



# **Bed Base Review**

## **Phase 1 Report**

July 2023

V4.1 - October 2023 Board  
version

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NB Section 7 redacted for public Board paper - GDPR

# 1. Introduction

This report summarises the activities and outputs in response to the Chief Executive Team (CET) sponsored commission *Aberdeen Royal Infirmary Realignment of beds, April 2023*. The CET are asked to note the outputs and consider the recommendations which will form the basis of an operational delivery plan that adds value to the ongoing improvement work across the system to prepare well for winter 23/24.

## Methodology

A governance structure was developed to provide assurance through Portfolio Executive Leads Group to CET, and to enable system-wide decision making and service ownership. A project tracker was established containing actions, decisions, risks and issues.

The core project team meets informally and formally weekly. A Project Delivery Board with clinical and service representatives was established to ensure system ownership and leadership. The Delivery Board meets weekly to oversee and support action plans being progressed at pace by individuals or working groups. In addition, named individuals from key enabling and support services (e.g., HR, Workforce, Communications, Facilities, Finance) have been aligned to the project to provide expert advice and guidance.

Working groups have been commissioned by the delivery board to take forward specific pieces of work. To date these groups are:

- Data and Intelligence
- Communications and Engagement
- Workforce, Recruitment and Organisational Change
- Physical Space and Infrastructure

## 2. Approach to Data, Intelligence and Modelling

(Note: all data modelling in this paper and supporting documentation relate to Aberdeen Royal Infirmary unless otherwise stated)

### Primary Outcome Measure

Number of Beds ARI:

After considering the available range of key performance indicators and their linked targets, the project team felt that modelling would best be based on Occupancy rates because:

There is a proven correlation between occupancy rates and

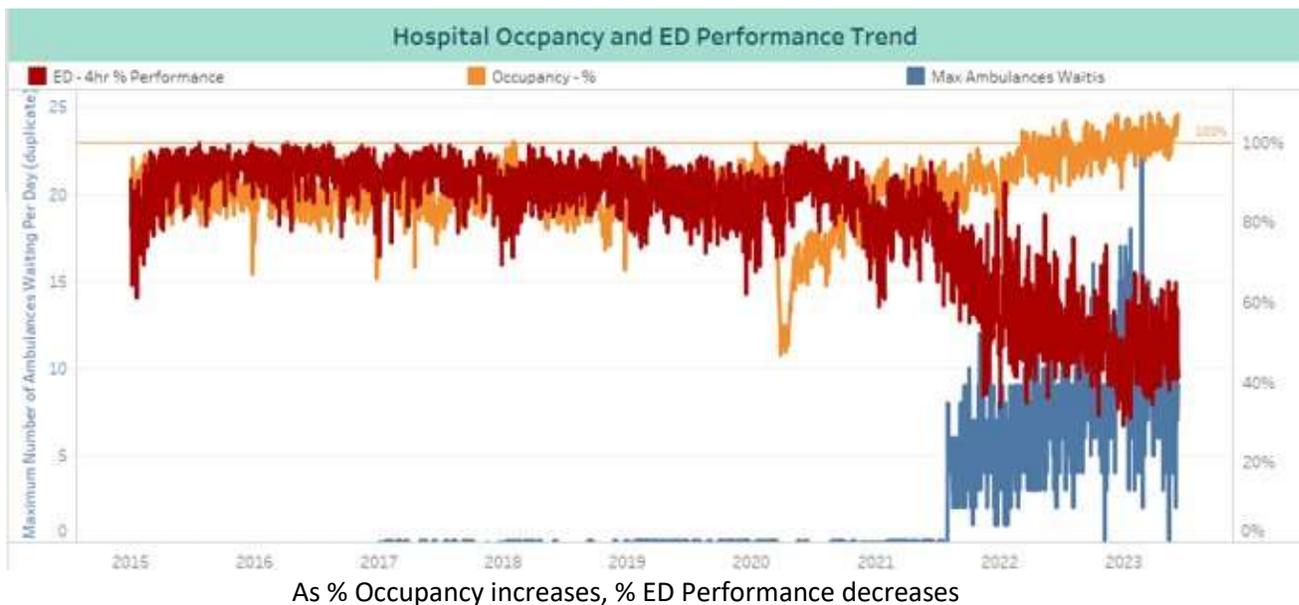
1. the 4 Hour standard
2. SAS cohorting times

It also provides a measure for further and ongoing improvements within specialties (e.g. length of stay, day case utilisation).

