



# A multidisciplinary team approach in Iranian diabetic foot research group

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## Abstract

Diabetic Foot (DF) as a common complication of Diabetes needs to intensive intervention for prevention, management and rehabilitation. In this regard, the Iranian Diabetic Foot Research Group (IDFRG) of Diabetes Research Center of Endocrinology and Metabolism Research Institute (EMRI) of Tehran University of Medical Sciences (TUMS) with multi-disciplinary approach have begun its activity since 2014. The aim of this paper is introducing the IDFRG in four main categories including Education, Research, Knowledge Translation and Clinical Care. According to the strategic plan, Future activities would be considered as five following areas: National Diabetic Foot Research Network (NDFRN) Establishment, Podiatrist Curriculum Development, Iranian Diabetic Foot Registry System (IDFRS) Launch, DF guideline Implementation and last but not least DF Ward Establishment.

**Keywords** Diabetic foot · Patient care team

## Introduction

Diabetes mellitus (DM) as an increasingly important disease globally would be one of the five principal reasons of death in the worldwide [1]. It estimated that in Iran as a developing county in the Middle East, that prevalence of diabetes is 11.4% of the adult population [2]. In another word, it would

be expected that by the year 2030, 9.2 million Iranian individuals will suffer from DM [3]. One of the most important complications of DM is Diabetic Foot (DF) which defined as foot of diabetic patients with neurologic and vascular disorders and prone to be infected [4].

and it could be the cause of main patient suffering and social costs [5]. DF is actually caused high mortality, as well as great health care costs [6]. The studies showed that foot problems in patients suffering from DM are prevalent in our country. This means that the burden of diabetic foot and lower limb amputation were 5848 and 1573 years [7, 8]. In this regard, a multidisciplinary approach would be recommended to address DF problems in patients suffering from DM [9]. In this approach, interprofessional teams consist of different health care providers work together to improve diagnostic and management approach of DF [10]. So, the Iranian Diabetic Foot Research Group (IDFRG) as a multi-disciplinary team with a special interest in the diabetic foot affiliated to Diabetes Research Center of Endocrinology and Metabolism Research Institute (EMRI) of Tehran University of Medical Sciences has begun its activity since 2014. The main objectives of IDFRG are the expansion of research on DF and production of evidence in the related fields with the ultimate goal of the promotion of the health of the Iranian public. It has also desired to enhance the knowledge and

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quality of the practice of healthcare providers in the field of DF care through various programs. The main approach of this group is using a multidisciplinary teamwork (as Iranian Working Group on Diabetic Foot) in DF prevention and management. Accordingly endocrinologist, vascular surgeon, infection specialist, dermatologist, physical medicine specialist, orthopedist, rehabilitation specialist, general practitioner, physiatrist, nurse educator and wound care nurse are the core of IDFRG. Indeed the aim of this paper is introducing the IDFRG in four main categories including Education, Research, Knowledge Translation and Clinical Care.

## Educational activities

According to the main goal of IDFRG comprehensive, multi-faceted and team-based training workshops and courses were hold from 2014 to now focus on main topics related to DF prevention, education, assessment, management and rehabilitation. All mentioned courses endorsed by the International Diabetes Federation (IDF) 2014–2016 and the European Wound Management Association (EWMA) 2016–2019. In this regards 19 two-day workshops (for nurses) [11] and 8 one-day workshops (for GPs and nurses) were hold round the country. Moreover two advanced courses in two theoretical and clinical sections as vocational course have been hold. Indeed more than 1000 nurses and general practitioners have been trained in national level. The related documents and virtual modules are available for distance learning [12, 13].

Additionally, some educational books and booklets have been compiled to promote the public, patient, and health care provider attitude, knowledge and skill. These educational materials entitled Essentials of Diabetic Foot Care, Principle diabetic foot ulcer dressing, Exercise in diabetic foot care (for patients), Managing the Diabetic Foot, Principle of Debridement, Novel dressing in wound care, The ankle brachial index (ABI) sonography instruction (ABI as a simple test provides the ratio of systolic pressures in the lower and upper extremities) [14], Maggot therapy principles, DF offloading devices, Rehabilitation in DF, and At risk Foot of Diabetics (for professional).

