Q3/4 Bed Capacity and Demand Modelling Scenarios

- Updated 10/9/2020

"All Models Are Wrong, Some are useful"

Four Scenarios shown utilising intelligence from:

1) **Covid Demand**: 2 Welsh specific seeded models from the Wales Winter Reasonable Worst Case Scenarios(released by PHW/TAG 24th Aug):

   - Swansea University model (adapting the London School of Hygiene and Tropical Medicine) - refined further on 10th Sept
   - Armakuni (adapting the Oxford University model)

2) **Non Covid Emergency demand:**

   - using our actual 3 year average growth (all scenarios)
   - existing data from our 1st Covid Wave for Non respiratory emergency demand deductions (Scenarios 2&4)

3) **Elective demand:** provided by SBUHB SDUs

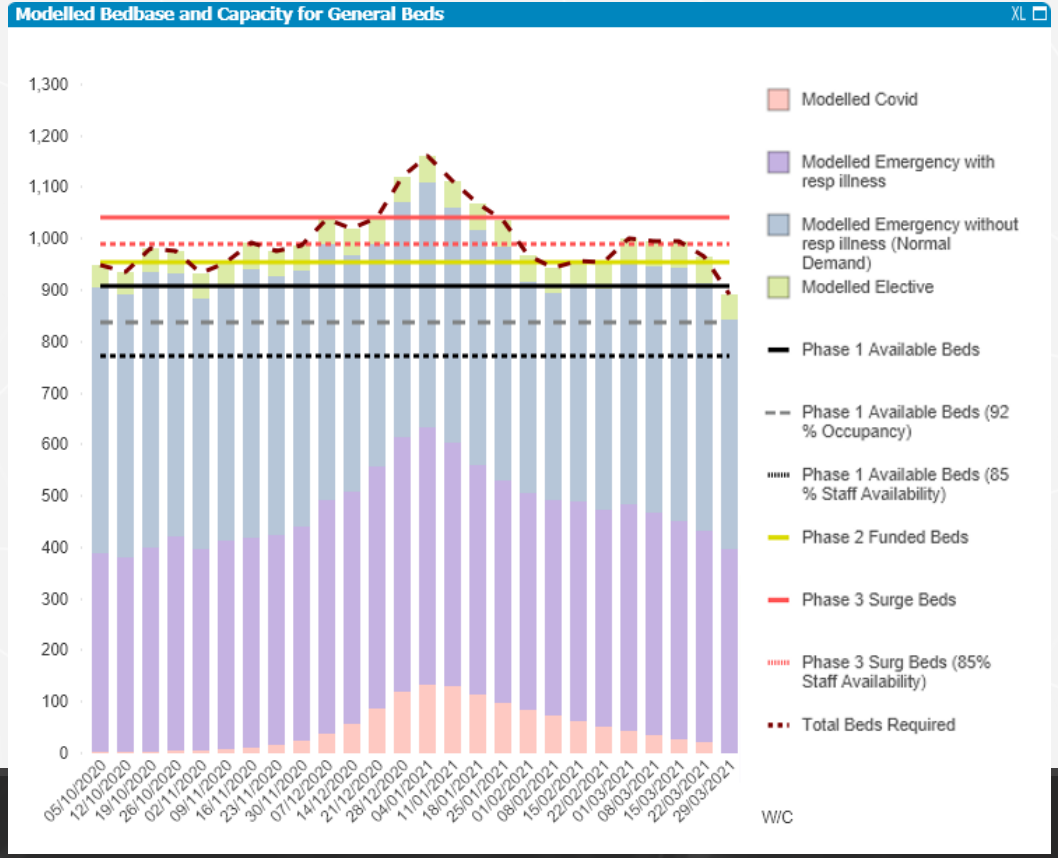
4) **Bed capacity figures:** provided by SBUHB SDUs

Wales Winter Reasonable Worst Case Scenarios – steering points

- Age-profile of cases will be younger - as a result of differential behavioural patterns.
    - Younger people are more likely to be asymptomatic or mildly symptomatic and therefore less likely to be tested.
    - This will subsequently inevitably lead to increased incidence in higher risk groups.
- A higher proportion of infections may be in harder to reach groups, such as South Asian communities.
- The nature of exponential growth means that, at first, there will be only a slow accumulation of new cases, but the prevalence of infection will increase more rapidly as time progresses.
- As we move into winter, infected people may be more likely to assume their symptoms are caused by another seasonal virus. They may be less likely to report symptoms if incidence is low in their local area, so that they consider it unlikely that they have COVID-19.

