

## A National Needs Assessment to Identify Technical Procedures in Vascular Surgery for Simulation Based Training

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### WHAT THIS PAPER ADDS

This national needs assessment makes it possible to identify and select technical procedures for future simulation based curricula in vascular surgery. The driving principle is to define standardised and deliberate curricular content with attention to the existing limitations and possibilities within the speciality.

**Objectives and background:** Practical skills training in vascular surgery is facing challenges because of an increased number of endovascular procedures and fewer open procedures, as well as a move away from the traditional principle of “learning by doing.” This change has established simulation as a cornerstone in providing trainees with the necessary skills and competences. However, the development of simulation based programs often evolves based on available resources and equipment, reflecting convenience rather than a systematic educational plan. The objective of the present study was to perform a national needs assessment to identify the technical procedures that should be integrated in a simulation based curriculum.

**Design and methods:** A national needs assessment using a Delphi process was initiated by engaging 33 predefined key persons in vascular surgery. Round 1 was a brainstorming phase to identify technical procedures that vascular surgeons should learn. Round 2 was a survey that used a needs assessment formula to explore the frequency of procedures, the number of surgeons performing each procedure, risk and/or discomfort, and feasibility for simulation based training. Round 3 involved elimination and ranking of procedures.

**Results:** The response rate for round 1 was 70%, with 36 procedures identified. Round 2 had a 76% response rate and resulted in a preliminary prioritised list after exploring the need for simulation based training. Round 3 had an 85% response rate; 17 procedures were eliminated, resulting in a final prioritised list of 19 technical procedures.

**Conclusion:** A national needs assessment using a standardised Delphi method identified a list of procedures that are highly suitable and may provide the basis for future simulation based training programs for vascular surgeons in training.

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### INTRODUCTION

Today’s demanding healthcare system has created challenges for the delivery of vascular surgical education. In the last 40 years, vascular surgery has undergone significant changes and has evolved into an independent speciality with a lot of highly technical and complex procedures.<sup>1</sup> New

training paradigms have been introduced to address these challenges and ensure efficient training for vascular surgeons.<sup>2</sup> Reduced trainee work hours, shortened residency training time, and the recent surge of endovascular procedures decreasing the number of open procedures are among the challenges that vascular surgeons in training face today.<sup>3,4</sup> To train vascular surgeons to proficiency, it is critical to implement optimal and efficient training strategies, both inside and outside the operating room.<sup>5</sup>

Simulation based training has become an integral part of medical education. Many specialties have adapted simulation for skills training to promote patient safety and reduce

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errors.<sup>6</sup> Unfortunately, the development of simulation based training programs remains largely unstructured and often relies on commercially available simulators, local interests, or coincidence.<sup>7</sup> The development of an efficient curriculum should follow a stepwise approach starting with problem identification and a general needs assessment.<sup>8</sup>

The objective of the present study was to perform a national needs assessment to identify technical procedures in vascular surgery that address contemporary training needs and should be included in a simulation based curriculum.

## MATERIALS AND METHODS

### Study design and administration

Vascular surgery in Denmark (5.6 million inhabitants) is centralised in seven vascular centres, which employ approximately 70 consultants and have 25 vascular

surgeons in training. Between February and June 2016, a three round iterative Delphi method was completed to gather consensus and establish a prioritised list of technical procedures for simulation based training (Fig. 1). Each round was conducted in the form of electronic questionnaires. The Delphi method is a highly versatile tool used for identifying and prioritising issues for decision makers such as clinical educators as well as head of departments.<sup>9</sup>

A steering committee was formed comprising three members involved in medical education and simulation: a coordinator for simulation and research (LJN), a vascular surgical consultant and research associate professor (JPE), and a professor of medical education and director of a simulation centre (LK).<sup>10</sup> The steering committee supervised all processes, including identification of participants, development of questionnaires, data collection, and analysis. In

