v. 4, n. 102, 2024

International Journal of Health Science

*Acceptance date: 09/12/2024*

# INCIDENCE AND EPIDEMIOLOGY OF DIABETIC FOOT IN BRAZIL: A SYSTEMATIC LITERATURE REVIEW

***Gilberto Felix do Nascimento***
Bachelor of Nursing, Maurício de Nassau - PE

***Ralyson Teixeira Azevedo***
Student at Faculdade Maurício de Nassau-Garanhuns

***Felipe Moraes Alecrim***
Lecturer at the Maurício de Nassau-Garanhuns College, Lecturer at the Faculty of Medical Sciences - Afya, Lecturer at the Open College of Brazil - UAB

***Rafaella Menezes de Oliveira Parente***
Professor at the Faculty of Medical Sciences-Afya

***Cleide dos Santos Batista***
Professor at the Faculty of Medical Sciences - Afya Garanhuns

***Cleyse Phaine Jordão da Costa Ipolito***
Lecturer at Maurício de Nassau College

***Walquiria Quirino de Queiroz***
Nurse, Master in Nursing, Lecturer at Maurício de Nassau College, Garanhuns - PE

***Venancio Leonardo de Melo Neto***
Nurse, Lecturer at Maurício de Nassau College

***Gilberto Felix do Nascimento***
Bachelor of Nursing, Maurício de Nassau - PE

***Renata da Silva Siqueira Medeiros***
Nurse, Garanhuns Health Department

***Ana Karla Rodrigues Lourenço***
Lecturer, Mauricio de Nassau College - Garanhuns

***Nathália Ferreira da Silva Monteiro***
Bachelor in Nursing, Mauricio de Nassau College, Garanhuns

***Elitânia Maria Paulino da Silva***
nutritionist, specialist in maternal and child nutrition, lecturer at Maurício de Nassau College, Garanhuns-Pe

"*Nursing is an art, and to realize it as an art requires a devotion as exclusive, a preparation as rigorous, as the work of any painter or sculptor.*"

(Florence Nightingale)

**Abstract:** A diabetic foot attack is an acute and serious condition that threatens the affected limb and the patient's life. The term arises from the need to identify patients who require urgent intervention; it conveys a sense of urgency and gravity, recalling the term "time is tissue". The classic presentation is that of a severely infected foot with rapidly progressive necrosis that requires urgent care and surgery to debride all necrotic tissue and purulent collections. In view of the importance of this condition, the aim of this study is to investigate the epidemiological profile of diabetic foot care in the Brazilian population in the literature. For this purpose, a systematic literature review was used, where a search was made in the following databases: Pubmed, Scielo and Google Scholar, respecting the strategic research study method with descriptive objectives, a qualitative approach and an exploratory research technique to acquire new knowledge about the population in relation to this theme using the descriptors and health. This review describes the pathophysiology, clinical presentation, treatment and evolution of diabetic foot attacks in terms of their epidemiology and demographics, and concludes that more studies should be carried out in order to better understand how nurses can intervene in this area.

**Keywords:** Surgery. Necrosis. Diabetic polyneuropathy.

## INTRODUCTION

Diabetes mellitus is a chronic condition that affects millions of people worldwide, resulting in a series of serious complications and among these complications, the diabetic foot is recognized as one of the most severe and debilitating (Vuorlaakso *et al.*, 2024). Defined by the International Working Group on the Diabetic Foot in 2020 as "infection, ulceration or destruction of the tissues of the foot of a person with a current or previous diagnosis of diabetes mellitus, usually accompanied by neuropathy and/or peripheral arterial disease in the lower extremity," the diabetic foot represents a significant challenge for both patients and health professionals. (Craus; Mula; Coppini, 2023).

The global prevalence of diabetic foot remains alarming, ranging from 3% in Oceania to 13% in North America, with a global average of 6.4%, as mentioned in the IDF Diabetes Atlas, 9th edition (2019) (Mcdermott et *al.*, 2023). This high prevalence rate, coupled with an often unfavorable prognosis, makes diabetic foot one of the main causes of disability and mortality among diabetic patients, in many cases surpassing the mortality rate of common cancers such as lung and pancreas cancers (Rubitschunget *al.*, 2021).

