

# Ambulatory emergency care: how should acute generalists manage risk in undifferentiated illness?

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Primary care provides the majority of healthcare for patients in the UK. There are now increasing options for escalation of care in the context of suspected acute medical illness, beyond the traditional bed-based medical pathway for direct admission or via the emergency department (ED) for critical illness. Nationally, EDs are increasingly congested from rising demand and high hospital bed occupancy limiting flow through the acute care pathway leading to inefficiency and increases in breaches of the four-hour ED target (1). This is associated with clinical risk to patients and staff and financial penalties for Trusts.

Ambulatory emergency care (AEC) offers one solution, to provide an appropriate support to primary care when escalation is needed, and to reduce the use of the inpatient bed-base (2,3), thereby facilitating more treatment of acute illness from a community setting. AEC is described as '*diagnosis, observation, treatment and rehabilitation, not provided within the traditional hospital bed base....and provided across the primary/secondary care interface*' (3) which means that '*patients...are...diagnosed and treated on the same day and then sent home with ongoing follow-up as required*' (4). AEC manages acutely unwell patients, often with undifferentiated illness, to establish a diagnosis or a point of clinical stability that enables patients to return to primary care. Use of the ED and potentially short admissions are avoided, while, possibly, improving the patient experience (2). While GPs are experienced in risk management with undifferentiated illness, AEC differs in that the acuity of illness is greater than in primary care and familiarity with intravenous treatment and interpretation of cross-sectional imaging are needed. However, AEC models are relatively new, heterogeneous and incompletely understood. Here we conceptualise the role and position of AEC by considering patient journeys through the service and highlighting areas in need of address to maximise its value moving forwards.

## *Process-driven service*

AEC departments must rapidly differentiate syndromes in acutely unwell patients after referral from primary care, ED or the ambulance service. While protocolised condition- or symptom-specific services exist (e.g. suspected pulmonary embolism pathways), the often stringent referral criteria are poorly aligned to the reality of complex acutely unwell primary care patients. AEC is a process-driven service (4), that is, at referral, patients are considered ambulatory unless there is evidence otherwise. The consensus-based AEC directory (4) contains common conditions determined to be both appropriate for AEC services and commonly associated with short admissions. The current fifth edition, has been refined using real-life data to reflect current perceptions of best practice. However, this directory may inadvertently undermine process-driven approaches, particularly if it is interpreted as being prescriptive of the conditions suited to AEC. Given the frequency of diagnostic

44 uncertainty at referral, reliance on the directory to shape AEC services risks limiting the volume of  
45 appropriate patients and underestimates the breadth of diagnostic challenges that AEC services can  
46 manage.

#### 47 *Access to AEC*

48 The 'step-up' and 'step-down' functions of AEC are illustrated by the variable routes into AEC; from  
49 primary care, emergency departments, paramedics, hospital specialties and inpatient providers.  
50 Identification of patients' ambulatory potential is also inconsistent within and between AEC services;  
51 from a clinical conversation to determine any pre-specified exclusions, use of dedicated questions to  
52 identify those particularly suited to ambulatory care (3), through to the use of specific scores (3,5-7).  
53 However, these scores have limited sensitivity and specificity across multiple service providers (8).  
54 To optimise patient experience and improve efficient use of AEC services, improved evidence-based  
55 patient selection tools demonstrating consistency across health economies are required.

#### 56 *Acute generalists*

57 There are varying models of AEC and AEC clinicians must be 'acute generalists'; able to holistically  
58 assess acutely unwell patients and manage acute undifferentiated and/or emerging illness and its  
59 associated (often ambiguous) risk. Appropriate clinicians could include Advanced Nurse  
60 Practitioners, hospital clinicians (often with Acute Medicine or ED background) and general  
61 practitioners with additional hospital experience. The individual clinician's skills are key, rather than  
62 their exact clinical background. For acute frailty syndromes, AEC models including geriatric medicine  
63 expertise, occupational therapists, physiotherapists and social workers are necessary. To build  
64 capacity for the future, healthcare educators must develop training solutions to match the needs of  
65 such 'acute generalists', who straddle the primary and secondary-care interface.

