

Impact of Quick Diagnosis Unit Integrated in an Emergency Department Setting

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BACKGROUND: Hospitals in countries with public health systems have recently adopted organizational changes to improve efficiency and resource allocation, and reducing inappropriate hospitalizations has been established as an important goal, as well as avoiding or buffering overcrowding in Emergency Departments.

AIMS: Our goal was to describe the impact of a Quick Diagnosis Unit (QDU) established on January 1, 2012, integrated in an Emergency Department setting in a Danish public university hospital following its function for the first $\frac{3}{4}$ of a year.

DESIGN: Observational, descriptive and comparative study.

METHODS: Our sample comprised the total number of patients with simple internal medicine ailments admitted and discharged the first $\frac{3}{4}$ of the year 2012 from the QDU integrated in an Emergency Department setting. The QDU accommodated 16 patients and was comprised of 10 beds and 6 ambulatory seats / chairs. The sample was compared with the total number of general internal medicine ward patients admitted and discharged the first $\frac{3}{4}$ of the year 2011 from the hospital's general Department of Internal Medicine.

RESULTS: Over a period of 9 months a number of 4508 patients with simple internal medicine ailments were admitted and discharged from the QDU integrated in an Emergency Department setting. This amounts to ~500 patients admitted and discharged per month or a turnover of ~ 1patient per accommodation (bed or seat / chair) per day.

Compared with the first $\frac{3}{4}$ of the year 2011 the establishment of the QDU integrated in the Emergency Department resulted in the admittance and discharge of 1139 fewer patients (41%; $p < 0.0001$) to the hospital's general Department of Internal Medicine.

CONCLUSIONS: A QDU integrated in an Emergency Department setting represents a useful and fast track model for the diagnostic study and treatment of patients with simple internal medicine ailments, and also serves as a buffer for overcrowding of the Emergency Department.

Keywords: Diagnosis; Hospitalization; Overcrowding, Emergency Department

In recent years, hospitals in countries with public health systems have adopted organizational changes to improve efficiency and resource allocation.¹ Alternative models of care include one-day

hospitals (created primarily to provide medical procedures that require less than 24 hours of hospitalization);2 short-stay observation units (areas often located adjacent to emergency departments that accommodate patients requiring brief periods of observation or therapy);3-6 hospital-in-the-home (programs that deliver a limited range of acute care services to selected patients in their homes);4-7 outpatient major surgery programs (the provision of surgical procedures with postoperative recovery periods short enough to permit same-day discharge);8 and, more recently, Quick Diagnosis Units (QDUs)9-12 (outpatient diagnostic units for patients with suspected severe diseases). To our knowledge¹³ this is the first study regarding a QDU integrated in an Emergency Department setting primarily to treat patients with simple internal medicine ailments, i.e. typical general internal medicine ward patients

On January 1, 2012 a QDU integrated in an Emergency Department setting was established at Holbaek University Hospital. Concomitantly a 56 bed general internal medicine ward in the vicinity was closed

THE QDU INTEGRATED IN THE EMERGENCY DEPARTMENT SETTING

The QDU accommodated 16 patients and was comprised of 10 beds and 6 ambulatory seats / chairs physically integrated into the Emergency Department It was manned by a Chief Physician (specialist in internal medicine) and an intern during day time 08:00 – 16:00 h, 3 nurses and a secretary. After 16:00 h to the following morning it was manned by physicians on call in the Emergency Department proper.

The Emergency Department had its own Point of Care laboratory (POCT) manned by 2 bio analysts from 10:00 – 22:00 h, as well as an x-ray facility. Additionally the Department of Radiology provided more advanced diagnostic procedures such as e.g. CAT scans or MRI scans on a fast track basis. There was easy access to additional specialist evaluations from the Emergency Department staff or, albeit rarely, from various in house specialists. The POCT strategy may be viewed as a 3 tiered approach (Table)

TABLE I: POCT strategy

Approach	Analysis (plasma)
Tier 1: Electrolytes	Hemoglobin, Na, K, glucose, H ₂ CO ₃ , bilirubin, hematocrit, creatinine, Cl, pH value, pCO ₂ , pO ₂ , lactate, CO
Tier 2: Infection parameters	Leucocyte count, C-reactive protine
Tier 3 Fibrinolysis	D-dimer

Measuring time elapsed from blood sampling to analysis result has proved to be 53% to 84% quicker using POCT as compared to conventional laboratory analysis¹⁴, which is important for expeditious Emergency Department handling of patients.