The economic consequences of diabetic foot are equally devastating, where patients with foot ulcers face healthcare costs five times higher than those without ulcers and in low-income countries, the cost of treating complex diabetic foot ulcers can amount to several years of the patient's income, leading many families to financial ruin (Hickset *al.*, 2019).

Given the complexity of the diagnosis and treatment of diabetic foot, which involves several medical specialties such as endocrinology, vascular surgery, orthopedics and general surgery, and nursing staff, it is clear that traditional approaches of isolated specialized treatment are insufficient and in response to this need, the formation of multidisciplinary teams (MDTs) has proven to be a promising strategy, where these teams, made up of professionals from different areas, adopt a holistic, patient-centered approach to ensure accurate diagnosis and effective treatment. (Lusendiet *al.*, 2024).

The urgent need for coordinated and integrated actions to tackle the incidence and epidemiology of diabetic foot in Brazil, as well as investments in health education, strengthening of MDTs, organizational improvements and effective public health policies are fundamental to reducing the complications associated with diabetic foot and improving the quality of life of diabetic patients in the country. (Watt*al.*, 2021).

Against this backdrop, the aim of this study is to investigate in the literature the importance of multidisciplinary teams and the role of nurses in the treatment of diabetic foot, assessing their advantages, challenges and impact on patients' quality of life.

## DEVELOPMENT

This is a systematic review of the literature with studies published in the last five (5) years on the incidence and prevalence of diabetic foot in Brazil, which consisted of the following steps: 1. Identification of the problem and selection of the hypothesis; 2. Search in databases with the delimitation of descriptors; 3. Definition of the information to be extracted from the selected studies; 4. Evaluation of the studies included in the review; 5. Analysis and understanding of the information obtained through the main results of the study and 6. Presentation of the results of the review.

The search for journals indexed in databases was carried out in the following databases: Latin American and Caribbean Health Science Literature (LILACS), *Medical*

*Literature Analysis and Retrieval System Online* (MEDLINE), accessed through the Pudmed portal; and, *Scientific Electronic Library Online* (SCIELO) through the Health Sciences descriptors (DeCS) and their booleans "And" and "Or".

The inclusion criteria were articles published in the last (05) five years, articles in Portuguese and English, articles published in journals in scientific databases whose central focus was the incidence and prevalence of diabetic foot in Brazil.

The criteria used for exclusion were studies or abstracts, original and outside the research period, both repeated quantitative and quantitative review or opinion, exploratory not related to the topic and descriptive in other languages.

The following criteria were used to exclude articles during the filtering process: articles published before 2018, articles not published in databases or scientific journals, articles not in Portuguese or English whose topic was not relevant to the research and after searching and reading all the titles and abstracts, those deemed relevant to the objective of the studies were selected.

In the next stage, the full texts of the articles that met the inclusion criteria were obtained and subjected to exhaustive reading in order to understand and analyze their content. Considering the diversity of works referring to the incidence and prevalence of diabetic foot in Brazil in the first search and the criteria established for exclusion, initially the titles of the works will be considered, followed by the central objectives of the literature, which after successive readings of the texts available as full abstracts, parallel approaches and different approaches to the research interest will be detected.

Based on this, three more filters were applied, repositioning the descriptors in the databases with the combination of the Boolean operators AND and OR, where it was found that the initial number of literatures found in the first search in both databases was reduced, since the following will be excluded from the study: literature reviews, dissertations, doctoral theses, experience reports and case studies, as well as repeated studies, in other languages and outside the defined period.

Of the 765 studies identified, 10 were selected for review. The flowchart is organized according to the PRISMA criteria, illustrating how the studies were excluded (Figure 01). A summary of the main aspects relating to the objectives, methods, results and conclusions of the 10 selected studies can be found in Table 01.

