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The Scope for Uplifting Type 1 Dabetes Care in a Resource Limited Setting

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Type 1 diabetes (T1D) is an autoimmune disorder characterized by autoimmune destruction of pancreatic β-cells leading to severe endogenous insulin deficiency, requiring lifelong insulin therapy. It accounts for 5 - 10% of overall diabetic prevalence [1]. T1D prevalence, incidence and associated morbidity and mortality varies across the world and it is predicted that prevalence will be increased by 60-107% by 2040 with the largest relative increase in low- and middle-income countries [2]. The incidence peaks in puberty and early adulthood, but new-onset T1D occurs in all age-groups and they live for many decades after onset of the disease, so that the overall prevalence of T1D is higher in adults than in children. According to the recent modelling study published in Lancet in 2021, prevalence of T1D in Sri Lanka is estimated to be 13,544 (3877 cases aged <20 years, 9665 cases aged >20 years) while estimated remaining life expectancy if diagnosed at 10 years in 2021, is 29 years [2]. Data on incidence and prevalence is scarce in Sri Lanka, especially missing prevalent cases among adults indicates possible premature mortality, lack of established specialist services and an opportunity to save and extend lives of people with T1D.

Standarads of care guidelines for management of T1D, published by ABCD (Association of British Clinical Diabetologists) and EASD-ADA consensus report provide guidance for comprehensive care [1,3]. Adhering to these guidelines requires costly resources, trained professionals, specialist service, and these are usually funded by national health systems in well-resourced countries. Advanced comprehensive care has significantly improved patient outcome in developed countries, but this is not the situation in middle- and low-income countries like Sri Lanka. Essential resources for T1D care are not readily available in public health sector, while access to specialist services, diabetes self-management education and support (DSMES) are limited. This has profound impact on premature mortality, frequent acute complications and early long-term complications with significant morbidity and psychosocial burden.

Based on the levels of care system with 3 tiers developed by the Australian team led by Life For A Child (LFAC) organization, most of our patients receive "minimal" care. "Minimal" care is defined as use of twice daily human insulin, lack of self-monitoring of blood glucose (SMBG), point of care HbA1C and standard screening for complications, with minimal or no DSMES [4]. "Intermediate" care includes multiple daily injections, SMBG, point of care HbA1C and established DSMES [4]. Same team developed a 30-year T1D care model and compared long term complications, mortality, financial costs, disability adjusted life years (DALYs), and healthy life years (HLYs) for both "minimal" and "intermediate" T1D care. They showed that "intermediate" care results in marked reductions in complications rates and mortality by achieving mean HbA1c of 8.5% to 9% (compared to HbA1C of 9.0-14.0% with "minimal" care) and it was cost effective when the cost for saved HLYs compared [5].

Development of local standards of care for management of T1D utilizing available resources is a timely need. All patients with T1D should be under a specialist service delivered by a well-trained, skilled multi-disciplinary team, capable of managing of T1D, its complications and delivering accredited DSMES. Specialist service could be based at secondary or tertiary care level hospitals and they should collect and analyze data to guide the future policies. A Local accredited DSMES program is the key to improve care at any level. The Structured Education Program for adults living with Type 1 Diabetes – Sri Lanka (StEP D SL) by Sri Lanka College of Endocrinologists (SLCE) is such a program which will streamline customized DSMES in Sri Lanka. Establishment of advocacy framework at different levels is of utmost importance to uplift patient outcome and overall T1D care in the country. Empowering young people living with T1D through support groups has shown to improve Quality Adjusted Life Years (QALY) and reduce diabetes distress [1]. Advocacy to get support from national and international non-governmental organizations to donate funds and resources for

resource limited countries is a practical and feasible strategy. LFAC organization supports 42 countries across the world including Sri Lanka to maintain "intermediate" care.

Government supported comprehensive guideline-based care is unrealistic at present, amidst the worst economic crisis in the country. Therefore, our potential scope would be establishing "intermediate" care for all living with T1D at present while strengthening the local system and professionals to welcome advanced technology in the future.

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