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Diabetic foot syndrome in Swiss interprofessional footcare centers - a multicenter, retrospective cohort study

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Background

- The annual incidence of diabetic foot ulcers (DFU) in Swiss diabetes patients was approx. 2% in 2016 [1]. DFU is often accompanied by peripheral artery disease (PAD), soft tissue infections or osteomyelitis and can lead to minor or major amputations. In 2023, Switzerland had an average of 22 amputations due to diabetes per 100'000 persons in the general population [2]. To ease this burden of disease, the specific causes and influencing factors need to be known.
- As a first step, the Swiss interprofessional QualiCCare working group on diabetic foot syndrome (DFS) developed a generic DFS practical guidance and national practice guidelines for an indication-specific treatment approach [3].

→ We hypothesized that delayed patient referral to and treatment in interprofessional footcare centers (IPFCC) impact the treatment outcomes and planned a retrospective cohort study in three IPFCC in German-speaking regions of Switzerland.

Aims

1. To describe the demographics of patients with DFS referred to one of the three IPFCC of the cantonal hospitals of Lucerne and St. Gallen, and the hospital of Emmental.
2. To assess the diabetes-related healing rates and times, as well as the times from wound onset to the first consultation with an IPFCC.

Results: patients' demographic information

Included patients (n=158) presented with a maximum of four wounds, resulting in a total of 185 ulcers (40 women and 118 men; median age at first outpatient contact is 72.0 years, IQR: 63.0 to 81.0). Patient comorbidities and history of DFS are described below:

Total N (%)		158 (100.0)
Diabetes type	Prediabetes	6 (3.8)
	Unspecified type	0 (0.0)
	Pancreoprivic diabetes	1 (0.6)
	Type 2	142 (89.9)
	Type 1	9 (5.7)
	(Missing)	0 (0.0)
Neuropathy	Yes	132 (83.5)
	No	9 (5.7)
	(Missing)	17 (10.8)
Peripheral artery disease	Yes	85 (53.8)
	No	68 (43.0)
	(Missing)	5 (3.2)
Heart failure	Yes	30 (19.0)
	No	123 (77.8)
	(Missing)	5 (3.2)
Terminal renal insufficiency	Yes	15 (9.5)
	No	143 (90.5)
	(Missing)	0 (0.0)
Previously known DFS	Yes	87 (55.1)
	No	71 (44.9)
	(Missing)	0 (0.0)
Previous consultation with an IPFCC*	Yes	51 (32.3)
	No	102 (64.6)
	(Missing)	5 (3.2)
Podiatric foot care	Yes	54 (34.2)
	No	66 (41.8)
	(Missing)	38 (24.1)

*Interprofessional footcare center

Of the 87 patients with previously known DFS, 42 had a previous consultation with an IPFCC. Concerning podiatric footcare, 30 patients of the 87 received regular podiatric footcare and 33 did not (24 missing data). Finally, 8 patients with a previous DFS and treated in an IPFCC did not receive podiatric foot care.

