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# Identification of patients at risk for failed cannulation with the A-DIVA score

**Rick van Loon, PhD CRNA**

*Fontys University of Applied Sciences, Eindhoven, The Netherlands*

*Catharina Hospital, Eindhoven, The Netherlands*

No conflicts of interest to declare





**CANNULATE  
INFUSATE**

# Failed cannulation

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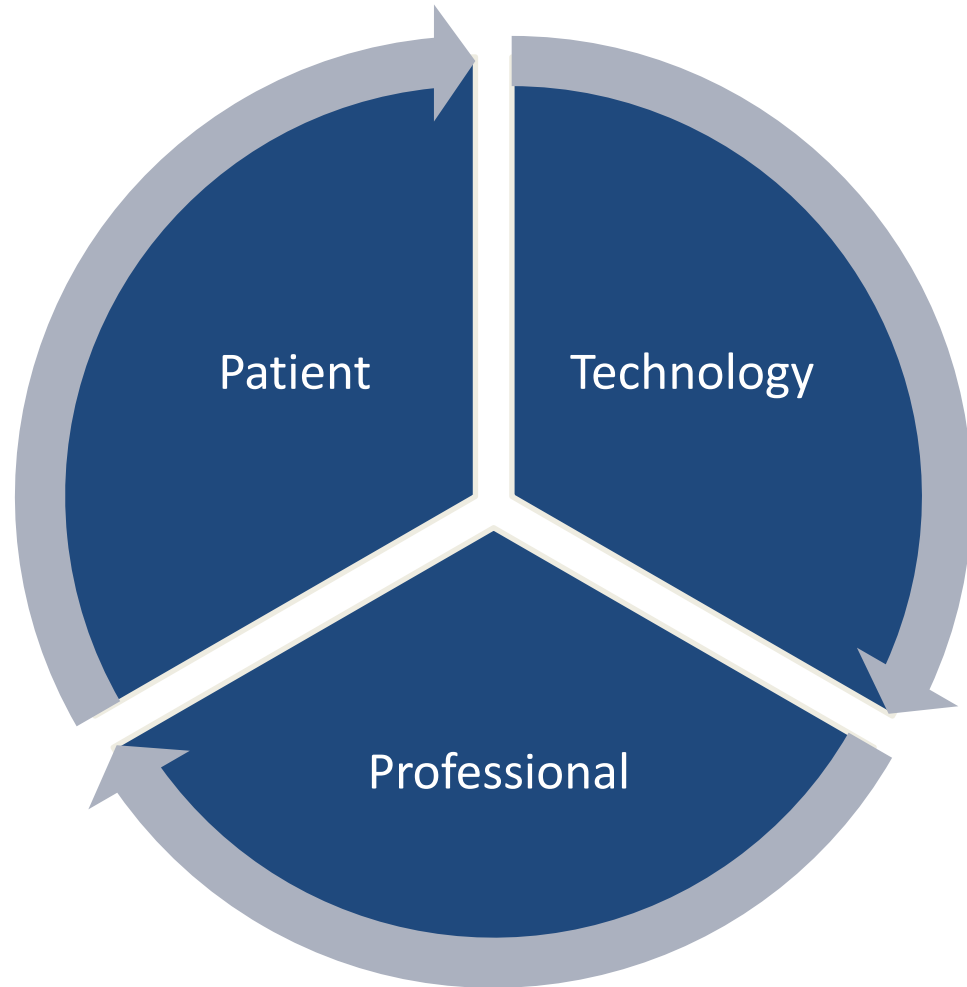
Unless peripheral intravenous cannulation being a straightforward and routine medical procedure, not every procedure is successful on its first attempt.



1. van Loon F, Puijn L, van Aarle W, et al. Pain upon inserting a peripheral intravenous catheter: Size does not matter. *J Vasc Access.* 2018;19(3):258-265.
2. van Loon F, Leggett T, Bouwman A, et al. Cost-utilization of peripheral intravenous cannulation in hospitalized adults: An observational study. *J Vasc Access.* 2020;21(5):687-693.