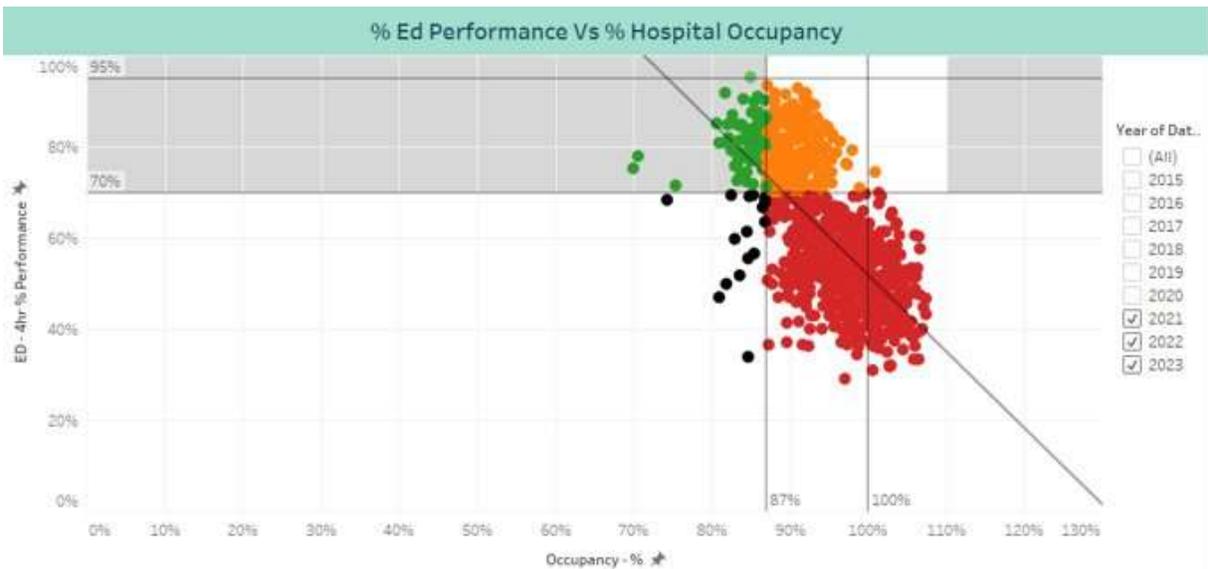
Occupancy rate modelling ensures a more comprehensive 'Whole system / People-Place-Pathway' approach to the commission and moves it beyond the front door. A baseline target of **87%** was agreed based on research from the Health Foundation<sup>1</sup>

Our intent relating to 4 Hour ED performance for winter 2023 is to achieve 70%.

### Correlation between % occupancy and % ED performance



<sup>1</sup> The Health Foundation REAL Centre; Projections: General and acute hospital beds in England (2018-2030), July 2022