Winter Emergency Demand Scenario 1: General Beds

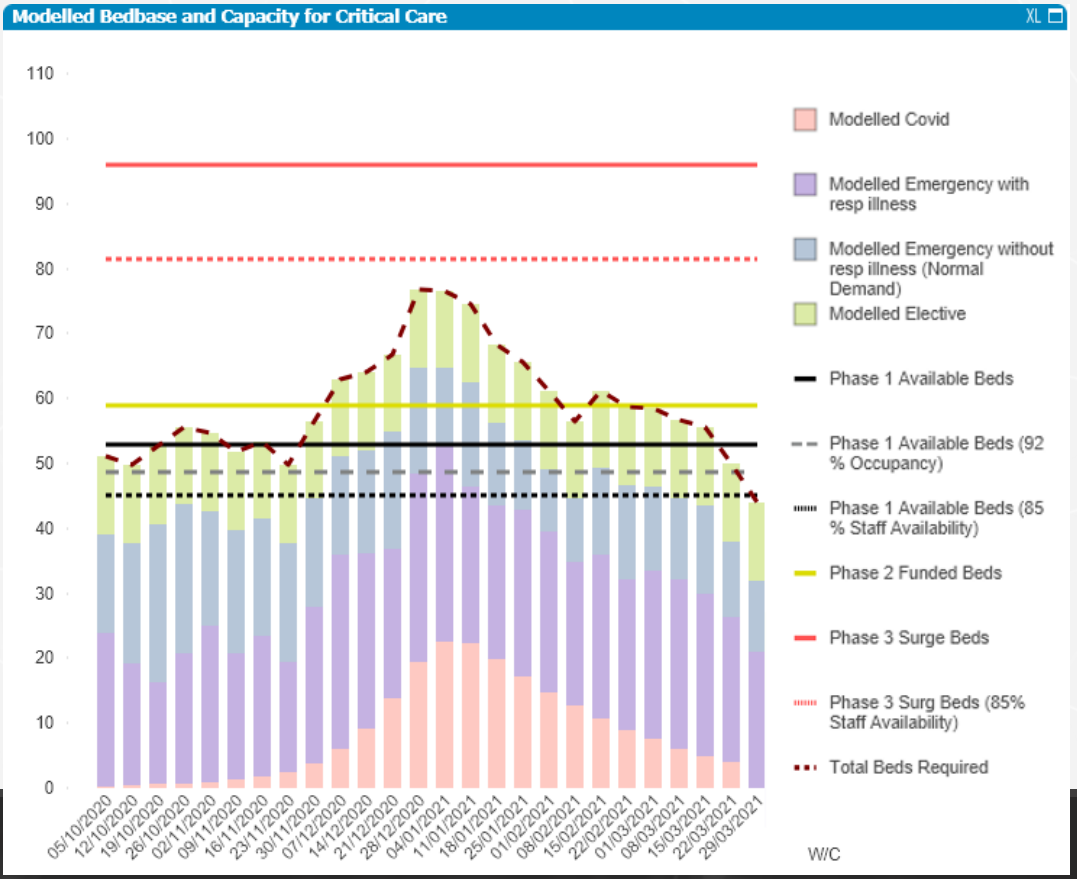
3 year Average growth rate with Swansea University model used for Covid Demand



- **There will not be enough capacity to meet emergency demand without using all 3 phases of capacity, with Phase 3 Surge breached for a 3 week period.**
- **Some electives would need to be cancelled.**
- **IPC bed distancing guidelines will need to be Risk Assessed**
- **Will not be able to meet our 92% occupancy commitment to maintain patient flow.**