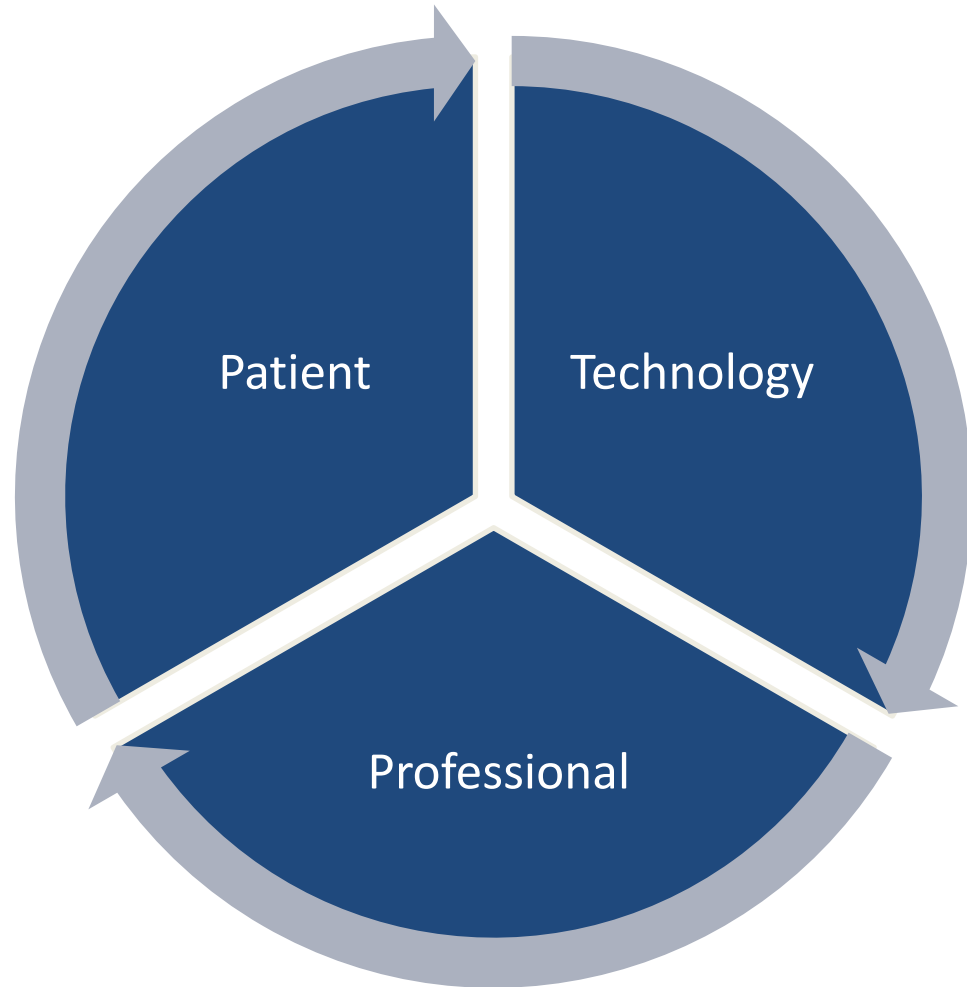
# Successful intravenous cannulation

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# Successful intravenous cannulation

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Selection of patients at risk

Efficient use of additional technology

Training and experience of healthcare professionals

# Selecting the DIVA patient

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# Selecting the DIVA patient

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1. History of failed cannulation
2. No visible vein
3. No palpable vein
4. Venous diameter less than 3 millimeters
5. Expectation of failed cannulation