Linear correlation between % occupancy and % ED performance

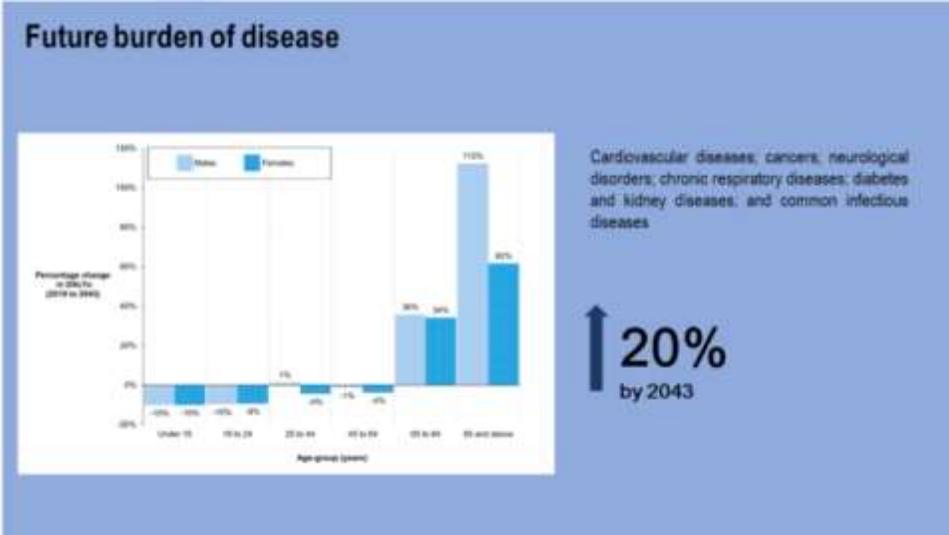
## Validation

The modelling tool developed through Health Intelligence has been shared and tested with Operational Teams from Medicine & Unscheduled Care and Integrated Specialist Care Services portfolios. Further validation work was undertaken to correct discrepancies and adjustment of assumptions to realign coding of beds to reflect the true position.

Modelling is based on the previously recorded levels of demand, and therefore the additional capacity described is to achieve stabilisation of services, reduction of corridor care and boarders, reduction in ambulance stacking. This model does not consider the bed base requirements for clearing the waiting list backlog. However, with the approach implicit in this model, is the understanding that because of delivering this capacity a corresponding level of protection for Planned Care previously not achieved is realised.

## Future Proof

This work acknowledges and notes the future burden of disease is predicted to increase over the coming years, with resultant increases in the demand pressures. The inclusion of this variable is beyond the scope of this work presently as is considering the impact of future Portfolio redesign and Pathway redesign work utilising community care only models.



**Result**

Our validated scenario model predicts the following relationships between our Primary Outcome Measure and dependent variables:

| Additional Number of Beds | Scenario  | Predicted ARI % Occupancy | Predicted ARI ED % Performance | Predicted NHSG ED % Performance |
|---------------------------|---|---------------------------|--------------------------------|---------------------------------|
| 120                       | Clear Corridor Care, repatriate all Boarders and allow turnaround space   | 87%                       | 74%                            | 79%                             |
| 100                       | Clear Corridor Care and repatriate all Boarders   | 89%                       | 70%                            | 77%                             |
| 92                        | Clear Corridor Care and repatriate all General Medicine and Geriatric Medicine Boarders                         | 91%                       | 69%                            | 77%                             |
| 80                        | Clear Corridor Care and repatriate about three quarters of Boarders   | 92%                       | 66%                            | 75%                             |
| 74                        | Clear Corridor Care and repatriate Geriatric Medicine Boarders and about a quarter of General Medicine Boarders | 93%                       | 63%                            | 73%                             |
| 60                        | Clear Corridor Care and repatriate about a half of Boarders   | 94%                       | 61%                            | 72%                             |
| 40                        | Clear Corridor Care and repatriate about a quarter of Boarders  | 97%                       | 57%                            | 70%                             |
| 20                        | Clear Corridor Care   | 100%                      | 52%                            | 68%                             |
| 0                         | Do nothing  | 103%                      | 46%                            | 64%                             |

**Based on a Bed occupancy rate (87%) and ARI ED performance (70%) the additional capacity required in ARI is 120 beds.**

Engagement with portfolio management teams, the wider system at the Co-production Event (see section overleaf) and with the Project Delivery Board itself confirmed acceptance and support.

### 3. Communication and Engagement

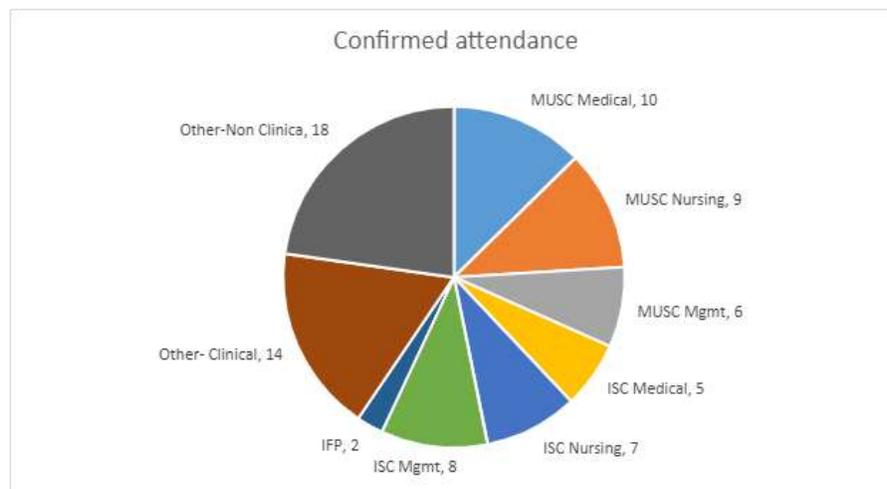
A key element of the commission was to ensure visible leadership, a transparent shared process and co-development with colleague engagement across all professions and services.