Conclusion

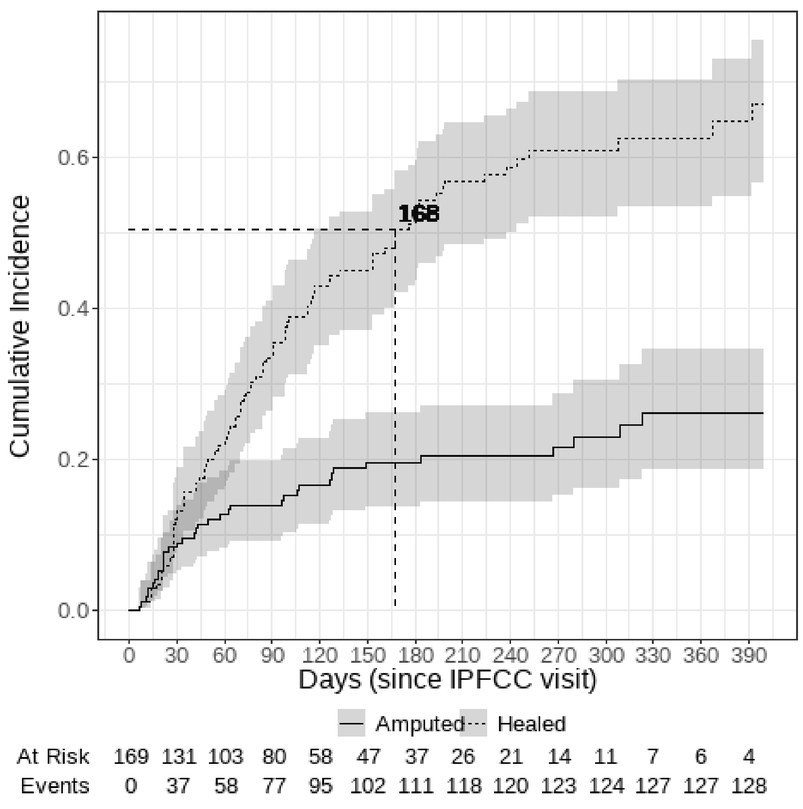
Our results suggest that timely wound care increases the likelihood of healing, but other factors (e.g., osteomyelitis and PAD) have a stronger impact on the outcome. Future prospective studies, including different region-specific healthcare settings across Switzerland, should be conducted. Furthermore, the national DFS guidelines and the indication-specific practice guidelines, developed by the interprofessional QualiCCare DFS expert panel, should be widely promoted, implemented, and its effect subsequently evaluated.

Methods

- Data of patients aged ≥18 who presented in one of the three IPFCC with a newly appearing DFS during the years 2022 and 2023 (inclusion period) were collected, including follow-up consultations until June 30, 2024 (observation phase).
- Demographic information and disease-related data were recorded in a newly developed SecuTrial® database.
- Cumulative incidence curves and competing risks regression models for clustered data were computed to estimate the time between wound occurrence and healing.
- The dependent variable in the competing risks regression is time from the first consultation with an IPFCC to wound healing, which helps to avoid immortal time bias, while time from the wound onset to the first consultation with an IPFCC is one of the covariates.

Results: healing rates and times

The data of 169 ulcers was available for further analysis. The cumulative incidence curves show the evolution of the probability of wound healing and amputation over time. The cumulative rate of wound healing reached 50% at 168 days after adjustment for amputation as a competing risk.



The adjusted competing risks regression model suggested that the likelihood of wound healing decreased by 2% for every additional month between the wound onset and the first consultation with an IPFCC (HR=0.98, 95% CI [0.95-1.01], p-value=0.16). In addition, the results suggested that the DFU-accompanying comorbidities osteomyelitis and PAD decreased the likelihood of wound healing.

Competing risks regression with clustered data

	Unadjusted (n=169)			Adjusted (n=169)		
Label	**HR**	**95% CI**	**p-value**	**HR**	**95% CI**	**p-value**
Time from the wound onset to the first contact with a foot center (months)	0.99	[0.96, 1.02]	0.37	0.98	[0.95, 1.01]	0.16
Osteomyelitis (Yes)				0.50	[0.26, 0.96]	0.039
Osteomyelitis (Unknown)				0.43	[0.17, 1.11]	0.082
Soft tissue infection (Yes)				0.96	[0.54, 1.70]	0.88
Soft tissue infection (Unknown)				1.18	[0.40, 3.50]	0.76
Peripheral artery disease (Yes)				0.45	[0.28, 0.72]	0.001
Peripheral artery disease (Unknown)				1.01	[0.36, 2.84]	0.98

References

1. Schimke K, Chappuis B, Egli M, Hagon-Traub I, Malacarne S, Schönenweid C, et al. Prévention et prise en charge des problèmes de pieds chez les patients diabétiques. Swiss Medical Forum. 2016;16:578–83.
2. Jörg R, Zufferey J, Zumbrunnen O. Lower limb amputations in patients; Swiss Health Care Atlas [Internet]. 2025. Available from: https://www.versorgungsatlas.ch/en/indicator/_145/a
3. Peter-Riesch B, Czock A, Uçkay I. Swiss interdisciplinary guidance on good practices for acute and complicated diabetic foot syndromes. Swiss Med Wkly. 2021;151.

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