

# Identifying the factors influencing practice variation in thrombosis medicine: A qualitative content analysis of published practice-pattern surveys



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## ABSTRACT

Practice variation, the differences in clinical management between physicians, is one reason why patient outcomes may differ. Identifying factors that contribute to practice variation in areas of clinical uncertainty or equipoise may have implications for understanding and improving patient care. To discern what factors may influence practice variation, we completed a qualitative content analysis of all practice-pattern surveys in thrombosis medicine in the last 10 years. Out of 2117 articles screened using a systematic search strategy, 33 practice-pattern surveys met eligibility criteria. Themes were identified using constant comparative analysis of qualitative data. Practice variation was noted in all 33 practice-pattern surveys. Contributing factors to variation included lack of available evidence, lack of clear and specific guideline recommendations, past experience, patient context, institutional culture and the perceived risk and benefit of a particular treatment. Additional themes highlight the value placed on expertise in challenging clinical scenarios, the complexity of practice variation and the value placed on minimizing practice variation.

## 1. Introduction

Practice variation, the differences in clinical management between physicians, is one reason why patient outcomes may differ. Practice variation has been well characterized in areas where a clear answer exists in the literature but there are barriers in knowledge translation [1]; however, understanding what factors contribute to practice variation in areas of clinical uncertainty or equipoise is largely unknown. One self-evident factor that explains practice variation in these challenging scenarios is the lack of clear guiding evidence. How other factors, such as clinical practice guidelines or personal experience, contribute to decision-making in these areas is not fully understood. Understanding the underpinnings of clinical uncertainty and practice variation can support future work aimed at explaining and minimizing the differences seen in patient outcomes.

The determinants of practice variation have primarily been studied using hospital database research. Regional or institution-specific variation and patient-specific factors, such as medical co-morbidities, account for a large proportion of practice variation [2–6]. While database research can be a powerful tool to understand what is happening on a system-level, this data lacks granularity to understand contributing

factors and their complex interplay. Practice-pattern surveys, surveys of practicing physicians on the diagnosis or management of challenging scenarios, may offer additional insight into individual factors that contribute to practice variation. However, practice-pattern surveys are often published to aid in clinical trial planning so are not designed to provide a deeper understanding of what drives practice variation [7–10].

Qualitative research provides a unique lens; it is a helpful tool when a problem is complex or multi-faceted, and an exploratory or more nuanced approach is required [11]. Through a qualitative content analysis of all practice-pattern surveys published in the areas of prevention and management of venous thromboembolism (VTE), we aim to better characterize the factors that contribute to clinical uncertainty and practice variation in the specialty of thrombosis medicine.

## 2. Methods

### 2.1. Study selection

A systematic search strategy was completed in MEDLINE and EMBASE using an OVID interface. The literature search included

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screened articles from August 1, 2006 to August 19, 2016. Studies were included if they were practice-pattern surveys on the prevention or management of VTE or thrombotic complications. Articles on practice-pattern surveys were excluded if they were not in the English language, assessed a pediatric population, focused on diagnostic or laboratory-based scenarios, were distributed to centers and not individuals, or were published greater than 10 years ago.

2.2. Data extraction and synthesis

Baseline data was collected on the study type and purpose of practice-pattern surveys. Themes were identified by two reviewers (L.S. and C.G.) through constant comparative analysis [12]. Focused coding evaluating the acceptability of practice variation was also included. Content was extracted and analyzed using NVivo, QSR International Inc. (Doncaster, Australia). The definition of practice variation was based on authors' descriptions. Content based on authors' viewpoints (e.g. Introduction, Methods and Discussion sections) and participants' viewpoints (e.g. Methods section) were included in the data collection and analysis.

3. Results

3.1. Study characteristics

The search strategy identified 2117 records, of which 33 publications met eligibility criteria for inclusion (Fig. 1). Of the 33 practice-pattern surveys analyzed, 21 and 7 studies evaluated patterns of VTE prophylaxis and treatment, respectively. The most common type of survey studied assessed practice patterns of anticoagulant prophylaxis around the time of surgery (n = 15), peri-procedural management of patients on therapeutic-dose anticoagulants (n = 4), and prophylaxis or treatment of VTE in pregnancy (n = 4) (Table 1).