Communication and engagement activities ranged from small-scale meetings with one or two colleagues to system engagement via the Daily Brief and Portfolio communication channels.

A colleague feedback form was distributed to capture hopes, fears, questions, and suggestions. Over a five-week period, 160 response forms were received. Each response was read, an FAQ document was produced and distributed back through the system, and the suggestions raised were taken forward to the co-production event held on 22 June 2023.

#### 3.1 Co-Production Event – Pittodrie Stadium 22nd June 2023

79 individual stakeholders from across the system and across professional groupings joined a co-production event on 22<sup>nd</sup> June. A comprehensive Data Pack was sent to all participants ahead of the event outlining the various data sets used, and data leads were available to provide more detailed information. The event was facilitated using recognized facilitation methods, although the methods used would have been unfamiliar to many participants, encouraging them to think outside traditional boundaries and structures.



156 individual suggestions received via the colleague feedback form, along with 151 ideas generated on the day itself were distilled down to 14 themes, which were then further ranked to 4 priority themes. Discussions and ideas relating to the initial 14 themes have been captured. It is recognised that some of

these lie within existing programmed work. The 4 priority themes were taken forward for further feasibility studies with the project delivery board.

### Progress Updates

160 responses to colleague feedback from with 186 ideas or suggestions

Physical space & Infrastructure subgroup established to review options for location of additional capacity

Further refining of data modelling

Coproduction event held 22/06/2023- approx 80 delegates

- 14 emergent themes
- 4 priority themes

| A  | B  | C  | D  |
|--|--|--|--|
| High Dependency Pathway                    | Increase bed capacity & how do we use additional capacity<br>★ | Opening of Wards 303 and 304                 | Discharge Planning and Coordination<br>★ |
| E  | F  | G  | H  |
| Creation of capacity outside Acute setting | Delayed Discharges   | What elective treatments should/can we offer | Acute Medicine                           |
| I  | J  | K  | L  |
| 7 Day Service<br>★                         | Alternative methods of delivery                                | Boarders                                     | How do we get to 95%?                    |
|  | M  | N  |  |
|  | Prevention – Reduce flow                                       | Frailty Pathway<br>★                         |  |

★ Indicates priority theme

## 4. Impact on Bed Base number by other Redesign Programmed work

There are several improvement projects and activities ongoing across our health and care system, aimed at improving flow and implementing new care models. Many of the improvements undertaken over the last 12 months have been built into data modelling. We have considered and accounted for plans published or in development that may be relevant later this year and that may influence the bed base number for ARI.

### 4.1 Unscheduled Care Improvement Programme

**4.1.1 Reducing Attendance and Improving Access** – these projects continue to deliver improvements in how patients are managed at or before presentation at the “front door” (Flow Navigation Centre; Rapid Access and Assessment Centre) and further improvements are anticipated in the coming year.

The impact of these projects will ensure patients are managed correctly through the various admission routes and whilst this will naturally ease hospital flow, they are **not considered to result in a lower overall bed capacity requirement.**

