for pneumonia which associates with longer lengths of stay. The older age groups contribute primarily to the increase in pneumonia and COPD admissions, the former disease receiving a major contribution from the oldest deciles. The increase in asthma admissions comes from younger age deciles in the main. With the exception of asthma, both thirty-day and ninety-day readmissions are increasing (particularly pneumonia, which is rising sharply). In contrast to initial admissions, where the main rise associates with short-duration episodes, readmissions associate with longer lengths of stay. Proportionately fewer patients are admitted or readmitted from Central and East Mendip Federations.

9. Making an impact: opportunities for development/mitigating the rise in admissions and readmissions

The data suggest there is an urgent need to address rising and seasonal peaks in respiratory admissions/readmissions.

There are well-recognised, evidence-based, high-value interventions that have significant positive effects on respiratory admissions, readmissions and length of stay. These include 'flu/pneumonia vaccination, smoking cessation (for both in-patients and outpatients),

pulmonary rehabilitation (PR, including post-exacerbation PR for COPD cases) and supported/early discharge and admissions avoidance teams for those with COPD.

We therefore recommend strongly that these services be supported fully as they are highly likely to impact upon outcomes, and hence the local health economy, especially during seasonal peaks.

In particular:

- There should be improved access to smoking cessation services across Somerset for all patients with respiratory disease, whether or not they are in hospital.
- There should be increased provision of, and access to, PR across Somerset.
- The Respiratory Programme Group supports the development of an integrated COPD team (outlined also within its original Right Care submission), underpinned by robust clinical leadership (as exists in other counties/CCG's): to provide community support for patients with unstable COPD (and other respiratory conditions in due course); to facilitate supported discharge/admissions avoidance; to deliver enhanced breathlessness management; to support patients via motivational interviewing techniques; to link with evolving multi-morbidity and chronic disease services; to smooth the winter peaks in admissions, hence reducing downstream perturbations within the acute sector bed-base.

The data suggest there are additional interventions that could make a difference:

a. COPD:

- i. The Programme Group proposes the formation of an informal clinical network group (which could meet in person, or virtually, on the same day as our Board meetings) to foster and embed links between developing respiratory, multi-morbidity and other chronic disease services.
- ii. To permit benchmarking, improve case ascertainment and diagnostic accuracy, the Respiratory Programme Board should incorporate into its' data dashboard Practice-level data relating to observed and expected numbers of patients on COPD registers.
- iii. To reduce the incidence of medication-associated pneumonia, ongoing work to reduce unnecessary ICS use in COPD patients should continue, with anti-inflammatory treatment determined by the current eosinophil-driven treatment algorithm.

b. Pneumonia: has the steepest rise in admissions and readmissions, with particular peaks during the winter. The oldest age groups show the greatest increases, with the narrowest winter peaks. The rise in pneumonia admissions (and readmissions) associates with longer lengths of stay.

- i. To understand the reasons for increasing pneumonia admissions, undertake a prospective case-notes review and audit the management of these cases against current BTS guidelines, making subsequent quality improvement recommendations dependent upon the outcome.
 - ii. Audit the discharge coding of pneumonia against the radiological presence of pneumonia, to ascertain diagnostic accuracy.
 - iii. Introduce to routine practice the use of pneumonia care bundles for hospitalised patients.
 - iv. Review the antibiotic policy for managing community-acquired pneumonia in Somerset, revising if necessary.
 - v. Consider developing public health initiatives to heighten awareness of pneumonia in older people.
- c. *Asthma*: admissions and readmissions haven't changed very much across the oldest age groups, though more recent, yet modest, increases are noticeable for patients up to the age of 75 years:
 - i. The data suggest asthma initiatives should be targeted towards the younger age deciles.
 - ii. BTS asthma care bundles, which improve readmission rates and medication adherence, should be completed for all patients attending hospital with unstable asthma, including those with unscheduled visits to ED, and communicated back to GP practices.
 - iii. All younger patients with severe asthma should have formal arrangements in place for transition between paediatric and adult respiratory outpatient care.
 - iv. There should be equitable access to biologic agents across the County, achievable via improved joint working between MPH, YDH and WGH.
- d. *Winter initiatives*: there is striking seasonal variation in respiratory admissions, particularly for COPD and pneumonia; the latter has sharp winter peaks and is more prevalent in older people.
 - i. It would seem logical to target extra community-based resource to manage unstable respiratory disease during the autumn/winter months.
 - ii. Incorporate the resource management of seasonal respiratory peaks into the CCG/Trust Winter plans.
- e. *Impacting upon length of stay*: the rise in admissions and readmissions, excepting pneumonia which ranges across piece, associates particularly with episodes of shorter duration (most notably zero and 1-day length of stay). This suggests that

many patients, with the right risk assessment and community support, could be managed out of hospital:

- i. Work in tandem with other services to develop improved means of community support for patients with unstable respiratory disease and multi-morbidity/frailty.
- ii. Instigate, where there is an evidence base, risk assessment protocols that would facilitate the home management of patients with unstable respiratory disease (eg DECAF score for COPD) and frailty.

f. *Understanding geographic variations:*

- i. Consider why the rise in admissions and readmissions is lower from Central and East Mendip than from other Federations.
- ii. Compare, contrast and optimise 'flu and pneumonia vaccination rates across GP practices and in secondary care.

g. *Education*

- i. Continue to promote improvements in respiratory care and education via existing links between the Respiratory Programme Group, Practice Nurse Network and Somerset GP Education Trust.
- ii. The Respiratory Programme Group should continue to promote its' concise COPD guidance across Somerset GP practices.
- iii. The annual practice nurse and GP education days should contain content around the causes and management of pneumonia.
- iv. The Respiratory Programme Group should continue to promote the latest asthma guidance widely via GP/Practice nurse leads and its' association with the GPET and practice nurse network.