Our current goal was to describe the impact of a QDU integrated in an Emergency Department on the number of admissions to the general internal medicine ward in a Danish public university hospital following its function for the first ¾ of the year 2012 as compared to the previous year.

METHODS

Our sample comprised the total number of patients with simple internal medicine ailments admitted and discharged the first ¾ of the year 2012 from the QDU integrated in an Emergency

Department setting. The QDU accommodated 16 patients and was comprised of 10 beds and 6 ambulatory seats / chairs. The sample was compared with the total number of general internal medicine ward patients admitted and discharged the first ¾ of the year 2011 from the hospital's general Department of Internal Medicine.

RESULTS

Over a period of 9 months a number of 4508 patients with simple internal medicine ailments were admitted and discharged from the QDU integrated in an Emergency Department setting. This amounts to ~500 patients admitted and discharged per month or a turnover of ~ 1patient per accommodation (bed or seat / chair) per day.

Compared with the first ¾ of the year 2011 the establishment of the QDU integrated in the Emergency Department resulted in the admittance and discharge 139 fewer patients (41%; $p < 0.0001$) to the hospital's general Department of Internal Medicine.

Fig 1 showed the monthly decline in admissions to the general ward of internal medicine following the establishment of the QDU integrated in the Emergency Department setting as compared to 2011

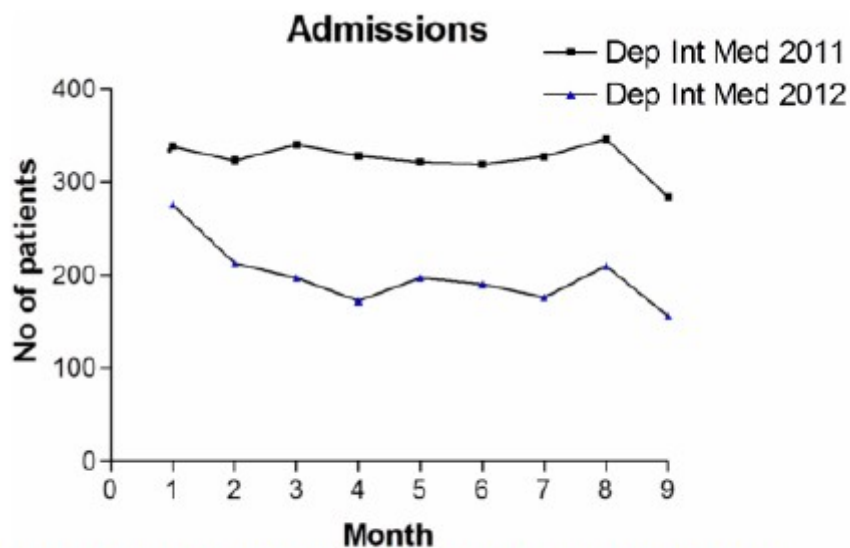


Fig 1: Admissions before and after implementation of the QDU

DISCUSSION

The avoidance of admission to the general Department of Internal Medicine accounts for only a fraction of the QDU's actual turnover of admittances and discharges of patients, i.e. ~25% ($139/4508 \times 100$). It is conceivable that the QDU integrated in an Emergency Medicine setting absorbed some of the 2000 patients which were admitted and discharged from a 56 bed internal

medicine ward facility in the vicinity that was closed when the QDU facility was opened.

It is also possible that the establishment of the QDU in question has generated more referrals of patients from the primary health care sector. Further research is needed to accomplish clarification

CONCLUSIONS

Preliminary evaluations show that a QDU integrated in an Emergency Department setting represents a useful and fast track model for the diagnostic study and treatment of patients with simple internal medicine ailments, and also serves as a buffer for overcrowding of the Emergency Department.