Winter Emergency Demand Scenario 1: Critical Care

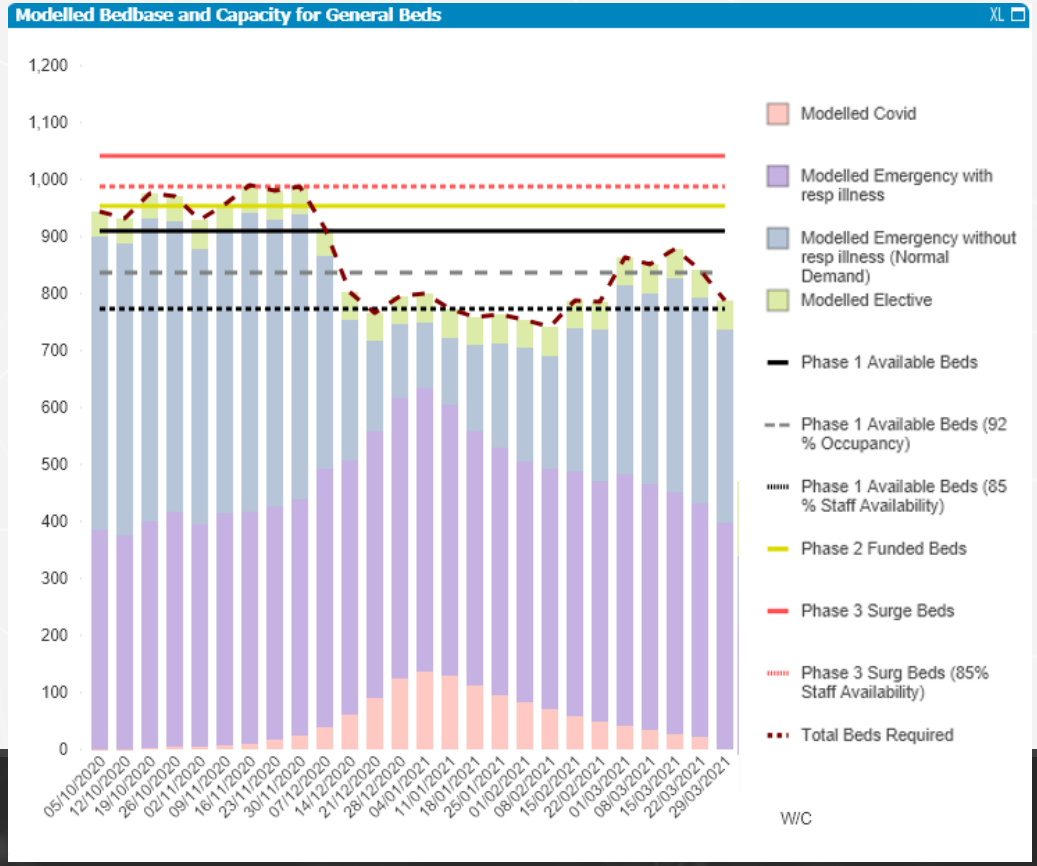
3 year Average growth rate with Swansea University model used for Covid Demand



- **There will not be enough capacity to meet emergency demand without using all 3 phases of capacity.**
- **Electives would need to be cancelled and reviewed.**
- **IPC bed distancing guidelines will need to be ignored.**
- **Will not be able to meet our 92% occupancy commitment to maintain patient flow.**

