

Research Article



GAVIN PUBLISHERS

Filling the Gaps: Launching a New Enhanced Care Unit (ECU) in Dubai, using the Model from the UK Royal College of Physicians (RCP)

Giovanni Brambilla¹, Monish Hassan¹, Wasan Sarhan^{2*}, Asad Alsabbah², Loreliza Cadacio¹, Mukesh Sivaprakasam¹

¹Acute Internal Medicine Department, Mediclinic City Hospital, Dubai, UAE

²Intensive Care Unit, Mediclinic City Hospital, Dubai, UAE

*Corresponding author: Wasan Sarhan, Intensive Care Unit, Mediclinic City Hospital, Dubai, UAE

Citation: Brambilla G, Hassan M, SARhan W, Alsabbah A, Cadacio L, et al. (2022) Filling the Gaps: Launching a New Enhanced Care Unit (ECU) in Dubai, using the Model from the UK Royal College of Physicians (RCP). Ann Crit Care Emerg Med 3: 105. DOI: 10.29011/ACCEM-105.000105

Received Date: 12 October, 2022; **Accepted Date:** 19 October, 2022; **Published Date:** 25 October, 2022

Abstract

Intensive high acuity care is resource consuming, and its demand keeps increasing. Different models of intermediate acuity care have been used across the world, to manage conditions that require level of monitoring and nursing care higher than a general ward, yet not requiring Intensive Care Unit (ICU). The UK Royal College of Physicians' document "Enhanced Care: Guidance on service development in the hospital setting" provides the rationale, principles and practical support to implement this model [1]. We relied on this guidance to introduce the Enhance Care concept and to launch a brand-new Enhanced Care Unit at Mediclinic City Hospital (MCIT), a leading private facility in Dubai, United Arab Emirates (UAE). The UK RCP Enhance Care model proved to be valid and effective in matching the needs specific to our clinical, regulatory and financial context. Our case study shows that the model is flexible and adaptable, both aspects at the core of the Enhanced Care service provision.

Keywords: Intermediate care; Service development; Pathway

Abbreviations: ACS: Acute Coronary Syndrome; AKI: Acute Kidney Injury; CVA: Cerebral Vascular Accident; ECU: Enhanced Care Unit; ICU: Intensive Care Unit; MCIT: Mediclinic City Hospital; NIV: Non Invasive Ventilation; RCP: Royal College of Physicians; UAE: United Arab Emirates; UK: United Kingdom

Introduction

The ever-growing pressure and demand on the healthcare systems push organizations across the world to allocate resources sparingly and to adopt more efficient models of care. The Covid pandemic exacerbated the need for efficiency and made it a paramount priority [2].

High acuity beds and resources are expensive and limited, and the number of patients requiring them is increasing. Patients admitted to Intensive Care Units (ICU) do not always require intensive care but only close monitoring [3].

ICU is not always the safest setting [4], especially when overcrowded and under pressure. Furthermore, there are suggestions that the availability of beds creates demand, such that the higher the number of ICU beds, the higher its use [5]. Alternative solutions may be more appropriate [6,7].

The provision of intermediate care helps addressing some of these issues. "Intermediate care" is an umbrella term that encompasses a number of different models and it has been applied to a vast range of settings worldwide [3,8].

The UK Faculty of Intensive Care Medicine and the Royal Colleges of Physicians have published a document to guide the service changes required to develop an intermediate care model called Enhanced Care [1]. Enhanced Care is a level of care for “adults, in an area capable of providing a higher level of observation, monitoring and interventions than a general ward” [1], but not requiring ICU.

The guidance stresses the importance to consider the local needs and resources when introducing this model. The “right” ECU cannot be designed following a universal model, but is “determined at a local level to suit the needs of the patients” [1].

This paper describes the unique needs and drives underpinning the decision to launch a new Enhanced Care Unit at Mediclinic City Hospital (MCIT) in Dubai, based on the guidance from the UK [1], its implementation and the initial 3 months’ activity.

Mediclinic City Hospital (MCIT) is a 280 beds private, tertiary teaching hospital in Dubai, UAE. The hospital includes a Comprehensive Cancer Center, an Acute Stroke Service, a Cardiac Catheterization Laboratory, all surgical specialties, obstetrics, pediatrics, hemodialysis as well as a renal transplant unit. As a well-established facility with such a broad range of services provided, MCIT serves a mixed population of local and expat families, dealing with a large number of elderly patients with complex comorbidities.

Until March 2022 the inpatient medical services were provided in the ICU (21 beds, either surgical or medical), the Medical ward (31 beds) and the recently launched Medical Admission Unit (12 beds). There was no intermediate medical care service available.

