

Central venous access device (CVAD) terminologies, complications, and reasons for removal in oncology: a scoping review.

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Background

Lack of a common language with standardised terminology and definitions in healthcare compromises communication, patient safety, optimal management of adverse events, and research. The purpose of this scoping review was to understand the terminologies used in the literature to describe central venous access devices (CVADs) in people undergoing cancer treatment. It also sought to identify the definitional sources of CVAD-related complications and reasons for premature removal. The objective was to map language and descriptions used and to explore opportunities for standardisation.

Did you know?

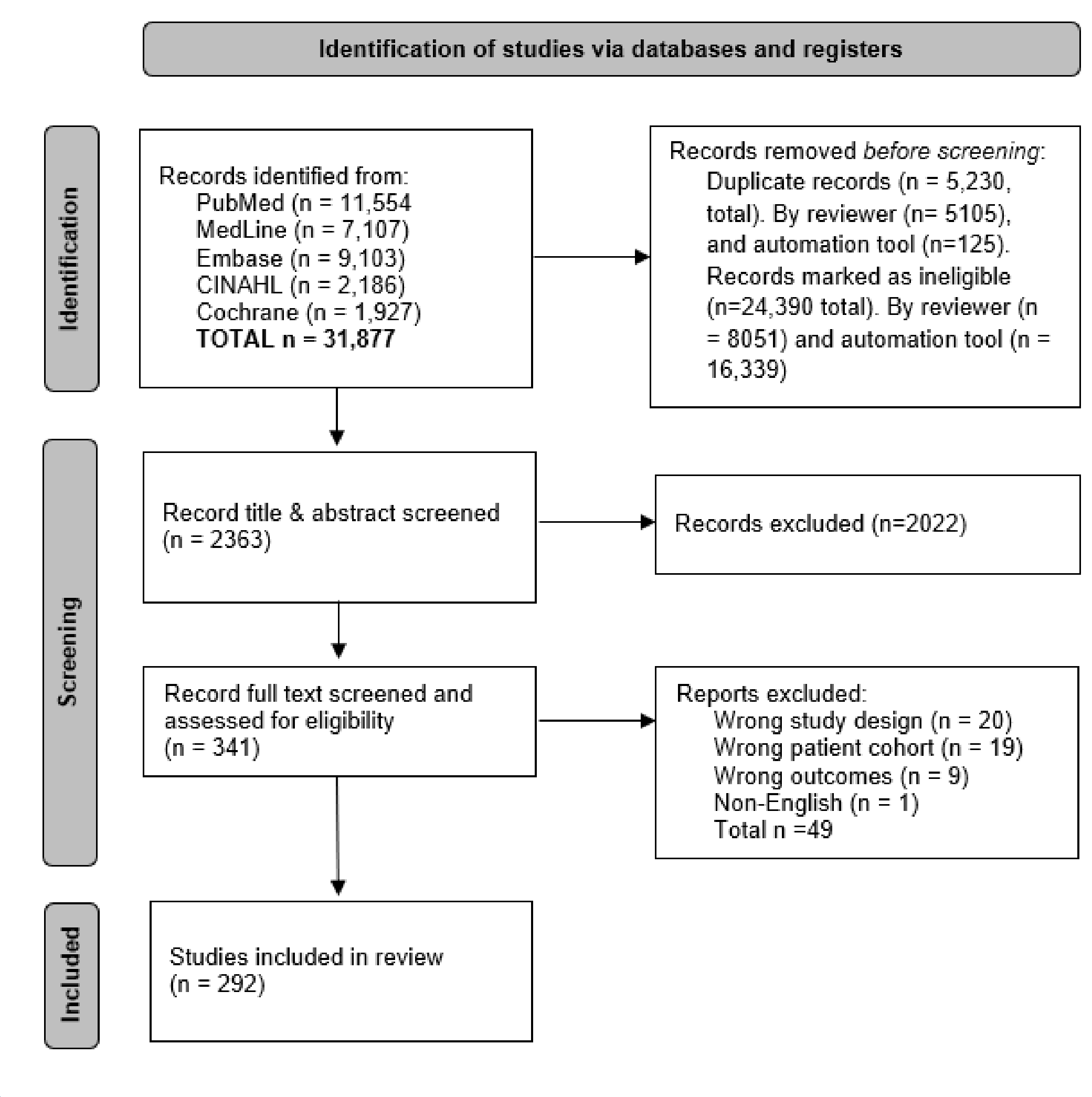
Poor communication continues to be the leading factor contributing to sentinel events in health care.