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译文（仅供参考）

快速诊断在急诊的作用

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背景：最近通过了国家公共卫生系统的医院不当住院治疗已被确立为一个重要的目标，以及避免或缓冲急诊室人满为患。

目的：我们的目标是在 2012 年 1 月 1 日描述一快速诊断的单位(QDU)的建立，在丹麦公共大学附属医院急诊室设置后，其功能为第一年的 $\frac{3}{4}$ 。

设计：观察，描述和比较研究。方法：我们的样本包括在 2012 年从 QDU 集成在急诊设置简单的内部总数的患者包括入院和出院的。QDU 容纳 16 名患者由 10 张病床和门诊座席/椅子。

结果：在一个为期 9 个月的 4508 例患者用简单的内部一些医药疾病入院和出院中的 QDU 集成的急诊科的设置。这相当于每个月 500 名患者入院和出院。

相比医院的一般内科 2011 年成立的 QDU 集成急诊科的准入和排放减少 1139 例（41%， $P < 0.0001$ ）。

结论：QDU 集成在紧急情况部门的设置代表有用的和快速模式的诊断研究和治疗的患者简单的内科疾病，也可作为一个急诊科人满为患的缓冲。

关键词：诊断，住院治疗;人满为患，急诊科。

近年来，医院与公共卫生系统的国家采取组织提高效率和资源 allocation.1 替代的护理模式的改变，包括为期一天的医院（创建的，主要是为了提供需要少于 24 小时的医疗程序住院）;短期停留的观察单位（通常位于相邻的紧急部门适应需要短暂的观察或治疗的患者）;3-6 医院到户（程序的急性护理服务，以提供一个有限的范围内选择患者在自己家中）;4-7 门诊手术方案（提供手术程序与术后的恢复时间足够短，以允许同一天放电）;最近，9-12 快速诊断的单位（QDUs）的（门诊诊断患者单位疑似严重的疾病）。我们的 knowledge13，这是第一项研究中，关于 QDU 在紧急情况部门的设置主要是给病人治病用简单的内部集成医药疾病，即典型的一般内科病房病人。

2012 年 1 月 1 日在霍尔贝克大学附属医院成立了一个紧急情况部门的设置集成在一个 QDU。随之而来的 56 床一般内科病房近被关闭

QDU 集成在急诊室的设置

QDU 容纳 16 例，包括 10 张病床和 6 个门诊座席/椅子物理集成到急诊科的主任医师接诊（内科专家）和实习生在日时间 08:00 - 16:00，3 名护士和秘书。16:00 后到第二天早上，它是载人医生对调用的急诊科恰当的。

紧急部门都有自己的点护理实验室(POCT)由 2 个生物分析师从 10:00 - 22:00，以及 X 射线设备。此外，放射科提供了更先进的诊断程序，如在一个快速的 CAT 扫描或 MRI 扫描跟踪的基础。很容易获得额外的专家评估，从紧急部工作人员，虽然很少，从各种内部专家。POCT 的策略可能是看作是一个 3 个层次的方法（表）

表 I: POCT 战略

途径	分析（血浆）
第 1 层：电解质	血红蛋白，钠，钾，葡萄糖，H ₂ CO ₃ ，bilrubin， 血细胞比容，pH 值，氯，肌酐 值，二氧化碳分压，氧分压，乳酸，CO
第 2 级：感染参数	白细胞计数，C-反应蛋白
第 3 层纤维蛋白溶解	D-二聚体

测量经过时间从血液采样分析结果已经被证明是 53%至 84%的更快使用 POCT 相比传统的实验室 analysis14，这是非常重要的迅速处理急诊科的患者。

我们当前的目标是描述的影响的一个 QDU 的集成，在丹麦的公立大学一般内科病房设置后，其功能为与上年同期相比，节省 3/4。

方法

我们的样本包括简单的内科疾病的患者总人数集成在紧急情况部门的设置 QDU 入院和出院的第一¾2012 年。 QDU 容纳 16 例，包括 10 张病床和 6 门诊座椅/椅。一般内部的总数相比，样品内科病房患者入院和出院的第一¾2011 年从医院的一般内科