| 2. Improving Flow At, Through and Past the ARI Front Door   |          |        |                      |                       |  |
|---|----------|--------|----------------------|-----------------------|--|
| Aim: To reduce unnecessary attendances, improve access and streaming, optimise flow and improve sustainability  |          |        |                      |                       | SG Delivery Plan Recovery Driver(s): Reducing admissions and length of stay  |
| Key Measures  | Baseline | Target | Current (w/e 11 Jun) | Trend (last 12 weeks) | Commentary   |
| Reduce median time from triage to first assessment in ARI ED  | 103      | 90     | 113                  |                       | Test of change aims to reduce time to 90 minutes with longer term aim of reducing time from arrival to 1st asst to 90 mins |
| Increase weekly no. patients seen in RAAC   | 94       | 120    | 116                  |                       | Target is to increase by 25 patients a week from the baseline by end August 2023   |
| 3. FNC Development & Redesign of Urgent Care  |          |        |                      |                       |  |
| Aim: Further develop the FNC as a more sustainable service 24/7 optimising patient pathways and widening access |          |        |                      |                       | SG Delivery Plan Recovery Driver(s): Reducing attendances  |
| Key Measures  | Baseline | Target | Current (w/e 11 Jun) | Trend (last 12 weeks) | Commentary   |
| Increase average no. of calls and referrals per day to the FNC  | 25       | 30     | 32                   |                       | Target is to increase activity by 5+ calls per day by Sept 2023 (20% increase compared to baseline)                        |

**4.1.2 Hospital @ Home** – Aberdeen City continues to expand its Hospital at Home service, both in bed numbers and pathways included. The service is aiming to increase from a baseline of 23 admissions per week to 40 per week, by increasing the number of beds available from 37 to 55. By the end of March 2024, offering an alternative to hospital admission or prolonged length of stay.

Significant expansion of this service in the coming years may lead to changes in service delivery but given the still relatively small number of available beds, and the inequity in service across the geographical region it is **not considered to result in a lower overall bed capacity requirement.**

#### 4. Hospital at Home (Aberdeen City)

| Aim: To expand the capacity of Hospital @ Home, both in terms of number of beds available and the specialties/pathways which will have access |          |          |                      |   | SG Delivery Plan Recovery Driver(s): Reducing admissions and length of stay               |
|---|----------|----------|----------------------|---|---|
| Key Measures  | Baseline | Target   | Current (w/e 11 Jun) | Trend Last 12 weeks   | Commentary  |
| Increase number of admissions to Hospital at Home (per week)  | 23       | 30 (44)* | 24 =                 |  | *Series of targets; current – c.30 admissions per week; by end of year over 40 admissions |
| Increase number of beds available   | 37       | 55       | -                    | -   | Aim is to increase capacity to 55 beds by end of the year                                 |

4.1.3 Optimising Patient Flow/Discharge without Delay – this project focuses on improving flow through the system, reducing waits and failed discharges. Substantial progress has been made over the last 12 months and targets for the coming year have been set. This project is active in many areas identified by colleagues during the bed base review work, and the project team will forward other relevant information and suggestions to the OPF Board for consideration. **The improvements delivered by this project will continue to contribute to reducing occupancy rates and should remain a key area of focus.**

#### 7. Discharge without Delay (OPF)

| Aim: To improve flow through the system, in terms of reduced waits and failed discharges. |               |               |                      |                     | SG Delivery Plan Recovery Driver(s): Reducing admissions and length of stay   |
|---|---------------|---------------|----------------------|---------------------|---|
| Key Measures  | Baseline      | Target        | Current (w/e 11 Jun) | Trend Last 12 weeks | Commentary  |
| Reduce number of Delayed Discharges in ARI  | 21            | 16            | 21 =                 | -                   | Data for ARI as DGH have undertaken improvement work that is leading to sustained improvement (but will continue to monitor)  |
| Reduce Number of Delayed Transfer of Care   | 23            | 18            | 23 =                 | -                   |   |
| Reduce Length of Stay   | 6             | 4             | 6 =                  | -                   | Impact will be observed once the Patient Navigator team is recruited. Anticipated 20-40% reduction in LOS for boarded patients.   |
| Reduce 7 and 28 day readmissions  | 5.9% / 10.27% | 4.41% / 9.26% | 5.9% / 10.27%        | =                   | April data most recent available.   |
| Increase PDD accuracy for today and tomorrow  | 4% / 10%      | 25% / 40%     | 4% / 10%             | -                   | PDDs are in use however data analysis demonstrates there is poor degree of accuracy and anecdotal evidence of incomplete MDT planning. Pilot underway to refine and spread improved process – data applies to pilot ward (107). |