The Existing Setting Faced Some Challenges

The ICU was often at full capacity, with impact on patients’ flow, elective and emergency surgeries, cardiac procedures, capacity to receive acute cerebrovascular accidents (CVA) from the ambulance services and sometimes delay in managing patients whose conditions warranted escalation of care from the wards.

Medical patients were sometimes admitted to the surgical or the orthopedic wards as outliers, without a robust governance in place to manage them. The lack of the right setting for these patients often increased the length of stay and on some occasions hindered the provision of best care. This system was regularly stretched to maintain patients’ safety and good quality care, yet mainly in a reactive rather than proactive way.

A good number of patients admitted to ICU did not actually need such level of care, yet could not be managed appropriately anywhere else. There were external factors that boosted the need for change as well.

The Covid pandemic forced everyone across the globe to work in innovative ways and to implement changes at a speed unseen before. In response to the spike in Covid related admissions seen at MCIT in Jan-March 2021, a new ward was opened and staffed by a mix of internal medicine and ICU nurses and doctors, working under a clear governance frame which led to a safe and efficient management of the most severe cases. Teamwork, upskilling and innovative practice proved to be possible. This gave to the senior clinical team and the hospital management the feeling that this legacy could represent an asset and should not be wasted.

At the beginning of 2022, a momentous shift in the service remuneration was introduced in the UAE: the insurance reimbursement system changed for a “fee for service” model to a Diagnosis Related Group (DRG) payment system (paying an assigned fixed tariff based on the main diagnosis). It is beyond the scope of this paper to discuss the implications in detail, but this switch pushed to explore more efficient and seamless ways of delivering care. At the beginning of March 2022, we launched the Enhanced Care Unit (ECU), located in close proximity to the Acute Medical Unit, as part of the Internal Medicine Division at Mediclinic City Hospital (MCIT).

Methods

The scope of the Enhanced Care Unit (ECU) is to provide open, consultant-led intermediate medical care to adult patients. The ECU is ring fenced and not to be used as a general bed pool. It has 6 beds (with the aim to extend to 10) equipped with continuous centralized electrocardiogram (ECG) and non-invasive blood pressure (NIBP) monitoring. One Arterial Blood Gas (ABG) machine, 4 ventilators and 4 high flow nasal cannula oxygen (HFNCO) therapy machines are available to deliver Non-Invasive Ventilation (NIV).

The nurse to patients’ ratio is 1:3, adjusted to the patients’ condition acuity. The in-hours medical staffing consists of the admitting consultant, one senior specialist doctor with background in Internal Medicine and ICU and one medical hospitalist (middle grade doctor). The out-of-hours cover is provided by one hospitalist on site and the admitting consultant on call.

The admitting consultants do ward rounds once daily or more often if clinically indicated. The unit accepts new admissions from the Emergency Department (ED), step down cases from ICU as well as step up cases from the medical wards. Input from allied healthcare professionals (dietician, physiotherapist, clinical pharmacologist) is available upon referral. There are three clinical pathways under which patients can be admitted to ECU.

The “Medical Pathway” is for medical cases with care requirement higher than medical ward or for selected patients requiring NIV. The “Cardiac Pathway” is for selected patients post

elective angiography or due to have elective cardioversion. The “Stroke Pathway” is reserved for hyper acute brain cerebrovascular accidents. We retrospectively collected the data from the first 3 months of activity. The local Research and Ethics Committee approved the publication of this paper with no ethical objections.

Results

During the first 3 months of activity 197 (125 M and 72 F) patients were admitted to the Enhanced Care Unit. The average age was 63.6 (18-104). The bed occupancy was 82.4%. The most frequent conditions/diagnoses are showed in Table 1.

The source of referral was from ED in 70 cases (36%), ICU in 28 (14 %), elective outpatient in 50 (25 %) and admitted from other wards in 49 (24 %). The destinations after admission in ECU were: 45 (23%) to the general medical ward, 21 (11%) ICU and 131 discharges (66%). No deaths occurred in ECU.

During the first month 17% of patients were transferred to ICU, whilst during month 3 this number had dropped down to 7%. The average length of stay (LOS) in ECU was less than 72 hours. At MCIT, a locally adapted Therapeutic Intervention Scoring System (TISS) is calculated daily to deploy resources and monitor the activity of the high care units [12]. This tool quantifies the nursing workload and estimates the severity of the patients’ condition. The score falls in 3 levels of acuity, based on patient complexity and interventions required.

We compared the average level of acuity in ICU during the 3 months before and after opening ECU: the percentage of patients requiring level 3 care changed from 72% to 74%. Conversely, the percentage of patients in level 2 decreased from 16% to 13.7%.

Over 3 months, 34 admitting consultants from 11 different specialties (medicine, cardiology and neurology being the most represented) cared for their patients in ECU. Cardiology had the highest number of patients (39%) followed by Internal medicine/Respiratory medicine (25.3%), Neurology/neurosurgery (22.3%) and others (13.4%). This reflects the three main pathways identified in the scope of service.

