Beyond Volume Indicators and Centralization: Toward a Broad Perspective on Policy for Improving Quality of Emergency Care

Jeroen Postma, PhD*; Teun Zuiderent-Jerak, PhD

*Corresponding Author. E-mail: postma@bmg.eur.nl, Twitter: @Postma_Jeroen.

Study objective: Policymakers increasingly regard centralization of emergency care as a useful measure to improve quality. However, the clinical studies that are used to justify centralization, arguing that volume indicators are a good proxy for quality of care ("practice makes perfect"), have significant shortcomings. In light of the introduction of a new centralization policy in the Netherlands, we show that the use of volume indicators in emergency care is problematic and does not do justice to the daily care provided in emergency departments (EDs).

Methods: We conducted an ethnographic study in 3 EDs, a primary care facility, and an ambulance call center in the Netherlands, including 109 hours of observation, more than 30 ethnographic interviews with professionals and managers, and 5 semistructured follow-up interviews.

Results: We argue that emergency care is a complex, multilayered practice and distinguish 4 different repertoires: acute and complex care, uncertain diagnostics, basic care, and physical, social, and mental care. A "repertoire" entails a definition of what good care is, what professional skills are needed, and how emergency care should be organized.

Conclusion: The first repertoire of acute and complex care might benefit from centralization. The other 3 repertoires, however, equally deserve attention but are made invisible in policies that focus on the first repertoire and extrapolate the idea of centralization to emergency care as a whole. Emergency care research and policies should take all repertoires into account and pay more attention to alternative measures and indicators beyond volume, eg, patient satisfaction, professional expertise, and collaboration between EDs and other facilities. [Ann Emerg Med. 2017;69:689-697.]

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INTRODUCTION

Background

Centralization is increasingly seen as a suitable policy instrument to improve quality, safety, and efficiency of emergency care in the United States and other Western health care systems.[1-3] As a result of centralization, complex emergency care for ST-segment elevation myocardial infarction, stroke, major trauma, and pediatric critical care is increasingly provided in a smaller number of emergency departments (EDs).[4] Policymakers and insurance companies stimulate further centralization by using volume indicators, which means that an ED has to perform a minimum number of treatments (a threshold) to be granted permission to perform that treatment (eg, the Leapfrog purchasing principles[5]). The basic premise behind the use of volume indicators is that the more frequently health care professionals perform a certain treatment, the better the outcomes are ("practice makes perfect"). Also, high-tech, expensive equipment and machines are used more efficiently.

This trend in emergency care is in line with other fields in health care in which volume indicators have been driving centralization, such as oncology and cardiology.[6,7] However, the evidence on the volume-quality relation in emergency care is mixed and inconclusive. Research from the United Kingdom on acute stroke services on the one hand shows that centralization in metropolitan areas is negatively correlated to mortality, length of hospital stay, and cost per patient.[3,8] Centralization also seems beneficial for patients with major traumas.[1,9] A study on the volume-quality relation of the treatment of chronic obstructive pulmonary disease exacerbations, on the other hand, suggests that high-volume EDs perform worse, perhaps as a result of ED crowding. Patients from high-volume EDs were more likely to experience early relapse or to report

Editor's Capsule Summary

What is already known on this topic

Centralization of health care services is often justified by a presumed causal association between volume and quality.

What question this study addressed

This study used a sociologic case study of centralization policy in the Netherlands to explore emergency department (ED) practitioners' construction of what constitutes quality care in emergency medicine and how it is captured (or not) in ED metrics.

What this study adds to our knowledge

Responses suggested there are 4 overlapping repertoires of care, of which only 1 (acute and complex care) seems positively affected by centralization.

How this is relevant to clinical practice

This study supports the idea that quality is not well captured by a reductionist framework, and that centralizing policies risk missing unintended consequences by not addressing all 4 care repertoires.

ongoing exacerbation.[10] Another study also reported a negative correlation between volume and performance, showing that high-volume EDs have longer lengths of stay, higher rates of leaving without been seen, and longer door-to-physician times.[11]

Goals of This Investigation

To obtain a clearer picture of the (dis)advantages of centralization of emergency care, policymakers often call for more quantitative clinical studies on the relation between volume and quality. In this article, however, we critically discuss some assumptions that underlie volume-quality reasoning, in particular in emergency medicine, and plea for the use of qualitative research to complement the existing evidence. As an example of such an approach, we present a study of the introduction of a new policy on Dutch emergency care. The policy aims at centralization of care according to volume indicators. By conducting interviews and observations in EDs, we gain insight in daily emergency care practices and assess whether centralization might improve quality of care. Our research question is, what constitutes good care in EDs and how does that relate to policies of centralization, such as the new policy in the Netherlands? We do not aim to provide definitive answers to this question, but hope to inspire a "research for policy agenda" that combines quantitative volume-quality studies with qualitative detailed studies of emergency care, looking beyond volume indicators and centralization to improve quality of care. Before turning to the Dutch empirical case, we discuss some of the problems in volume-quality research.

We have stated in the introduction that the evidence on the volume-quality relation in emergency care is mixed. But there are good reasons to critically assess even the studies that suggest a clear correlation. In the following section, we distinguish 5 reasons why volume indicators are a problematic proxy for quality of emergency care and thereby pose serious concerns as an evidence base for policymaking.

First, many volume-quality studies have methodological problems. A meta-analysis of systematic reviews of studies on the volume-quality relation showed that most of the studies have methodological shortcomings (eg, they do not correct adequately for case mix).[12] As a result, the strength of the volume-outcome relation varies widely between studies. Also, studies show large differences between facilities that meet volume criteria: outliers exist across the whole spectrum of hospital and surgeon–surgical team caseload.[12,13] For example, a study on esophagectomy outcomes showed that hospitals meeting volume standards varied by a factor of 5 in terms of 90-day mortality.[14] Despite the intuitive appeal of practice makes perfect, the few studies that investigated whether performance improves during a longer period as a result of increased experience did not find a relationship between volume and quality.[12]

Second, there is disproportionate attention for studies that find a positive volume-quality relation. Because of a focus on studies that find a positive correlation between volume and outcome, studies that have failed to find this correlation are often neglected in the policy debate. There are a large number of treatments for which studies show that such a correlation is absent, including total hip arthroplasties, gynecologic malignancy, and major colorectal surgery.[12] This does not even take into account the studies that have never been published as a result of publication bias in clinical research.*[15] Another meta-analysis of systematic reviews found a positive volume-quality relation for only a small number of complex, high-risk treatments.[16] Yet managers and physicians use the "volume argument" often as a justification for strategic choices of hospitals, such as merger or organizational

*Publication bias means that studies with statistically significant results are more likely to be submitted and published than work with null or non-significant results.