# The A-DIVA score

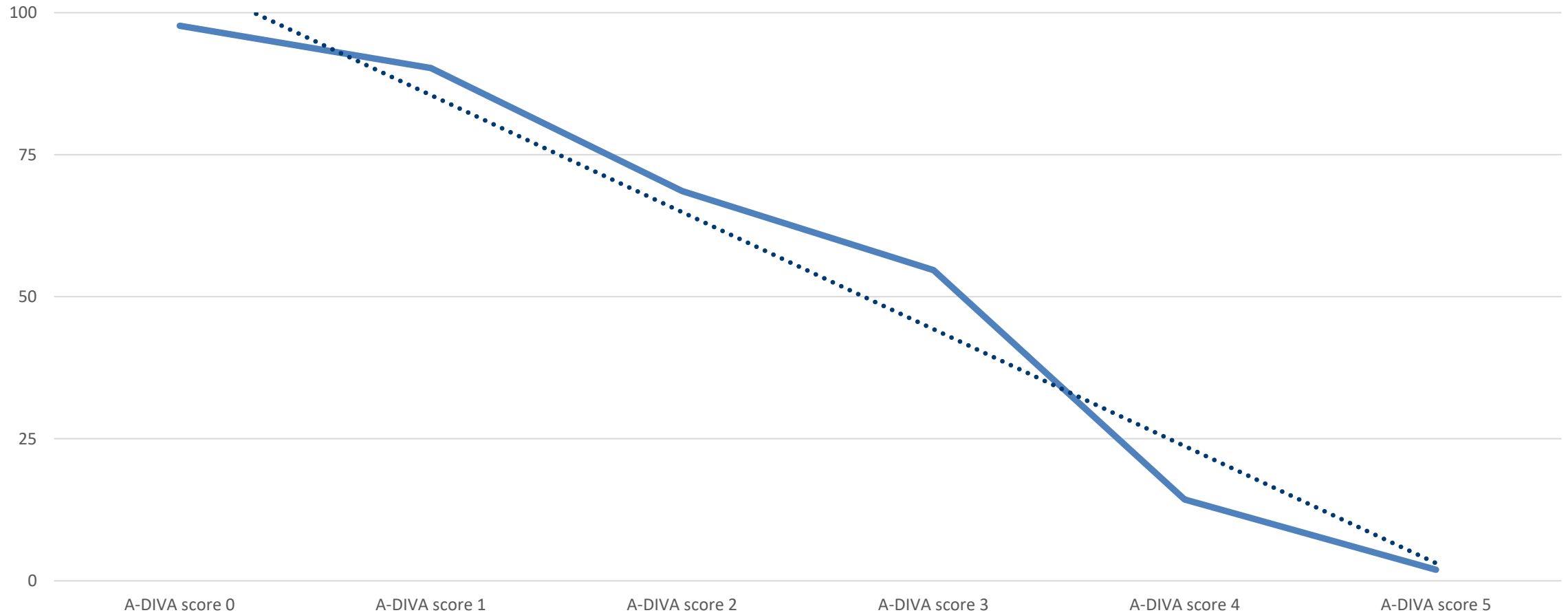
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Factor	Score
Is there a known history of a difficult intravenous access?	1
Do you expect a failed first attempt or a difficult intravenous access?	1
Is there an inability to identify a dilated vein by palpating the upper extremity?	1
Is there an inability to identify a dilated vein by visualizing the upper extremity?	1
Has the largest dilated vein a diameter less than 3 millimeters?	1

The additive A-DIVA scale is represented as an additive scoring system to calculate the predicted risk for an individual patient; the scores for existing risk factors are added to give an approximate estimation of a difficult intravenous access. Scores are added after answering a question with “yes”.



# The A-DIVA score



# A-DIVA risk profiles

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## LOW RISK

A-DIVA score 0 – 1  
Prevalence 73%  
Success rate 94%

## MODERATE RISK

A-DIVA score 2 – 3  
Prevalence 17%  
Success rate 63%

## HIGH RISK

A-DIVA score 4 – 5  
Prevalence 10%  
Success rate 6%

# A-DIVA risk profiles

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# Strategy in clinical practice

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**“a person-orientated strategy can be applied to the individual patient based on its A-DIVA score”**

Technology during  
insertion



Consulting specialized  
professionals



Selection of vascular  
access devices



# A-DIVA score: low risk

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- Peripheral intravenous cannulation can be performed by every clinician who is capable and competent.
- No additional technology should be used.
- After two failed attempts should the patient being seen as one with a high risk profile according the A-DIVA scale.

# A-DIVA score: moderate risk

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- Peripheral intravenous cannulation should be performed by the most experienced and trained clinician.
- Technology should focus on optimizing venous conditions.
- After one failed attempt should the patient being seen as one with a high risk profile according the A-DIVA scale.