We conducted a survey amongst the nurses about their professional satisfaction and perception of working in the new unit: the results are presented in Tables 1-9.

CVA	34
Respiratory failure	25 (11 NIV-HFNCO)
ACS	22
Cardiac Arrhythmias (elective)	22
Elective Angioplasty	15
Sepsis – severe infections	12
AKI - electrolytes disturbances	12
Cardiac Arrhythmias (emergency)	12
Heart Failure	6
Hemodialysis	5
Seizures	4
Other	28

Table 1: The Most Common Main Diagnoses.

Nursing Staff Survey

Agree	81.25%
Neither agree nor disagree	12.5%
Disagree	6.25%

Table 2: Feel safe when working in my clinical environment.

Agree	31.25%
Neither agree nor disagree	6.25%
Disagree	62.5%

Table 3: I cannot give proper care because too high workload.

Agree	87.5%
Neither agree nor disagree	21.5%
Disagree	0%

Table 4: In my clinical area, I feel I am part of a team.

Agree	100%
Neither agree nor disagree	0%
Disagree	0%

Table 5: I feel supported by the manager.

Agree	93.75%
Neither agree nor disagree	6.25%
Disagree	0%

Table 6: I feel appreciated at work.

Agree	100%
Neither agree nor disagree	0%
Disagree	0%

Table 7: I have regular opportunities to develop my skills.

Agree	75%
Neither agree nor disagree	18.75%
Disagree	6.25%

Table 8: My job is fulfilling.

Agree	75.5%
Neither agree nor disagree	12.5%
Disagree	12.5%

Table 9: In the last 6 months, my overall satisfaction at work as increased.

Discussion

The decision to open the Enhanced Care Unit at MCIT was based on a careful and detailed analysis of the current service provision, made by the senior management and clinical staff. This allowed us to recognize the need to fill some gaps and to improve the care offered to our patients. The main findings were the absence of a dedicated intermediate care unit, the need to improve the management of certain groups of patients (medical outliers, hyper acute strokes), the need to create more capacity for some elective conditions (mainly cardiac procedures) and to expedite patients' flow. Many different models of intermediate care are used worldwide [10].

The decision to adopt the UK Enhanced Care Model 8 was based on a combination of reasons:

- The personal experience of one author, who worked in a mature and established ECU in London, allowed the team to work not only on a vision but also on an actual successful example.
- The guidance “provides practical advice, in an open and pragmatic fashion, essential to embed the concept wherever it is required” [1], making it an effective tool for service implementation.
- The document seemed to be useful in validating and explaining this new project to the many stakeholders involved, both clinical and non-clinical.

During the whole project, the authors were aware of the financial boundaries and implications; some of the data suggest that ECU reduced some costs, mostly due to the shift of some activity from a costly environment (ICU) to a less consuming one. Also, the new unit could accommodate some of the elective activity that would have otherwise been lost when ICU was at full capacity. A detailed financial analysis is not the focus of this work, though. We appreciate that it is difficult to assess the real financial implications of intermediate care units [10,11].

It is worth mentioning that the main drive for the whole project was based on clinical considerations. The positive impact of ECU lies in the fact that it filled the clinical service gaps that we identified in our initial analysis. The authors strongly believe that ultimately “good care is good business”, therefore financial and clinical aspects often overlap.

The ECU was busy from the very beginning, as showed by the bed occupancy above 80%, and this confirms that it covered a significant and very much needed niche.

The high number of admitting consultants who managed their patients in the unit was consistent with the aim to offer a safe and specialized clinical hub, where different teams could provide patient-centered care (co-care). The high level of engagement from so many teams and individuals is a credit to the relentless communication effort, one-to-one discussions, negotiations skills, openness to suggestions and exploration of needs that was pursued by the promoting core team throughout the process.

The ECU freed more capacity in ICU, as proved not only by the number of patients accepted directly as step down, but also by those deteriorating from the wards and admitted to ECU rather than ICU (escalation avoidance). The average higher patient acuity score observed in ICU since the ECU opened proves its efficacy in pulling out patients who did not require ICU. The extra capacity ultimately allowed ICU to care for the right patients with no delays. There was a month-by-month reduction of the number of transfers from ECU to ICU.

In Literature only one paper, as far as we are aware, describes the rate of admission to ICU from ECU of 5% [13]. It is difficult to estimate the “acceptable” percentage, given that by definition Enhanced Care Units are built accordingly to local needs and features. Yet, the drop from 17% to 7% brings our figures in line with the paper from Krishnamoorthi, et al. and reflects a natural phase of adaptation to the new unit. Both accepting and referring clinicians fine-tuned their understanding of which conditions were appropriate for ECU, as well as bed managers and the whole management team.