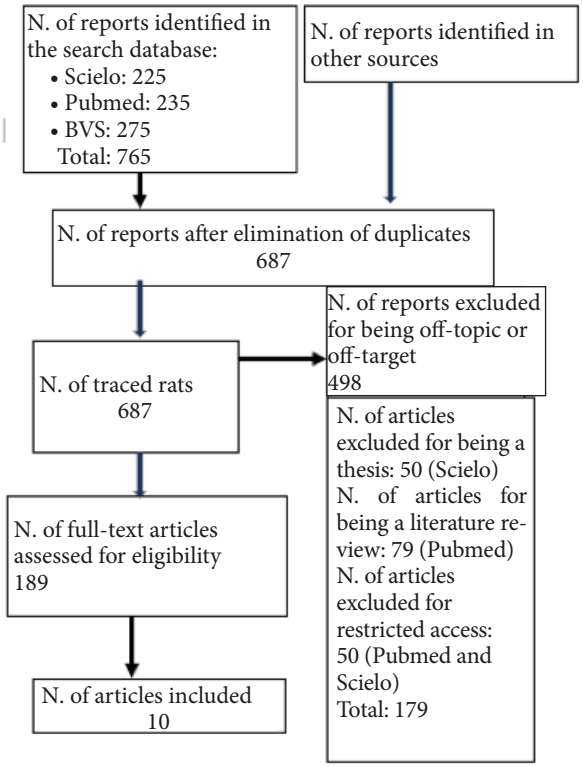


Figure 1- Flowchart of the studies analyzed.

| AUTHORS | ARTICLE TITLE | TYPE OF STUDY | OBJECTIVE | MAIN RESULTS |
|---|---|---|---|---|
| X1 Virgineetal, (2020) | **Effect of contact with podiatry in a team approach context on diabetic foot ulcer and lower extremity amputation: systematic review and meta-analysis** | systematic review and meta-analysis | The goal of this study is to examine the effect of patient contact with podiatry in MDTs and highlight its specific role e, if possible, determine which podiatric interventions play a fundamental role in MDTs. | The results of this systematic review support the concept of that MDT with podiatrists leads to a reduction statistically significant LEAs (total and main LEAs) compared to interventions without MDT. |
| X2, CAVALCANTE; DE MENESES (2020) | **The effects of felted foam in diabetic foot treatment: systematic review with meta-analysis** * | Systematic review with meta-analysis | To evaluate the effects of felted foam in the treatment of diabetic foot ulcers. | The average plantar pressure of individuals exposed to felt was reduced by 10.77 kilopascals (95%CI--14.92,6.62;p<0.001). |
| X3, Richard et al., (2020) | **A Systematic Review of the Impact of Foot Care Education on Self Efficacy and Self Care in Patients With Diabetes** | Systematic review | Objective:This review aims to assess the evidence supporting the impact of patient education on foot care in self-efficacy, self-care behavior and self-care knowledge in individuals with diabetes. | Three studies also reported the onset of a withdrawal dyskinesia characterized by abnormal choreiform movements, as well as confusion and speech disturbance in some cases, however, these findings were limited by the number and quality of case reports identified. |
| X4, MMusuuza (2019) | **A systematic review of multidisciplinary teams to reduce major amputations for patients with diabetic foot ulcers ?** | Systematic review | Several single-center studies have reported significant reductions in major amputations among patients with foot ulcers diabetic after the start of multidisciplinary teams. | Ninety-four percent (31/33) of the studies have reported a reduction in major amputations after the establishment of a multidisciplinary team. |
| X5, Golledge, (2022) | **Towards Home-Based Diabetic Foot Ulcer Monitoring: A Systematic Review** | Systematic review with meta-analysis | To carry out an updated systematic review of randomized clinical trials examining the effectiveness of home foot temperature monitoring in reducing the risk of foot ulcers related to diabetes (DFU). | All studies reported instructing participants to take their skin temperature at home within six or more places on each foot, using a portable infrared thermometer, at least daily, and reduce ambulatory activity in response to critical points (temperature differences >2.2°C in two consecutive periods). days between similar locations on both feet). One, one and three trials were considered to have a low, moderate and high risk of bias, respectively. |
| X6, (Rossboth; Lechleitner; Oberaigner, 2020) | **Risk factors for diabetic foot complications in type 2 diabetes - a systematic review** | Literature review study. | Evaluate external factors that directly influence the complications of diabetes mellitus | Most studies described a consistently positive association with different outcomes of interest related to FD for gender, peripheral neuropathy, retinopathy, nephropathy, poor glycemic control, insulin use, duration of diabetes, smoking and height. For age, hypertension, dyslipidemia and body mass index, the results remain inconsistent. |
| X7, Fan; Jian; Wu, (2021) | **Sex difference for the risk of amputation in diabetic patients: A systematic review and meta-analysis** | Systematic review meta-analysis | Analyze correlations between male and female diabetes complications | In conclusion, this study found that male diabetic patients were associated with an increased risk of amputation than female diabetic patients, while the predictive value for male patients in the amputation |

