**Name of Journal:** *World Journal of Diabetes*

**Manuscript NO:** 80829

**Manuscript Type:** OPINION REVIEW

**Access to novel anti-diabetic agents in resource limited settings: A brief commentary**

Naidoo P *et al*. Access to novel anti-diabetic agents

Poobalan Naidoo, Kiolan Naidoo, Sumanth Karamchand, Rory F Leisegang

**Poobalan Naidoo,** Department of Internal Medicine, Nelson R Mandela, School of Medicine, University of Kwa-Zulu Natal, Durban 4001, Kwa-Zulu Natal, South Africa

**Kiolan Naidoo,** Department of Law, University of South Africa, Pretoria 3, Gauteng, South Africa

**Sumanth Karamchand,** Department of Cardiology, University of Stellenbosch and Tygerberg Hospital, Stellenbosch 7600, Western Cape, South Africa

**Rory F Leisegang,** Department of Pharmacometrics, Upsala University, Uppsala 751 04, Sweden

**Author contributions:** All authors contributed equally to this manuscript.

**Corresponding author: Poobalan Naidoo, BPharm, MBChB, MMedSc (Pharmacology), DipHIVMan (CMSA), Medical Registrar and Academic Research, Doctor,** Department of Internal Medicine, Nelson R Mandela, School of Medicine, University of Kwa-Zulu Natal, Sydney Road, Umbilo, Durban 4001, Kwa-Zulu Natal, South Africa. poobalan1naidoo@yahoo.com

**Received:** October 13, 2022

**Revised:** December 31, 2022

**Accepted:** June 13, 2023

**Published online:** July 15, 2023

**Abstract**

The prevalence of diabetes mellitus is increasing in resource limited settings. Simultaneously, there has been an increase in the number of novel therapies for the management of diabetes mellitus. However, use of novel antidiabetic therapies is limited because of major market access challenges in resource limited settings. Niching products to those patients with the highest absolute risk for major adverse cardiovascular outcomes, and thus most likely to benefit from the therapy, are less likely to have negative budget impact for funders. To improve access, and reduce morbidity and mortality, requires alignment amongst key stakeholders including patient advocacy groups, health care professional councils, national departments of health, the pharmaceutical industry, treasury and finance departments.

**Key Words:** Type 2 diabetes mellitus; Novel anti-diabetic agents; Resource limited settings; Access

**©The** **Author(s) 2023.** Published by Baishideng Publishing Group Inc. All rights reserved.

**Citation**: Naidoo P, Naidoo K, Karamchand S, Leisegang RF. Access to novel anti-diabetic agents in resource limited settings: A brief commentary. *World J Diabetes* 2023; 14(7): 939-941

**URL**: https://www.wjgnet.com/1948-9358/full/v14/i7/939.htm

**DOI**: https://dx.doi.org/10.4239/wjd.v14.i7.939

**Core Tip:** The manuscript addresses the problem of access to novel anti-diabetic agents in resource limited settings. Niching therapies for use in those with highest major adverse cardiovascular risk, may limit budget impact for funders. To improve access, and reduce morbidity and mortality, requires alignment amongst key stakeholders including patient advocacy groups, health care professional councils, national departments of health, the pharmaceutical industry, treasury and finance departments.

**INTRODUCTION**

Type 2 diabetes mellitus (T2DM) is increasing rapidly in resource limited settings[1]. This is likely to be multifactorial in aetiology including urbanisation, sedentary lifestyle and an increase of screening[2]. The diabetes epidemic has been paralleled by a rapid increase in the number of new therapies to manage type 2 diabetes[3]. These therapies include sodium - glucose transporter 2 inhibitors (SGLT2i), dipeptidyl peptidase-4 inhibitors and glucagon-like-peptide-1 receptor agonists (GLP-1 RAs). The American Diabetes Association and European Association for the Study of Diabetes 2022 consensus report of the management of hyperglycaemia in T2DM recommend an SGLT2i or GLP-1 RA with demonstrated cardiovascular benefit as initial therapy for individuals with T2DM with or at high risk for atherosclerotic cardiovascular disease, heart failure, and/or chronic kidney disease[4].

Unfortunately, in resource limited settings, treating clinicians and patients living with T2DM, have limited access to these therapies due to cost and access constraints. The situation was compounded by the coronavirus disease 2019 pandemic that consumed financial and human resources, that would otherwise have been used for non-communicable diseases such as diabetes.

The irony is that resource limited settings partake in clinical trials programs that test the safety, efficacy and tolerability of novel therapies. Although these countries partaking in the clinical trial programs, patients in these resource limited settings have constrained access to these interventions regardless of regulatory approval. Post-trial access and care are virtually non-existent in these settings[5]. In the absence of a robust post-trial access program, this places a substantial burden on the patient who contributes to the scientific body of evidence supporting a drug’s approval but is unable to obtain treatment benefit beyond a predefined, finite period[6].