The unit has contributed in abating the number of medical outliers, most likely absorbing some of the most complex cases

that before would have been incorrectly managed in the general medical ward in absence of ICU capacity. The length of stay was approximately 48 hours, in line with the scope of the unit, conceived as a quick turnover environment.

The authors were pleased to see that the observed percentage of discharges directly to home was high (66%). This data confirms that ECU, a new “cog” added to the system, didn’t hinder the patients’ flow and actually improved it. It is described in literature 14 that good job satisfaction among nurses leads to good patients’ care. We administered a survey to the nurses who were allocated to ECU, showing that the overall perception towards the new ECU was positive (Tables 1-9). Of particular note, the totality of participant felt well supported by their line managers and felt that the new work environment represented an improvement in terms of job satisfaction, compared to their previous assignments.

Some challenges also were highlighted: the high workload, which unfortunately is nowadays accepted and taken for granted in healthcare, was described as an obstacle to good care provision. It will be the senior clinicians and managers’ job to challenge this and explore viable solutions.

It is also worth mentioning some “secondary” results not captured by the quantitative data presented so far. The launch of the ECU represented a boost for the whole team in terms of competences and skills. Attending hyper acute stroke patients, complex cardiac patients or the management of NIV required a huge teaching and learning effort, made possible by a multidisciplinary input offered by doctors and nurses from ICU and the other relevant specialties like cardiology and neurology. The ECU represents an excellent learning opportunity for the students coming from the local medical school Mohammed Bin Rashid University (MBRU), in their final years’ rotation.

Conclusions

We think that our new Enhanced Care Unit in Dubai is a successful example of service implementation based on the UK RCP Enhanced Care Model. The geographical, epidemiological and cultural aspects, as well as the private nature of the healthcare sector in the UAE, are different from those in the UK.

Our paper provides a unique and striking example of the Enhanced Care Model tenets’ flexibility and adaptability to different systems and frameworks. Key to success was alignment of intents between the managerial and clinical team.

Any successful project requires that everyone is onboard with the changes; practice and habits change can be received with reluctance. Strong leadership (from doctors, nurses and managers) led to clear explanation and sharing of a common vision with all the stakeholders involved at all levels, from corporates to the staff working on the floor. We think that our experience can be of interest for colleagues and organizations exploring options to provide an intermediate care service to their patients.

References

1. Faculty of Intensive Care Medicine (2020) Enhanced Care: guidance on service development in the hospital setting. London.
2. World Health Organization (2020) Global spending on health 2020: weathering the storm. Geneva.
3. Simpson CE, Sahetya SK, Bradsher III RW, Scholten EL, Bain W, et al. (2017) Outcomes of emergency medical patients admitted to an intermediate care unit with detailed admission guidelines. *Am J Crit Care* 26: e1-e10.
4. Ravi P, Vijai M (2015) Errors in ICU: how safe is the patient? A prospective observational study in a tertiary care hospital. *J Anesth Clin Res* 6: 535.
5. Valley T, Noritomi D (2020) ICU beds: less is more? Yes. *Intensive Care Med* 46: 1594-1596.
6. Phua J, Hashmi M, Haniffa (2020) ICU beds: less is more? Not sure. *Intensive Care Med* 46: 1600-1602.
7. De Lange D, Soares M, Pilcher D. ICU beds: less is more? No. *Intensive Care Med* 46: 1597-1599.
8. Vantomme K, Siddiqui M, Cossette M, Lyster K (2020) Medical surveillance unit: patient characteristics, outcome, and quality of care in Saskatchewan, Canada. *BMC Res Notes* 13: 1-5.
9. Kozlakidis Z, Catchpoole D (2021) Healthcare Innovation: Will COVID-19 be a Transformative Experience? *Innovations in Digital Health, Diagnostics, and Biomarkers* 1: 25-26.
10. Plate JDJ, Leenen LPH, Houwert M, Hietbrink F (2017) Utilisation of Intermediate Care Units: A Systematic Review. *Crit Care Res Pract* 2017: 8038460.
11. Vincent JL, Rubenfeld GD (2015) Does intermediate care improve patient outcomes or reduce costs? *Crit Care* 19: 1-5.
12. Cullen DJ, Nemeskal AR, Zaslavsky AM (1994) Intermediate TISS: a new Therapeutic Intervention Scoring System for non-ICU patients. *Crit Care Med* 22: 1406-1411.
13. Krishnamoorthy S, Gor R, Jennings C (2020) Enhanced care - bridging the chasm. *Future Healthc J* 7: s43-s44.
14. Bellizzi S, Padrini S (2021) Report of the “satisfaction” survey amongst public health services nurses in Port Said. *BMC Nursing* 20: 199.