(The Joint Commission. (2023). *Sentinel Event Data 2022 Annual Review*. The Joint Commission Retrieved from http://www.jointcommission.org/Sentinel_Event_Policy_and_Procedures/)

METHODS

A systematic search of MedLine, PubMed, Cochrane, CINAHL Complete and Embase databases was performed. Eligibility criteria included, but were not limited to, adult patients with cancer, and studies published between 2017 to 2022. Articles were screened by two reviewers (KC, ET), and data extracted into Covidence by two reviewers (KC, ET) for 20% of records, and remainder by one review due to high interrater reliability. Data extraction included study characteristics and detailed information on CVADs including terminologies and definitional sources for complications and premature removal reasons. Data was free text to capture nuances in the language used.

Figure 1. PRISMA Flow diagram



RESULTS

From a total of 2363 potentially eligible studies, 292 were included in the review (Figure 1). A total of 213 unique descriptors were used to refer to the different types of CVADs, and did not include spelling variations, hyphenation, or the use of capitals (Table 1). The greatest variation in terminology was for totally implantable venous access devices, with 104 different names. Of the 99 studies reporting on CVAD related complications, only 57% (n=56) of the studies provided definitions. Of the 193 studies reporting on premature removal, only 44% (n=84) of the studies provided definitions. Where available, definitions were author-derived and/or from national resources and/or other published studies (Tables 2, 3).

Table 1. CVAD nomenclature

| | Central venous access device (All devices) (CVAD) | Totally implantable venous access device (TIVAD) | Tunnelled cuffed centrally inserted central catheter (tc-CICC) | Centrally inserted central catheter (CICC) | Peripherally inserted central catheter (PICC) |
|-------------------------------------|---|--|---|--|--|
| Studies (n=) | 131 | 142 | 51 | 53 | 163 |
| Unique names | 14 | 104 | 41 | 27 | 25 |
| Studies using one name | 118 (90%) | 98 (69%) | 34 (67%) | 37 (70%) | 152 (93%) |
| Studies using multiple names | 13 (10%) | 44 (31%) | 17 (33%) | 16 (30%) | 11 (7%) |
| Most common names | <ul style="list-style-type: none"> Central venous catheters (n=96) Central venous access devices (n=26) | <ul style="list-style-type: none"> Totally implantable venous access ports (n=20) Ports (n=14) Totally implantable venous access devices (n=13) | <ul style="list-style-type: none"> Hickman lines (n=13) Hickman catheters (n=10) Tunnelled catheters (n=8) Hickmans (n=4) | <ul style="list-style-type: none"> Centrally inserted central catheters (n=11) central venous catheters (n=5) non-tunneled central venous catheters (n=5) non tunneled central venous catheters (n=4) nontunneled catheters (n=4) | <ul style="list-style-type: none"> Peripherally inserted central catheters (n=142) Peripherally inserted central venous catheters (n=9) Peripherally inserted catheters (n=3) |