| | | | | |
|---|---|---|---|---|
| X8, Beulens; et al (2021) | **Prognostic models for predicting the risk of foot ulcer or amputation in people with type 2 diabetes: a systematic review and external validation study** | External systematic review | Identification of prognostic models for foot ulcers or amputations | Model selection of the 21 studies that reported 34 models, were excluded for external validation. The most important reason was that the model developed for a different target population (n =5) such as people with critical limb ischemia. Two studies were excluded for external validation because parameter estimates were not reported and five studies could not be validated because the required predictors or outcomes (i.e. incidence of neuropathy) were not available in the cohort |
| X9, Crawford et al., (2019) | **Preventing foot ulceration in diabetes: Systematic review and meta-analyses of RCT data** | Systematic review meta-analysis | To analyze significant correlations of prevention and care of the diabetic foot with the aid of primary and secondary interventions. | It was mainly interested in foot ulcers (incident, primary and recurrent) reported as binary outcomes (present/absent). These could be defined, for example, as "a full-thickness skin defect that requires more than 14 days to heal" or according to an ulcer classification system. The primary outcomes were the absolute numbers of incident primary ulcers and incident recurrent ulcers. |
| X10, Goodallet al.,(2020) | A systematic review of the impact of foot care education on self-efficacy and self-care in patients with diabetes | Systematic review | To evaluate the evidence supporting the impact of patient education on foot care on self-efficacy, self-care behavior and self--care knowledge in individuals with diabetes. | The risk of bias of the included studies is summarized. 2. The risk of bias was generally unclear or high in the included studies, with the exception of the studies by Lincoln et al. Sharon and others, which were considered to be methodologically low risk |

Table 01. Summary of the information from the studies researched, selected by search tool from 2019 to 2024.

In X1, according to the study carried out in the article, the participation and inclusion of podiatrists in the healthcare team can lead to better care and prevention of complications in these groups of patients. However, it is important to emphasize that the inclusion of a podiatrist may depend on several factors, ranging from patient adherence to treatment to their inclusion in the multidisciplinary team. The participation of this professional in the health care of diabetic foot patients brings benefits in terms of preventing complications, improving quality of life and clinical results.

In X2, the authors demonstrate the application of felt foam in areas of plantar pressure to reduce friction and pressure on the feet of patients with diabetic neuropathy. There is a significant reduction in the severity of these ulcers, with improvements in healing and pain, and no side effects. Felt foam is yet another treatment option for these individuals with diabetic neuropathy, giving them greater comfort in the plantar region of the foot.

In X3, health education plays a fundamental role when it comes to guiding people and caring for the complications of diabetic foot is one that should always guide information for this public that has been increasing over the years, directly impacting people's lives, whether this impact is social, economic or psychological. Even with the low quality shown in the research due to the low return, this research is significant in the lives of individuals, and governments should expand access to public policies on self-care, involving professionals, patients and family members who can also help those with these complications.

In X4, the study shows the importance of the multidisciplinary team with a more comprehensive approach bringing effective results for patients with diabetic foot ulcers, enabling greater identification of risks, in which each professional involved will contribute to more accurately identifying the associated risk factors. With a team of several professionals,

patients can be more involved in treatment and it is clear that the multidisciplinary health team plays an extremely important role in reducing amputations and improving the clinical results of interventions.