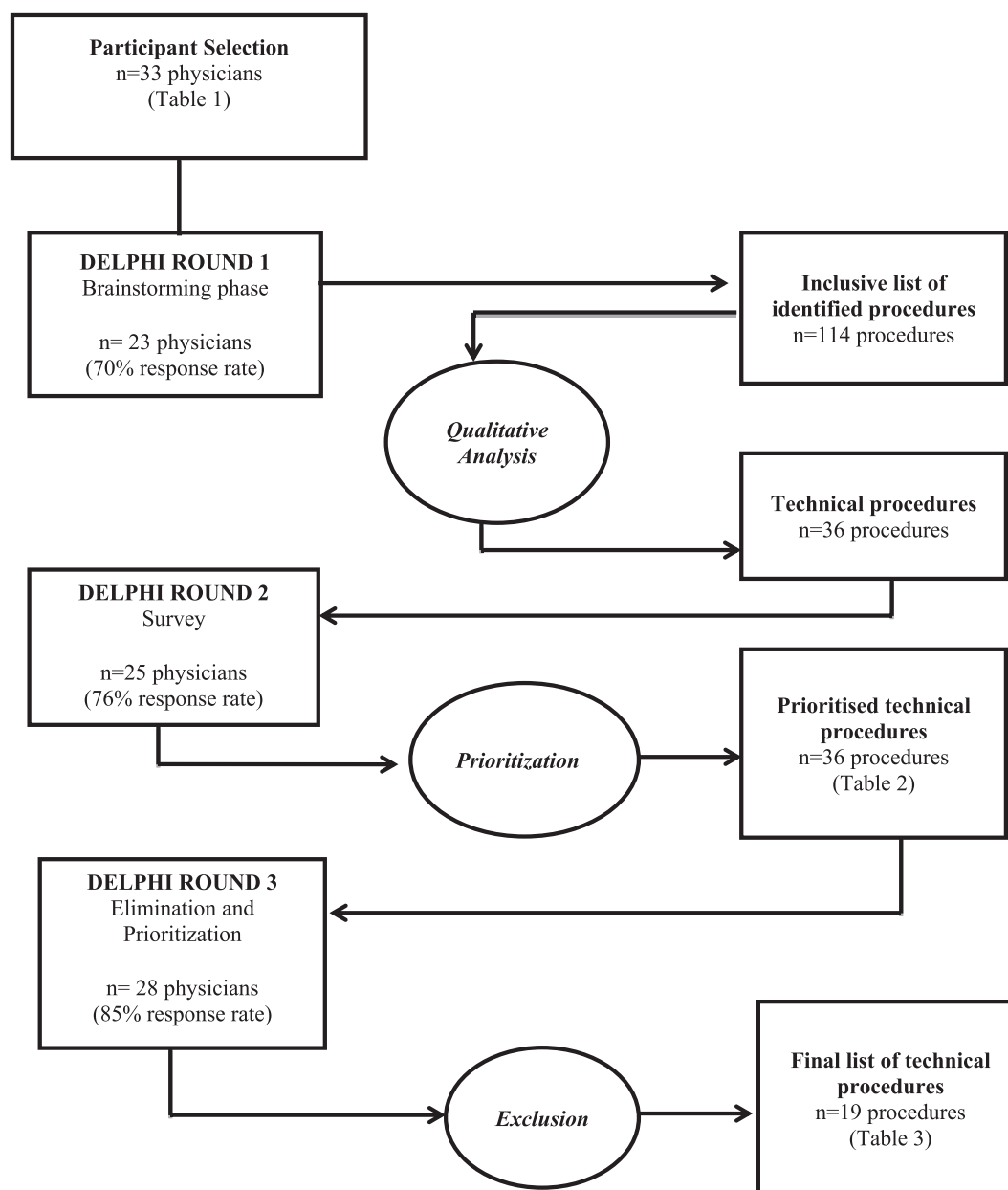


Figure 1. Overview of the Delphi process.

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