

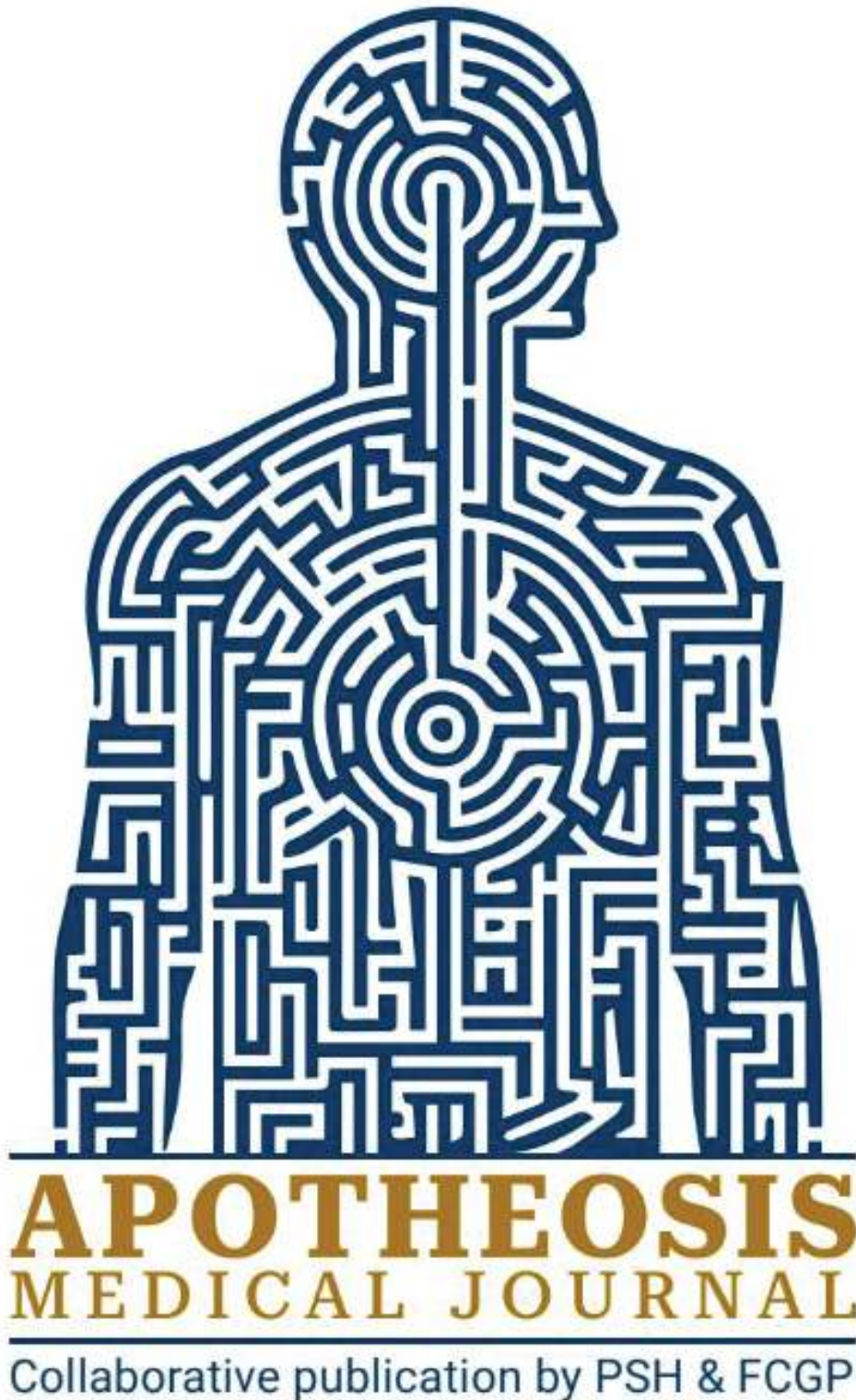
Article Feature:

- Obesity and Hyperinsulinemia
- Antiretroviral Drugs - A Lifesaver
- The HIV Crisis, Harm Reduction, and the GP

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Editorial

Author: Dr. Neil Sharma

Greetings.

Your quarterly journal "Apotheosis" hits your desk on time. We move into the second year of publication in this format, supported by Pacific Specialists Hospital group.

The major challenge is to deliver the hard copy within a week of the soft version in 2025.

Our effort to remain thematic with parallel coverage of topical medical subjects is running overdrive.

Our narratives in Non-Communicable Diseases (NCD), Communicable (CD) and topical Community-based issues needs additional impetus.

The future journal themes need to be aired from peripheral members, facilities and the executive, to address your learning needs.

Support of college leadership, executives, faculty members and mentors needs greater momentum for the research and publication process. The college needs to reconsider formal discussion on research methods and writing skills at undergraduate level with the academics in both the Fiji-based universities.

This will uplift writing skillsets surely.