In X5, the result of the study shows that daily monitoring of foot temperature at home can reduce diabetic foot ulcers and be an ally to the set of interventions in the care of these individuals. It is important to emphasize that these interventions should be part of a care plan for people with diabetes, which goes beyond monitoring, blood glucose control, foot care, always remembering that proper care of complications can improve quality of life and reduce amputations and deaths associated with the disease.

In X6, it is described that the most up-to-date studies, based on the external factors with the greatest impact on complications affecting patients with type 2 diabetes mellitus (DM), are directly linked to irregular health care habits, since patients with this pathology, associated with smoking habits and glycemic decompensation due to lack or irregular use of insulin, create the propitious factor for complications. This study highlights the importance of testing longitudinal samples of patients with a larger territorial coverage, with the educational aim of identifying whether there are other factors that could become possible aggravating factors for this pathology associated with future complications and modifiable risk factors that could be included in new studies, which could be used to predict and prevent new or future complications.

In X7, the authors corroborate that patients with diabetes mellitus have different clinical conditions. The difference is directly related to the male and female sexes. Studies over the years have shown that the complications suffered by men and women tend to affect the male sex more aggressively, with cohort samples showing that the percentage of hospitalizations or amputations of the lower limbs (LL) affects more men. This risk is associated with diabetic neuropathy, vasculopathy and atherosclerosis. However, there is an assessment of predictive values, which considers that the risk of amputation between males and females in diabetic patients is considered to be a mild predictive value.

In X8, the authors state that, based on the relevant studies, the use of existing prognostic models requires more interactive validation studies, with a cohort of variable methods and population, as the models currently have concentrated efficacy with satisfactory results only when carried out in the internal outpatient public, mainly after validated collections. Thus, there is evidence that the control of these results is limited, since the same model used in patients located in an external community environment did not produce satisfactory results. Patients with type 2 diabetes mellitus (DM) are 10 times more likely to suffer complications leading to lower limb (LL) amputations, due to their vulnerability and low immunity, which make the complications of patients with type 2 diabetes mellitus (DM) different from those of patients with type 1 diabetes. The pillars of these studies are three stages, making these crucial points for decision-making as to the best treatment to be used for each case and patient requiring greater attention. The division of these models should follow this order: step 1, the prognostic model should have a prospective registry development, step 2, the current model should be used after validation in an independent population sample, step 3, the causal impact of this model should have a direct impact on clinical practice, decision-making and results that should be proven.

In X9, the authors point out that trials aimed at preventive treatments for ulcers on the feet and lower limbs (LLL) of patients with diabetes mellitus (DM) need better results af-

ter the results have been collected and verified, as the existing research has shown divergences in the information collected, considering that, as these are studies to improve conditions for patients with diabetes mellitus (DM), any trial in progress or already obtained needs to achieve satisfactory fidelity in the results, so that the claims of preventive treatment can be inserted into educational practices in a clear and proven way. In this way, preventive treatments have become credible and effective for the patients and sample groups in these trials.

However, it is extremely important that, in order to obtain these results, unsatisfactory research be reviewed or replaced, without any advance information on treatment techniques being disseminated to patients without any affirmative guarantees that the results will be as expected in the future, with the trials meeting the needs of those suffering from this pathology in a preventive manner.

In X10, the authors show that the self-care/efficient samples test results that contribute to the idea that the process has a very relevant objective in the inclusion of education with patients with diabetic foot. However, the same studies show that this model of education requires an extensive process of studies to validate the safety and quality of the expected results, because health education is not limited to teaching patients about the care and measures they need to maintain, but rather to raising awareness among patients that this preventive self-care will allow them to be monitored even more effectively, since their direct involvement means that they will no longer need to be dependent on health professionals or even outpatients, and will only need to be sought out when necessary, as a routine assessment. However, the studies show that the existing gaps do not serve as a parameter for this model to become a guarantee of a methodology that is safe in terms of results. This is because there is no way of saying that the patient with diabetic foot will routinely do what they have been instructed to do, or that family members or caregivers in their home environment will be frequently available to monitor the patient's preventive self-care, In this way, although the cost benefit is obvious, both for the patient and for public health, since there would be no hospitalizations or amputations due to complications as a result of the diabetic foot patient's lack of care, there are also no guarantees that the patient will be maintaining the learning passed on by the professional health educator.