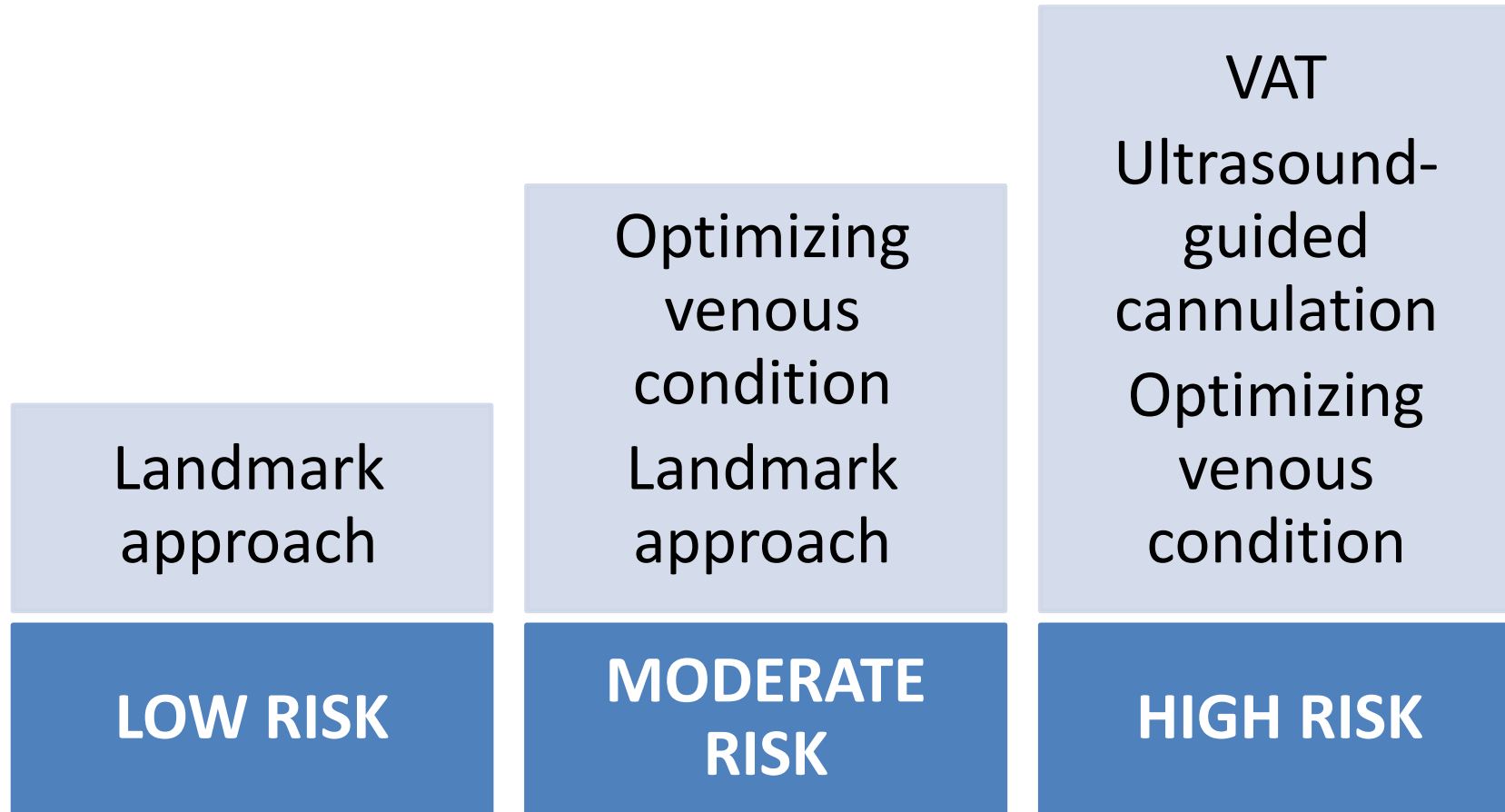
# A-DIVA score: high risk

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- Ultrasound-guided peripheral intravenous cannulation should be performed by the most experienced and trained clinician.
- This clinician has completed a training in ultrasound use after following a fixed curriculum.
- A clear consideration for the chosen device should be made.
- After two failed attempts, a reconsideration should take place about the strategy to be followed to obtain vascular access.

# A-DIVA score: step-up approach

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# Take home message

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**“select the patient at risk prospectively and apply a patient-orientated strategy to increase cannulation success and create optimal care regarding vascular access management”**