结果

超过 9 个月内，一个简单的内科疾病的 4508 例患者入院和出院的 QDU 集成在紧急情况部门的设置。这每月营业额的一个有光敏感：每 1145~500 名患者，入院和出院每天的住宿（床或座椅/椅子）。

相比第一¾2011 年成立的 QDU 集成在急诊科的准入和排放 139 较少的患者（41%， $P<0.0001$ ），医院的一般内科。

图 1 显示了 2012 和 2011 年每月的病人下降到普通病房内科建立的 QDU 集成在急诊科的设置相比

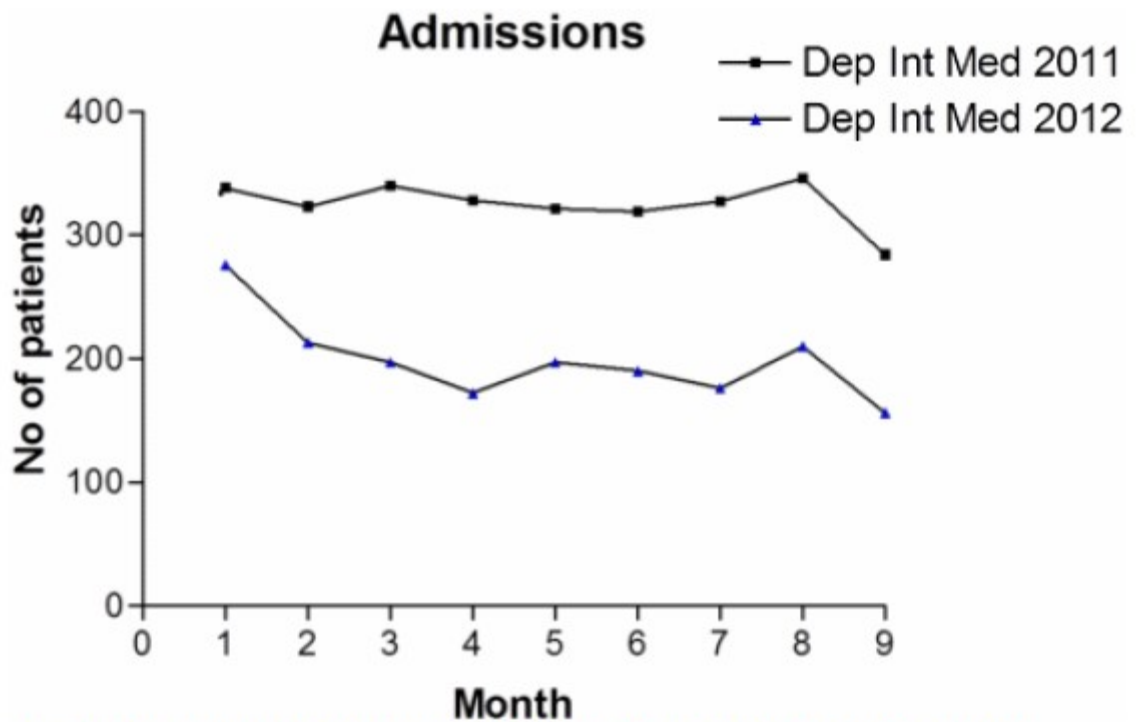


Fig 1: Admissions before and after implementation of the QDU

讨论

避免录取的一般内科只占一小部分的 QDU 的实际营业额的导纳，排放的患者，即约 25%的（ $\times 100$ 四千五百 \div 八分之一一百三十九）。可以想象的是，集成的 QDU

在急救医学设置吸收了 2000 例患者入院和出院形成了 56 床内部的内科病房设施附近，打开，当 QDU 设施关闭。

它也有可能是成立的 QDU 问题产生了更多的转介从基层医疗机构患者。需要进一步的研究来完成，澄清

结论

初步评估显示，QDU 集成在紧急情况部门的设置代表一个有用的和快速模式的诊断研究和治疗的患者简单的内科疾病，也可作为一个缓冲人满为患的紧急处。

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文献概述：国家为了缓解急诊的压力，描述了快速诊断单位的概念，通过相关研究介绍了快速诊断在急诊的应用，主要涉及到电解质、血气、炎症、血栓标志物等检查。

关键词：诊断，住院治疗，急诊科