#### 66 *Optimising diagnostic capabilities*

67 To streamline diagnoses and manage acute undifferentiated illness, AEC heavily relies on diagnostic  
68 support; point of care testing (POC) can complement laboratory based testing and direct access to  
69 radiology. However, the evidence-base for using biomarkers to support safe out-of-hospital care  
70 pathways is limited. For example, the NICE Sepsis Guideline (9) recommendations to support  
71 discharge using clinical and biometric parameters have not been formally tested in this setting.

#### 72 *Identifying safe discharges*

73 Risk is inherent within the work of AEC clinicians. Both clinicians and patients will vary in their  
74 thresholds of acceptable risk for discharge, but there is little empirical evidence to quantify and  
75 describe this. Few tools exist to support a shared discharge decision and different guidelines  
76 determine safe discharge at different mortality rates. For example, home based care could be  
77 considered for patients with a pulmonary embolism with the lowest risk PESI score (3.5% mortality  
78 over 30 days) (10) and for those with community acquired pneumonia (CAP) with a CURB-65 up to  
79 two (3-15% risk of death over 30 days) (11). While 30-day mortality scores can identify higher risk  
80 patients, they do not identify the riskiest periods during which location of care could mitigate that  
81 risk.

#### 82 *Acute care episodes or ongoing care?*

83 AEC models include varying levels of ongoing care, ranging from same day diagnostics, for example,  
84 to rule in/out diagnoses (e.g. venous thromboembolism (VTE)), through to longer-term ambulatory  
85 care. Ongoing AEC care may take the form of scheduled follow-up of patients further to planned

86 investigations (e.g. imaging for underlying malignancy) or a course of intravenous (IV) treatment  
87 (e.g. antibiotic or diuretic). Further, AECs have supported specialty pathways as the care platform  
88 accommodates urgent interventions such as peritoneal/pleural drainage or blood transfusions.  
89 While AEC may be convenient for such interventions there is a tension between development of  
90 semi-planned specialty services and the use of easy-to-access acute care.

### 91 *Identifying AEC success*

92 Successes and unintended consequences of AEC should be clearly identified to determine its value.  
93 This is complicated by the heterogeneity and dynamic nature of AEC care models and their  
94 surrounding acute and primary care systems. Demonstrating reductions in ED attendances and  
95 patients breaching four- and 12 - hour waits in ED can be challenging in the context of rising  
96 demand. Furthermore, patients now seen in AEC were not all previously admitted via ED, thus  
97 reduced medical bed days, particularly for short admissions may be better measures of AEC's  
98 impact.

99 Patient satisfaction is an indicator of improved patient experience, but questionnaire-based  
100 methodologies to elicit this have limitations. Objective measures such as mortality and readmission  
101 rates are blunt tools which provide no experience of a patient's care journey. An outcome set,  
102 measuring clinically meaningful outcomes and aligned with patient priorities, which is suitable for  
103 use across varying models of AEC is required to facilitate system learning, particularly in the New  
104 Models of Care programme.

### 105 *Moving forwards*

106 A key role for AEC is in providing a credible care model for acutely unwell patients while  
107 decongesting ED, reducing the pressure on limited inpatient beds and addressing patients'  
108 preferences to remain at home as much as possible. Empirical work is needed to develop sensitive,  
109 specific and generalisable mechanisms to identify which patients are suitable for AEC and to provide  
110 accurate risk stratification in the initial phase of illness. This may be achieved with reliable POC  
111 biomarkers to support flow through AEC units, particularly for high volume conditions  
112 Commissioners should identify situations in which AEC is currently underused but may ease pressure  
113 on ED, or inpatient services. Finally, while AEC units require 'acute generalist' clinicians, to be 'fit for  
114 frailty' AECs must contain a multidisciplinary skill mix to undertake comprehensive assessment. The  
115 nature of overlap and interaction between AEC and existing urgent care community services,  
116 whether the registered practice, out of hours primary care service or ambulance service depends on  
117 how elements of the processes of care outlined above can be delivered. Dedicated training efforts  
118 across the disciplines are required to develop expertise across this acute primary and secondary-care  
119 interface, including experience of community practice for those with predominantly acute training.  
120 As our population ages, this will ensure that we can meet the needs of our changing population with  
121 a sustainable acute care pathway.

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