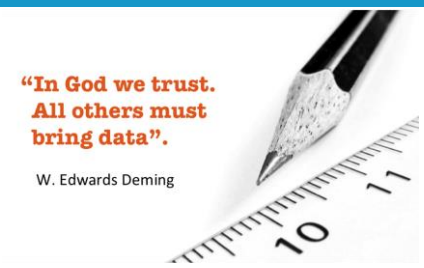
NHS
Ambulatory Emergency Care Network

# Measurement Factsheets

## #6 – Using the 2x2 Matrix




### Background and context to this fact sheet

Across the AEC network many sites have found it useful to consider the three core questions for measurement of AEC activity alongside the 2x2 matrix shown below. This gives us a practical way to assess 'right patient, right place, right time' with respect to AEC service provision.

**Three Core Questions for Measurement of AEC Activity:**

1. Who are the AEC patients—are they the ones you thought you'd be attracting?
2. How effective is the service in terms of decision-making? How many patients are you missing and how many should not have come into the unit?
3. How effective is the service in terms of outcomes? This should be covered by the measures you've chosen to track your aims.

| | Managed in AEC | Not Managed in AEC |
|---|---|---|
| **Appropriate for AEC** | **Box 1:** **Success** (expect around 10-15% conversion) | **Box 2:** **Missed Opportunity** (clinically conservative / AEC capacity) |
| **Not appropriate for AEC** | **Box 3a:** **Wasted Capacity** (Non-Urgent Case) | **Box 4:** **Appropriate** Inpatient / outpatient care |
| | **Box 3b:** **Potential Clinical Risk** (Patient too acute ± too complex) | |

### Using the Matrix

When planning to further develop their AEC services, most sites expect to be able to demonstrate improvement in emergency patient flows. Typically we assess this in terms of impact on outcome measures such as:

- 4 hour target in the emergency department
- Average length of stay in ED
- Ambulance handover times
- Emergency bed day usage

The crucial link between these outcome measures is that the service needs to be operating effectively in order to see sufficient volume of patients and have the desired impact as well. In summary, we want to have operational efficiency and make sure that the majority of the patients seen are in Box 1 rather than in Box 3 in the 2x2 matrix. The desired outcome ultimately is that those seen have good clinical outcomes. Simply monitoring the number of patients being seen in a service is not sufficient to five this confidence. Ideally we would ensure we have operational effectiveness before making any investments to increase the capacity of AEC services.

Once we have this assurance, a focus on Box 2 'missed opportunity' in Figure 2 gives us direction on how to develop the services and achieve a greater impact on emergency patient flows.

### Assessments to Populate the Matrix with Numbers

The next question is how do we make these types of assessments? This diagram gives us some guidance:

| | Managed in AEC | Not Managed in AEC |
|---|---|---|
| **Appropriate for AEC** | **Box 1: Success**<br>% conversion from AEC (right level)<br>% re-attendance<br>Clinical outcomes / experience | **Box 2: Missed Opportunity**<br>% seen in AEC by AEC Clinical scenarios in the directory<br>**Casefile review** |
| **Not appropriate for AEC** | **Box 3a: Wasted Capacity**<br>Some HRGs may indicate low conversion rates <5%<br>**Casefile Review** | **Box 4: Appropriate**<br>Emergency inpatient / outpatient care / community care |
| | **Box 3b: Potential Clinical Risk**<br>Patients NEWs score<br>High conversion rate >20%<br>**Casefile Review** | |

A useful measure is the proportion of patients who are admitted from AEC to wards. A service that is operating in a clinically conservative manner may have very low conversion rates. Conversely, a very high rate can indicate that decision making is diverting patients who need to be admitted via AEC. Using Statistical Control Chars will help with the interpretation of normal variation. Alongside usual clinical outcome measures, patients reattending and/or readmitting within 7 days may highlight potential problems.


Reducing the number of patients in Box 3 'wasted capacity' overall will increase the impact of the AEC service on overall outcomes. Box 3a essentially explores the question 'would this patient have been admitted if AEC services did not exist?' Some HRGs may indicate a need for further review especially those that are associated with emergency and planned care. For example HRGs associated with patients receiving blood transfusions. Sudden changes or shifts in levels of activity may indicate a need to review thresholds. Other clinically relevant indicators may suggest patients are not clinically stable enough to receive care supported by AEC—such as patients NEWs scores. A casefile review will provide more qualitative insights on the clinical decision making process, answering the question 'could the patient have received care elsewhere—such as ED/Outpatients?' And for those patients who are admitted, 'should the patient have been admitted directly?'

A common analytical approach to understanding Box 2 'missed opportunity' is to analyse the percentage of patients seen in AEC (compared to those who are admitted plus those seen in AEC) using the AEC Directory—see fact sheet No.3. This is with a particular emphasis on patients with short lengths of stay as these patients are more likely to be able to be managed on a same day basis. Reviewing admissions against AEC operating hours may help to identify the most effective operating hours for the service. Various hospitals in the Network have identified 'missed opportunities' through casefile reviews either focusing on post take ward rounds and / or short stay acute admission wards. The focus is this example was 'could I have managed this patient in AEC?' If yes, recording any resource requirements including the requirement for follow-up and support at home. Again the casefile review will bring in a more qualitative perspective and may offer insights into how to enable change.

Developing measures that can indicate operational efficiency are important for AEC. They will help you to understand whether your AEC service is meeting the true demand (patients that need and receive AEC) and not acting as a 'supply side driver' i.e. attracting additional non-emergency activity. This knowledge is key to planning future service development and sustaining improvements.

For more help, contact aec@nhselect.og.uk and check out the Measurement for Improvement Guide on the website.