## CONCLUSION

With the results obtained from the research, it is clear that more scientific studies need to be carried out to improve knowledge and generate greater safety in the monitoring and care provided to patients with diabetic foot complications, as it is a process that presents variables that are sometimes beyond the control of health professionals, who are dealing with a disease that has an epidemic, devastating impact on people's lives, be it social, financial, psychological or access to people who often live in remote areas that are difficult to reach. With more information, the professionals involved will be able to offer more comprehensive care to patients, helping to reduce complications and thus increasing the quality of life of the people involved.

However, the importance of multidisciplinary health care for patients with diabetic foot complications, the integration of research, education and adequate care, the participation of patients with these complications and their families, is evident, making it essential to tackle diabetic foot, in this incessant search to promote health education for people affected by these complications.

## FINAL CONSIDERATIONS

In the light of all the studies analyzed, the diabetic foot leaves evidence that the epidemiology of this disease caused by type 2 diabetes mellitus (DM) has become an emerging challenge for public health. The trials and samples of epidemic evolution are totally different, generating even greater attention for health professionals to act with the assistance and evolution of the knowledge necessary for care and treatment, following at the same speed as the complications are present in the lives of patients with this pathology.

In this way, all the resources and investments in trials and data collection for research should be considered by public health as point zero (0) of new discoveries to be used so that present and future results are effective and easy to apply to people with *diabetes mellitus* and its complications, generating greater effectiveness in multidisciplinary health care and in patients' quality of life.

## REFERENCES


BEULENS, J.; HERINGS,R.; LUAS, K.; YAUW,J.; ANCIÃOS, P.; NIJPELS , G.; FEENSTRA,T.; HEIJDEN, A.; SLIEKER, R.; Modelos prognósticos para prever o risco de úlcera ou amputação no pé em pessoas com diabetes tipo 2: uma revisão sistemática e estudo de validação externa. **Diabetologia** V, 64: P, 1550–1562, 2021

BLANCHETTE, V.; BROUSSEAU, M. CLOUTIER, L. Efeito do contato com a podologia em contexto de abordagem em equipa na úlcera do pé diabético e na amputação de membros inferiores: revisão sistemática. **Jounal of Foot and Ankle Research**, p. 01-12, 2020

CRAUS,S.; MULAAE, A.; COPPINIB,D.; O pé na diabetes – um lembrete de um risco sempre presente**. Medicina Clínica** Vol 23, Nº 3: p, 228–33, 2023

CRAWFORD, f.; NICOLSON , D.; HEGGIE, R.; AMANNA, A.; MARTINS, A. GUPTA, S.; LEESE, G.; CHAPPELL,,F.; MCINTOSH, H.; Prevenção da ulceração do pé no diabetes: revisão sistemática e meta-análise de dados de ECR. **Diabetologia**, V, 63:P, 49–64, 2020

FAN, L.; WU, X.;Diferença entre sexos para o risco de amputação em pacientes diabéticos: uma revisão sistemática e meta-análise. P, 1-16, 2021

FLORA MBELA LUSENDI, L.; VANHERWEGEN, S.; MATRICALI , G.; NOBELS, F.; Um consenso Delphi multidisciplinar para definir indicadores de qualidade baseados em evidências para o tratamento de úlceras de pé diabético. **Jornal Europeu de Saúde Pública**,Vol. 34, nº 2, P. 253–259,2024

GOLLEDGE, J.; FERNANDO, M.; ALAHAKOON, C.; LAZZARINI, P.; NETTEN, J.; ÔNIBUS, S.; Stegge, W.; Eficácia do monitoramento domiciliar da temperatura do pé para reduçãodo risco de úlcera no pé relacionada ao diabetes: uma meta-análise. **WILEY**, P.1-10, 2022