A major challenge is how to make novel therapies available to patients in resource limited settings. From a clinical perspective, a viable argument is for relevant authorities to facilitate product access for patients at the highest risk and most likely to benefit from therapies. This will niche these novel agents and thus minimise the number of patients on these therapies. For example, SGLT2is can be used in patients with congestive cardiac failure and with diabetes mellitus thus optimising glycaemic control while also reducing hospitalising for heart failure and subsequently reducing healthcare resource utilisation. This would be more cost effect than rolling out these therapies to all patients with diabetes, which is not financially sustainable in developing countries.

In our experience, requests for controlled access to novel drugs, with real world data collection to inform future clinical decisions, have not been successful. The prevailing perspective of focusing on short term drug costing of SGLT2is and not the future healthcare resource utilisation savings through reduced hospitalisations for heart failure, delayed progression of chronic kidney disease and reduction in mortality, requires a paradigm shift and political willingness to address medium and long-term costs and not just short-term expenditure.

An innovative approach is needed to ensure equity of access to novel treatments within a resource limited setting. As patient advocates, we feel that clinicians are best equipped to lead the process to enable access. Merely submitting drug access applications via existing systems without engagement on the core challenges at hand is frustrating and often futile. How do we as busy clinicians advocate for access? Perhaps the first step is a collective approach. We suggest engaging with relevant stakeholders to define the current challenges and outline potential solutions. This can be done at a national workshop during a diabetes congress. Alignment amongst key stakeholders including patient advocacy groups, health care professional councils, national departments of health, patient advocacy groups, the pharmaceutical industry, treasury and finance departments is needed in order to improve treatment access with the ultimate intention of improving patient outcomes.

**CONCLUSION**

In times of economic challenges, it may be necessary to invest funds in urgent related treatment. Furthermore, sourcing drugs from markets that are cost conscious may be an option.

Ultimately, after wide consultation and workshops, laws, acts and regulations will be required to protect the interests of patients and ensure access to novel antidiabetic therapies.

**REFERENCES**

1 **Misra A**, Gopalan H, Jayawardena R, Hills AP, Soares M, Reza-Albarrán AA, Ramaiya KL. Diabetes in developing countries. *J Diabetes* 2019; **11**: 522-539 [PMID: 30864190 DOI: 10.1111/1753-0407.12913]

2 **Wu Y**, Ding Y, Tanaka Y, Zhang W. Risk factors contributing to type 2 diabetes and recent advances in the treatment and prevention. *Int J Med Sci* 2014; **11**: 1185-1200 [PMID: 25249787 DOI: 10.7150/ijms.10001]

3 **Yu J**, Lee SH, Kim MK. Recent Updates to Clinical Practice Guidelines for Diabetes Mellitus. *Endocrinol Metab (Seoul)* 2022; **37**: 26-37 [PMID: 35255599 DOI: 10.3803/EnM.2022.105]

4 **Davies MJ**, Aroda VR, Collins BS, Gabbay RA, Green J, Maruthur NM, Rosas SE, Del Prato S, Mathieu C, Mingrone G, Rossing P, Tankova T, Tsapas A, Buse JB. Management of Hyperglycemia in Type 2 Diabetes, 2022. A Consensus Report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD). *Diabetes Care* 2022; **45**: 2753-2786 [PMID: 36148880 DOI: 10.2337/dci22-0034]

5 **Usharani P**, Naqvi SM. Post-trial access. *Perspect Clin Res* 2013; **4**: 58-60 [PMID: 23533984 DOI: 10.4103/2229-3485.106391]

6 **Naidoo P**, Rambiritch V, Webb D, Leisegang RF, Cotton MF, Etheredge HR. Mechanisms for sustainable post-trial access: A perspective. *S Afr J Bioethics Law* 2021; **14**: 77-78 [DOI: 10.7196/SAJBL.2021.v14i3.782]

**Footnotes**

**Conflict-of-interest statement:** All the authors report no relevant conflicts of interest for this article.

**Open-Access:** This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: https://creativecommons.org/Licenses/by-nc/4.0/

**Provenance and peer review:** Invited article; Externally peer reviewed.

**Peer-review model:** Single blind

**Corresponding Author's Membership in Professional Societies:** Health Professional Council of South Africa, MP0718602.

**Peer-review started:** October 13, 2022

**First decision:** November 27, 2022

**Article in press:** June 13, 2023

**Specialty type:** Medical Ethics

**Country/Territory of origin:** South Africa

**Peer-review report’s scientific quality classification**

Grade A (Excellent): A

Grade B (Very good): B

Grade C (Good): 0

Grade D (Fair): 0

Grade E (Poor): 0

**P-Reviewer:** Ma JH, China; Shen Q, China **S-Editor:** Gong ZM **L-Editor:** A **P-Editor:** Chen YX



Published by **Baishideng Publishing Group Inc**

7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA

**Telephone:** +19253991568

**Email:** bpgoffice@wjgnet.com

**Help Desk:** https://www.f6publishing.com/helpdesk

https://www.wjgnet.com



**© 2023 Baishideng Publishing Group Inc. All rights reserved.**