Winter Emergency Demand Scenario 2: General Beds

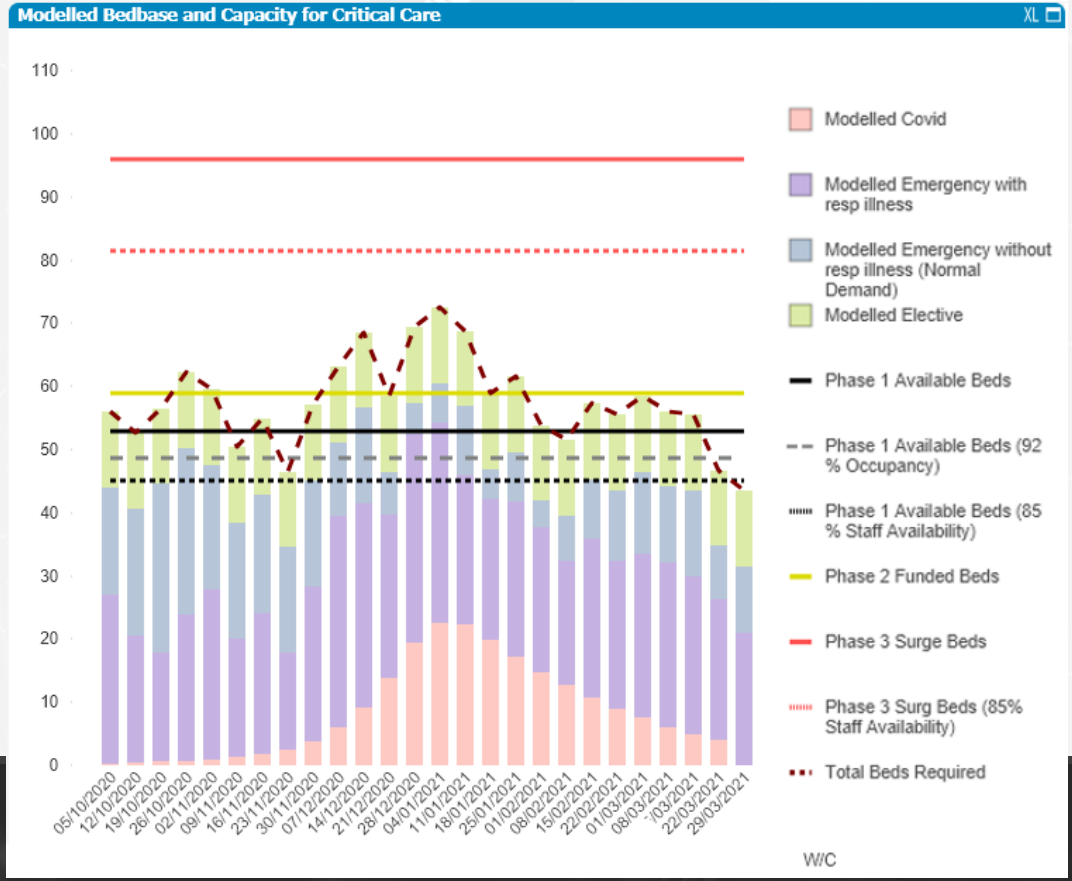
3 year average growth rate with non respiratory emergency distributions matched to our 1st Covid Wave actuals. Swansea University model used for Covid Demand



- **Demonstrates what might happen if citizen behaviours and non respiratory emergency demand mirrors our 1st wave.**
- **Surge capacity not need for emergency admissions.**
- **Less of an issue with electives**
- **Demonstrates peak Covid demand compensated for by general reductions in occupancy.**

Winter Emergency Demand Scenario 2: Critical Care

3 year average growth rate with non respiratory emergency distributions matched to our 1st Covid Wave actuals. Swansea University model used for Covid demand