Thirty-one (94%) of the studies identified determining practice patterns as a study aim. Additional study aims included assessing knowledge (30%), guideline adherence (18%), planning a clinical trial (15%) and generating consensus (3%).

3.2. Practice variation exists in all studies

Practice variation was described by authors in all 33 studies, however, the amount of variation ranged. Some practice-pattern surveys report achieving consensus on some areas but not in others:

“Low-molecular-weight heparin was used by most of our respondents, with varying doses and lengths of administration [post-

Table 1 Study characteristics.

<b>VTE prophylaxis</b>	
Pregnancy or postpartum	3
Surgical patients	15
Minimally invasive surgery <sup>a</sup>	3
Oncology	4
Bariatric	2
Neurosurgery	2
Orthopedic	2
Plastic surgery	2
General surgery	1
ENT surgery	1
Hospitalized patients	3
Oncology	2
Inflammatory bowel disease	1
Other <sup>b</sup>	1
<b>Peri-procedural anticoagulation management</b>	
VTE treatment	4
Pregnancy	1
Superficial vein thrombosis	2
Distal deep vein thrombosis	2
Cerebral vein thrombosis	1
Pulmonary embolism	1

VTE indicates venous thromboembolism; ENT, ear nose throat.

<sup>a</sup> Gynecological oncology surgery, gynecological surgery, knee arthroscopy.

<sup>b</sup> Prophylaxis scenarios included surgical and hospitalized patients.

bariatric surgery].” [13]

“Our survey suggests that LMWH is the preferred drug for the management of [Pregnancy associated VTE] but that there is wide variation in dosing strategies and the use of anti-Xa monitoring.” [8]

In contrast, some studies describe clinical equipoise, where no consensus was reached:

“Treatment patterns amongst physicians for acute and maintenance anticoagulation are heterogenous and reflect the state of clinical equipoise regarding choice of anticoagulants for [cerebral vein thrombosis].” [14]

“The results of this survey illustrate that equal numbers of physicians at our institution anticoagulate patients with [calf-level DVT] as compared with conservative management. There is no concordance in clinical practice at a single academic medical center, even within a specific specialty.”

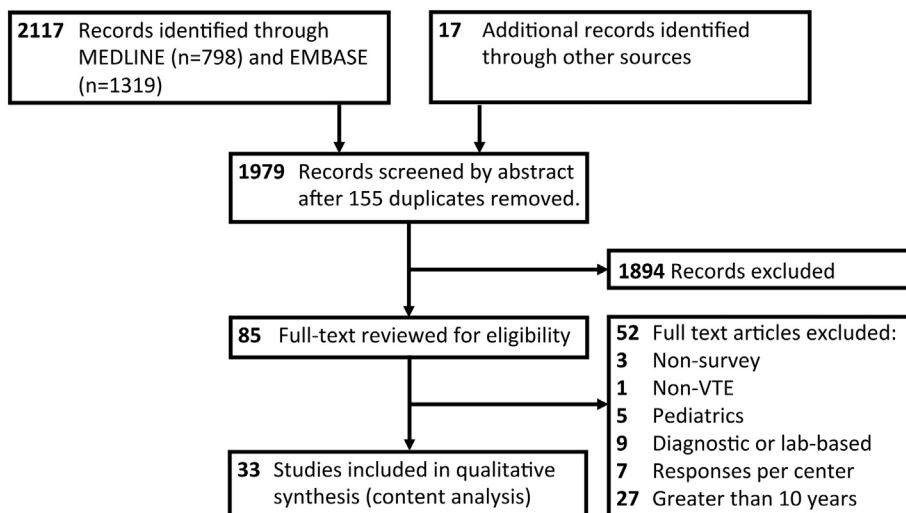


Fig. 1. Study flow diagram.

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