GOODALL, R.; KH TANA, M.; ONIDA, S.; DAVIES, A.; SHALHOUB, J.; ELLAUZI, J.; Uma revisão sistemática do impacto da educação sobre cuidados com os pés na autoeficácia e no autocuidado em pacientes com diabetes. **Eur J Vasc Endovasc Surg**, P. 282-292, 2020

HICKS,C.; CANNER, MD.; KARAGOZLU,MHS.; MATHIOUDAKIS,MBA.; MD, SHERMAN,MD.; BLACK, D.; ABULARRAGE,M.; MARYLAND, M.; Quantificando os custos e a rentabilidade do cuidado às úlceras do pé diabético tratadas em ambiente multidisciplinar**. Revista de Cirurgia Vascular,** P, 233-240, 2018

MCDERMOTT, K.; BOULTON, M.; SELVIN, S.; HICKS, C.; ETIOLOGIA, epidemiologia e disparidades na carga das úlceras do pé diabético. **Diabetes Care.American Diabetes Association, p.** 209–221, 2023

MENESES, J.; VIANA,M.; REBOUÇAS, V.; ALENCAR, A.; BORGES, J.; SILVA, A**.;** Efeitos da espuma de feltro no tratamento do pé diabético: revisão sistemática com metanálise. REVISTA **DA ESCOLA DE ENFERMAGEM DA USP JOURNAL OF SCHOOL OF NURSING – UNIVERSITY OF SÃO PAULO**, p. 01-10, 2020

MUSUUZA, J.; SUTHERLAND, B.; KURTER, S.; BALASUBRAMANIAN, P.; BARTELS, C.; BRENNAN, M.; Uma revisão sistemática de equipes multidisciplinares para reduzir grandes amputações em pacientes com úlceras de pé diabético**. Revista de Cirurgia Vascular** v. 71, N.4, p.1433-1446, 2020

RICHARD J. GOODALL, R.; MATTHEW KH TAN, M.; , SARAH ONIDA,S.; ALUN H. DAVIES, A.; JOSEPH SHALHOUB, J.; ELLAUZI, J.; Uma revisão sistemática do impacto da educação sobre cuidados com os pés na autoeficácia e no autocuidado em pacientes com diabetes**. Eur JVasc Endovasc Surg,** V, 60, p, 282-292, 2020

ROSSBOTH, S.; OBERAIGNER, W.; LECHLEITNER, M.; Fatores de risco para complicações do pé diabético no diabetes tipo 2 – Uma revisão sistemática. **Endocrinol Diabetes Metabolism,** p, 1-32, 2021

RUBITSCHUNG, k.; SHERWOOD, A.; CHHABRA, A.; ÖZ, A.; CRISOLOGO,A.; BHAVAN, K.; CASTELLINO,D.; HALEY,R.; WUKICH, D.; HWANG, H.; FONTAINE, J.; LAVERY, L.; Fisiopatologia e imagem molecular de infecções no pé diabético**, Revista Internacional de Ciências moleculares**, p, 1-32, 2021

VUORLAAKSO, M.; KAR`EN A, V.; KIISKI, J.; LAHTELA, J.; KAARTINEN, I.; Tratamento multidisciplinar da infecção do pé diabético associado à melhoria da sobrevida global em 8 anos. **Journal of Diabetes and Its Complications** . P 1-05, 2024

WATT, A.; BRANCO, J.; BROWN, R.; WILLIAMS, E.; RICHARDS, G.; BRANCO, L.; BUDGE, P.; DARVAL, K.; BEACHAM, A.; MANN, P.; WILLIAMS, A.; BOND, E.; O projeto do usuário do serviço e do médico comunitário de um serviço para diabéticos parcialmente virtual melhora o acesso aos cuidados e à educação e reduz incidência de amputação. **BMJ Opem Diabetes Research e Care**. P1-09, 2020.