## 5. Proposed Step Wise Approach for Additional Capacity

As outlined in this paper, an additional 120 beds is required to deliver our intent. We have outlined a staged approach to delivering additional capacity. This takes into consideration both deliverability and affordability whilst providing the opportunity to review impacts of other local-regional or national plans.

| Timeframe   | Aim             | Impact  | Workforce cost*       |
|---|-----------------|---|-----------------------|
| <b>Stage 1a</b><br>(to March 2024)  | 40 beds         | Clear corridor care; repatriate around ¼ of boarders<br><br>**Additional geriatric medicine beds; Stroke Rehab Unit; realign unfunded beds for stroke/ED                        | £5,612,000            |
| <i>Review impact of Stage 1a</i>  |                 |   |                       |
| <b>Stage 1b</b><br>(March- June 2024)   | 34 beds         | Clear corridor care; repatriate all geriatric medicine boarders and around ¼ of general medicine boarders<br><br>**Medical HDU beds; 30 additional beds for medical specialties | £4,770,000            |
| <i>Review impact of Stage 1, ongoing redesign work, and further exploration of alternative pathways/models of care to inform placement and function of Stage 2 capacity</i> |                 |   |                       |
| <b>Stage 2</b><br>(July-December 2024)  | 21 beds         | Clear corridor care; repatriate all geriatric and general medicine boarders   | £2,947,000            |
| <i>Review impact of Stage2, ongoing redesign work, and any changes to pathways/models of care to inform placement and function of Stage 3 capacity</i>                      |                 |   |                       |
| <b>Stage 3</b><br>(Jan-June 2025)   | 25 beds         | Clear corridor care; repatriate all boarders; allow turnaround space  | £3,508,000            |
| <b>TOTAL</b>  | <b>120 beds</b> |   | <b>£16,837,000***</b> |

\* Workforce requirements were modelled on 95 'general medicine' and frailty beds, and used as the basis for the extrapolated calculations for each stage. It should be noted it is unlikely to be a linear relationship between staffing numbers and bed numbers, particularly for CSS services.

\*\* Suggestions for allocation of additional beds in first stage. Further discussion and agreement will be needed before progressing

\*\*\* These costs are "best case scenario" substantive staffing. Worst case scenario of wholly agency staff approximately £19,406,000 total for 120 additional beds.

## Other costs

Additional non-pay equipment and consumable costs will be incurred by support services (e.g. labs, radiology, facilities and estates).

Suitable accommodation for 120 additional beds is not available within ARI footprint. A number of options are available to deliver the additional footprint.

| Option 1  | Option 2   | Option 2  |
|---|--|---|
| <p><b>Refurbishment of existing locations in ARI</b> (including relocation of non-clinical services).</p> <p>Indicative cost: <b>£210,000</b></p> | <p><b>Modular Ward units</b> on shale car park or tennis court (various sizes available).<br/>Indicative cost: 48-bed unit <b>£9,500,000 (purchase) / £172,000 per month + balloon payment (lease)</b></p> | <p>Explore NHS/HSCP <b>locations across Grampian</b> (e.g. Woodend Hospital, Royal Cornhill Hospital, Fleming Hospital).</p> <p>Indicative cost: <b>not known</b></p> |
| Potential: 74 beds  | Potential: 72 beds (+ future expansion)  | Potential: up to 130 beds   |

*Modular units may be better utilised to relocate existing services to free up space at ARI, which would be at significantly lower cost than the ward units.*

## 6. Conclusion and Recommendations

Based on the agreed model to achieve Bed occupancy rate (87%) and ED performance (70%) the ARI site requires an additional 120 beds, with an associated substantive workforce cost of approximately £16.835million.

At this point there is no evidence to suggest further significant gains in bed requirements from ongoing redesign work.

The complete delivery of the Model within the Timeline stated in our intent for winter 2023 is challenging.

### **Key Recommendations**

#### **The CET are asked to:**

1. Note the detailed Health Intelligence modelling work and engagement done to date
2. Confirm the work to date outlined in this report is compliant with their commission
3. Accept and support:
  - 120 additional beds are required in ARI to achieve 87% occupancy and a 4 Hour standard of 70%
  - A staged approach should be adopted.

#### **Next step:**

To create the opportunity to discuss, agree and define Operational-Tactical-Implementation / Delivery Performance plan in a Place-Person- Pathway based approach.