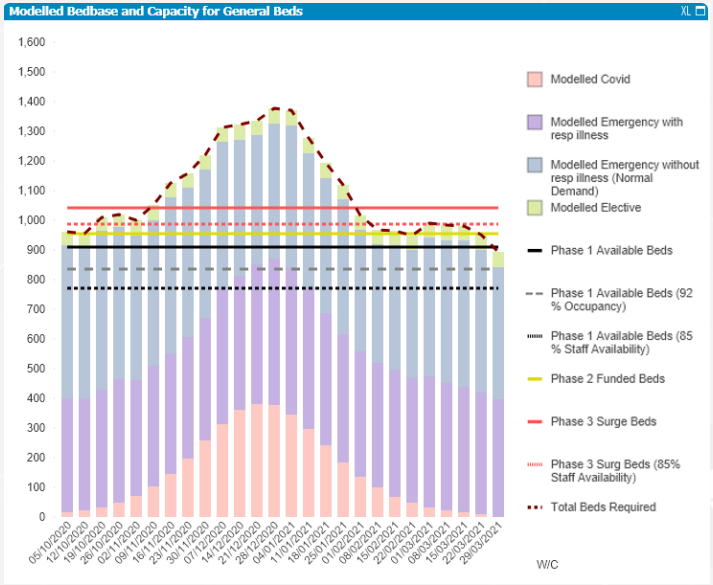


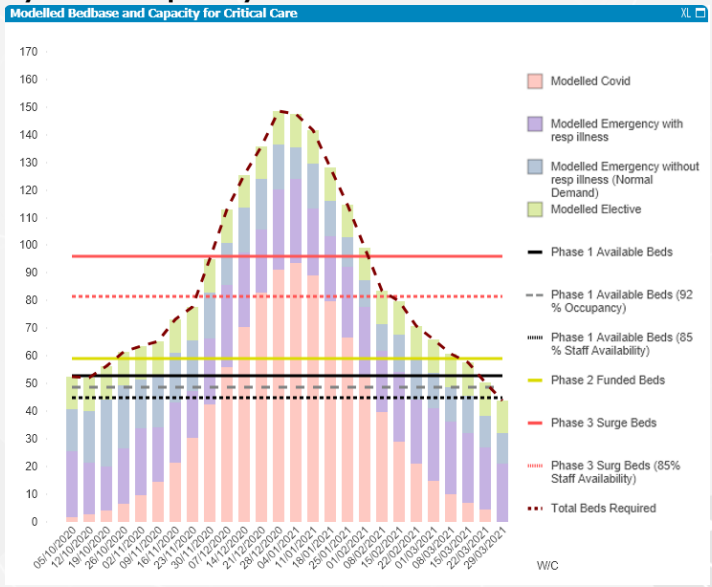
- **Demonstrates what might happen if citizen behaviours and non respiratory emergency demand mirrors our 1st wave.**
- **Demonstrates peak Covid demand will be lower than experienced during our first wave.**

Winter Emergency Demand Scenario 3:

3 year Average growth rate with Armakuni Model used for Covid demand

General Beds & Critical Care Bed Occupancy and Capacity



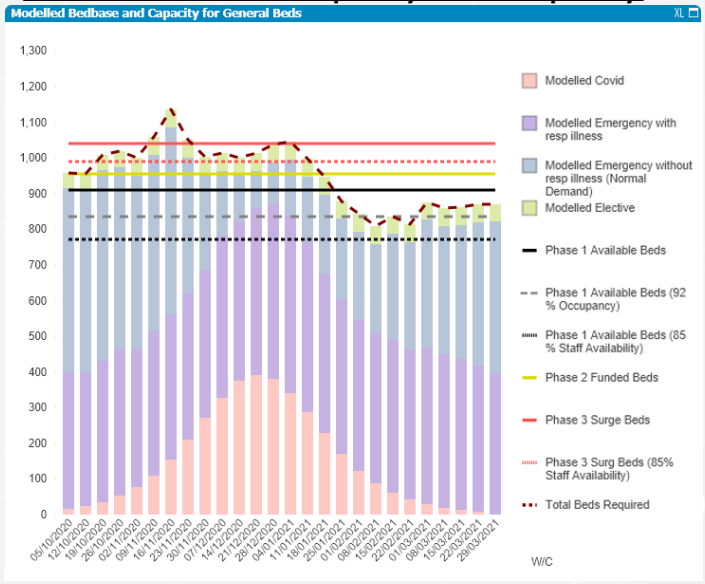


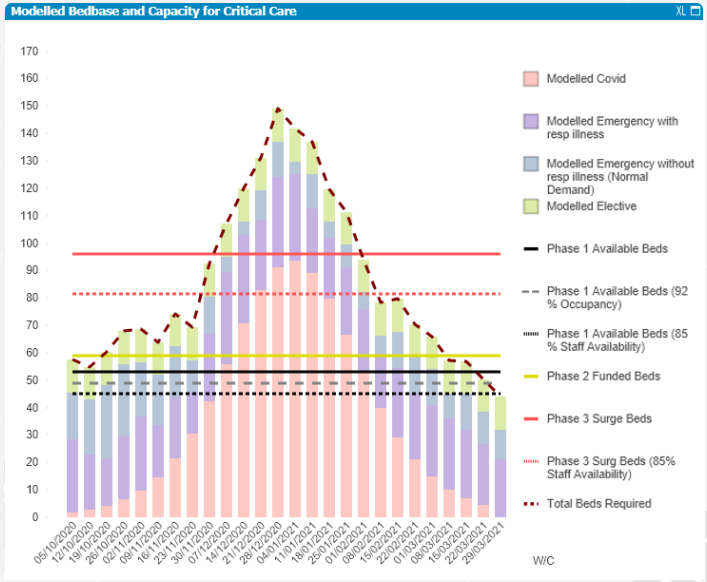
- **Much higher demand for beds compared to Swansea University Model**
- **Local surge capacity exceeded for both general beds and critical care beds**

Winter Emergency Demand Scenario 4:

3 year average growth rate with non respiratory emergency distributions matched to our 1st Covid Wave actuals. Armakuni model used for Covid demand

Critical Care Occupancy and Capacity





- **Shows what might happen if citizen behaviours and non respiratory emergency demand mirrors our 1st wave.**
- **Much higher demand for beds compared to Swansea University Model**
- **Local critical surge capacity exceeded for nearly 2 months.**
- **One data pint exceeding surge capacity for general beds.**