## Research activities

In the field of research, IDFRG has conducted some research projects and published the results of them in the most prestigious journals and presented at national and international conferences and seminars [11, 15]. Moreover, the IDFRG has most proactively contributed to the National Diabetes Research Network which plays a key role in synchronization of research conducted on different aspects of diabetic foot all across the country. Extensive areas of research are currently

related to the evaluation of the effectiveness of novel treatment in DF management including non-thermal plasma irradiation, disinfected *Lucilia sericata* larvae, Negative Pressure Wound Therapy (NPWT), Adaptation/ adoption of Clinical Practice Guideline and comparing between hospital care and home care for DM management.

## Knowledge translation

IDFRG has cooperated with the International Working Group on the Diabetic Foot (IWGDF) Guidance 2015 to adopt this best clinical practice guideline (CPG) on prevention and management of foot problems in diabetes for local use in different health care settings of Iran as a developing country. In order to adoption, ADAPTE process consisted of three main phases of set-up, adaptation/adoption, and finalization were used.

## Clinical care activities

Actually there are two DF clinics affiliated to EMRI in which all DF care, research activity and professional education will be conducted. These two clinics are furnished with the latest treatment modalities under the supervision of endocrinologist, vascular surgeon, general practitioner, infection specialist and a trained nurse. These clinics are also outfitted with an outpatient operating room for wound debridement, offloading device and Novel dressing. Practitioners, who have completed the comprehensive practical and theoretical diabetes foot course, visit and manage patients under the supervision of endocrinologists. Subsequent visits are based on the patients' further need and physicians' recommendations. The specialists and trained nurses screen patients with diabetes using examination modalities such as ABI, Doppler Sonography, monofilament test and other specific diagnostic test on diabetic foot.

## Future plans

According to the strategic plan of DFRG, Future activities will be addressed in the following five areas:

National Diabetic Foot Research Network (NDFRN) Establishment: This network with Interdisciplinary approach provides a framework for research, education, gridline implementation at national level. Moreover data gathering in national level would be helpful for Policy makers.

Podiatrist Curriculum Development: DFRG intended to design Podiatric Program as an intensive two-year program to provide the nurses and other primary health care

providers with a broad base of podiatry knowledge and extensive clinical experience. This program will be leading to Master Degree consists of a comprehensive curriculum in the basic medical and clinical sciences.

Iranian Diabetic Foot Registry System (IDFRS) Launch: Regarding to the registry system of diabetes and complications which followed by Iranian Ministry of Health, DRG intended to develop DF registry system. So the screen at risk patients and amputation rate as a spectrum will have considered. Moreover digital health records as an export of this system would be applicable for both outpatients and inpatients.

DF guideline Implementation: Implementation the localized recommendations of IWGDF guideline is a crucial step which used in daily clinical practice throughout the country will cause to improvement in outcomes.

DF Ward Establishment: The multidisciplinary Diabetic Foot ward with 18 inpatient beds will be established in Dr. Shariati Hospital of Tehran University of Medical Sciences. The primary goals are reforming of practice in diabetic foot care, novel information transmission to practice by launch active cooperation between multidisciplinary group members and organizing diabetic foot care programs for general population, patients and health care providers.

## Conclusion

According to the prevalence of DF as one of the most complication of Diabetes, the Iranian Diabetic Foot Research Group (IDFRG) as a pioneer group in this fields round the country established. Education, Research, Knowledge Translation and Clinical Care would be the main four catteries of IDFRG activities. In this regard, Establishment of National Diabetic Foot Research Network (NDFRN), Development of Podiatrist Curriculum, Launch the Iranian Diabetic Foot Registry System (IDFRS), Implementation of DF guideline and DF Ward Establishment would be future plan in which both patients suffered from DM and DM and all health care providers involved in multidisciplinary team of DF care will be considered.

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