Table 2. Definitional sources for CVAD complications where provided

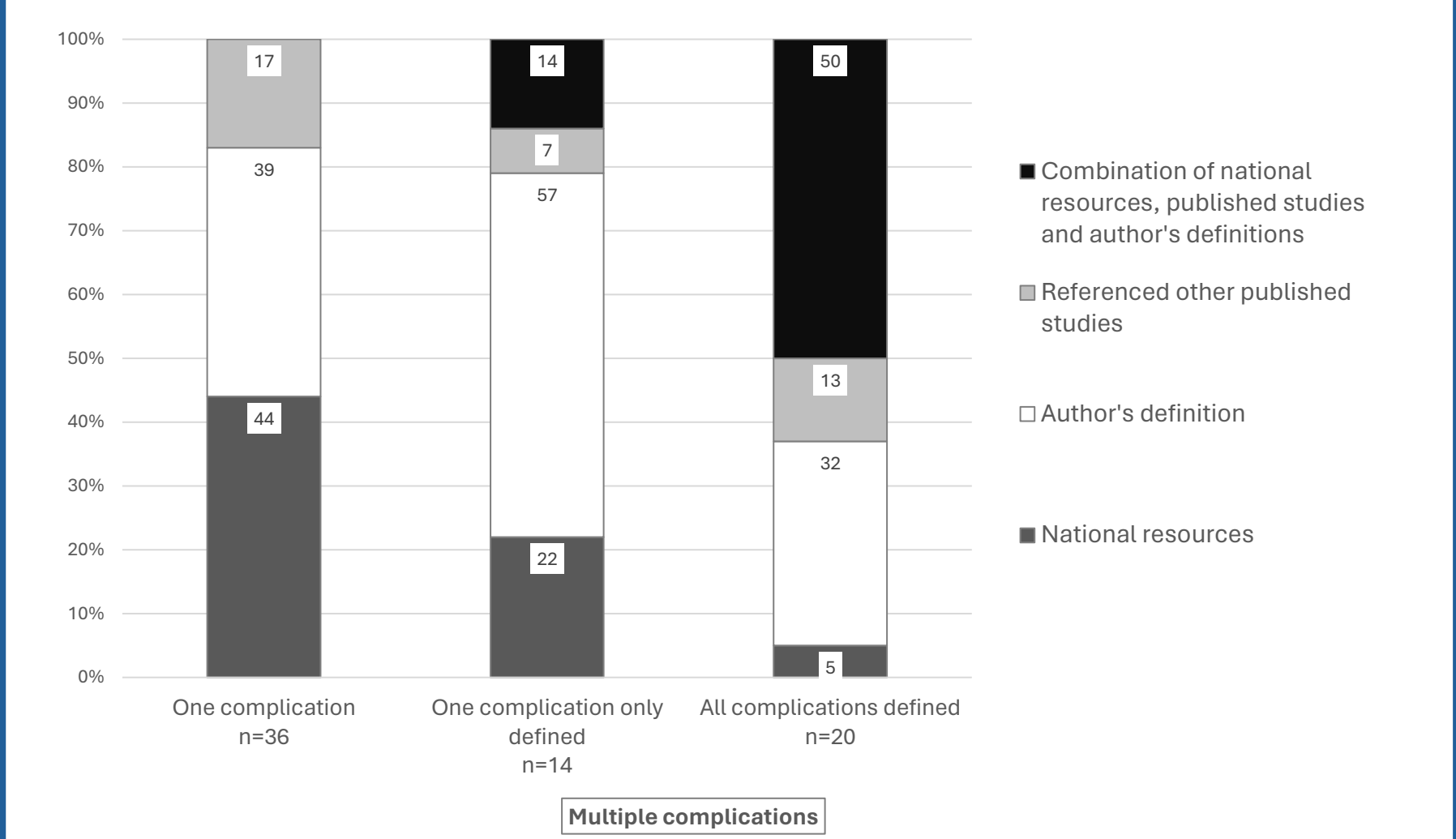
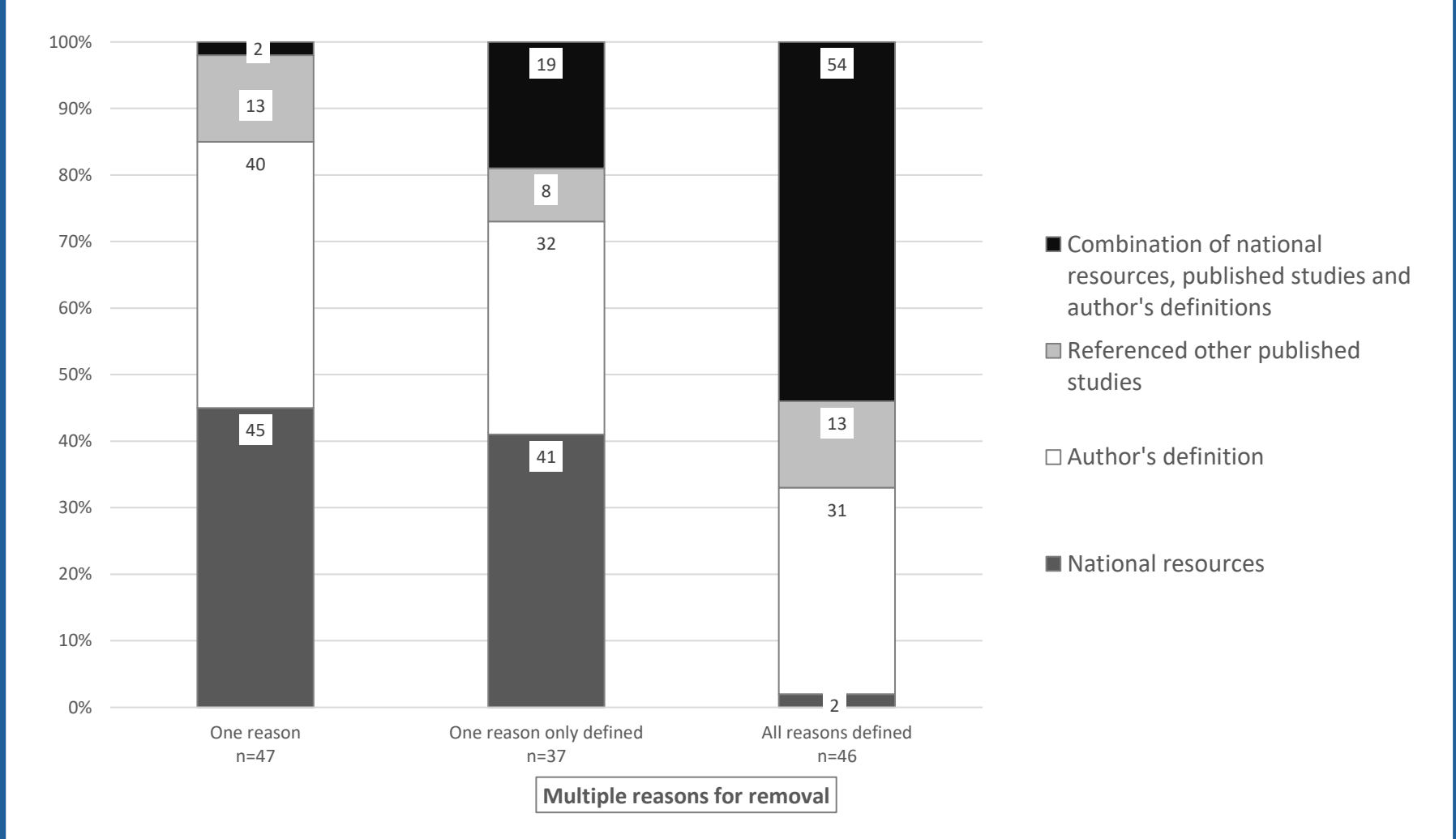


Table 3. Definitional sources for CVAD complications where provided



Conclusion

Substantial variation in CVAD terminology and a lack of standard definitions for CVAD-related complications and premature removal reasons was identified. This scoping review demonstrates the need to standardise CVAD nomenclature to enhance communication between healthcare professionals as patients undergoing cancer treatment transition between acute and long-term care, to enhance patient safety and rigor of research protocols, and improve the capacity for data sharing.

NEXT STEPS

Multidisciplinary collaboration with the global vascular access community using modified Delphi consensus to establish standardised nomenclature alongside local strategies including education and dissemination.