This issue is primarily targeted with "Adolescent and Reproductive health" in focus. With the surge in Illicit drug abuse and concomitant rise in HIV we focus on the national HIV Surge Strategy 2004-2007. A reprint of Dr. Sharon McLennan article on "Fiji's HIV crisis is a regional challenge that demands a regional response" is acknowledged. The heightened risks to the regional Pacific communities noted. Two narratives from individuals living with HIV are presented. Tabulation /discussion on Retroviral therapy from Dr. Dashika Balak of the HIV clinic in Suva is presented for the process of decentralization of testing and care to be sustainable. Much needs to be understood and followed up by the private primary-care teams, if the private sector is to assist. We need to put our heads together now.

Fiji is placed second behind the Philippines in the Pacific region when reporting of HIV was undertaken/ per capita. We recorded 1000 plus new cases of HIV in the first nine months of 2024. This is the iceberg with a projected 6000 new cases nationally, still to be located for intervention. The fueling of this condition is illicit drug use related, yes" blue toothings"! A national disgrace to the programs, in need of major refocus and refunding.

Our ongoing theme -line on NCD is addressed by former Fijian Dr. William Low, a retired ER

Consultant in USA. This narrative is presented as part of wider discussions on the "Globesity pandemic". Specifically on a major rethink on Diabetes. The need to review our clinical management of Diabetes is thought provoking. Hyperinsulinemia and Ultra Processed Food consumption is targeted. Based on current culinary habits of three meals and three snack a day washed down with sweetened, sugary beverages. Let's revisit "the garden to plate to fork" concept. We still have no Fijian NCD policy, hence no programs are operational, nor are there M&E of old. Yet, NCD is the leading cause of premature morbidity & mortality accounting for 80% of deaths below 60 years.

Dr. Diva Singh's review on the use of BMI as a screening tool for NCD is a progressive step. The use of BMI in elite athletics is a step in the right direction. The proviso remains that BMI was calibrated for the Caucasian/European population. That the heavy boned Pacific islander or by contrast, the lean Asian (Indian and Chinese ancestry) may fall outside the current range. That waist measurements and visceral fat deposition may be ominous additional markers of interest.

Dr. Harish Gottammukala, resident dermatologist at Oceania Hospital, Suva presents a case study on Atopic dermatitis. Dermatologists have been a rare breed in Fiji and we welcome his support to the primary healthcare system by way of this article.

Dr. Vereniki Raiwalui's presentation is a broad overview of "Hyperbaric Medicine" now available @the PSH hospital Nadi. He plans to update our family physicians in this area of professional interest, in subsequent 2025 issues. We question the science behind the possibilities of hyperbaric therapy in Diabetic infections as a prelude to reduce amputation rates, therapy in the complex arena of metabolic syndrome and the like in selective cancers.

The photograph of the three pioneer female physicians of 1885 is a true tribute in posterity. With tables turning into the 21st century, universities globally ,average 60% female medical graduates by contrast, 140 years later. Balancing womanhood, marriage, child rearing and with a career can be painstakingly complicated.

Finally, the abstracts column carries five recent articles relevant to the region and Fiji.

Author: Dr. Neil Sharma

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Review Article

Obesity and Hyperinsulinemia: A Review and Dietary Recommendations

Author: Dr. William Law

Type 2 diabetes and obesity are major modifiable risk factors for developing cardiovascular disease and all cause mortality. As in other Pacific islands, the rates of these conditions have been rising significantly in Fiji in recent decades¹. This increase correlates with a dietary and lifestyle transition characterized by the adoption of a more Westernized diet, urbanization, and reduced physical activity. Whereas traditional Fijian diets included starchy root crops and fish, the modern diet contains more refined grains, sugar, and processed meats^{1,2}.

Various models have been proposed to explain weight gain. Perhaps the most intuitive is the Energy Balance Model (EBM), which posits that weight gain results when energy intake is greater than energy expenditure³. More recently, the carbohydrate/insulin model (CIM) has gained traction. The CIM posits that excess carbohydrate intake leads to chronically elevated blood glucose levels, resulting in increased insulin levels and ensuing insulin resistance; insulin resistance in turn means that more insulin is required to maintain glucose homeostasis, further exacerbating hyperinsulinemia and forming a vicious cycle⁴. Multiple large scale studies have demonstrated a strong correlation between hyperinsulinemia and obesity, including The San Antonio Heart Study⁵, Diabetes Control and Complications Trial⁶ and The United Kingdom Prospective Diabetes Study Group⁷. Visceral obesity leads to insulin resistance and chronic inflammation, increasing the risks of non-communicable diseases such as cancer and cardiovascular disease⁸. This further exacerbates the hyperglycemia/hyperinsulinemia/obesity vicious cycle. Therefore, controlling caloric intake and reducing insulin are essential for optimal weight and diabetes management.

Lifestyle factors that cause hyperinsulinemia and insulin resistance

Hyperinsulinemia results from elevated blood glucose, which results primarily from dietary carbohydrate intake. Dietary carbohydrate sources differ significantly in the degree to which they raise blood glucose. The Glycemic Index (GI) was developed as a metric for quantifying how a given

carbohydrate will raise blood glucose levels at 2 hours after consumption⁹. The GI is defined as the degree to which 50 grams of a given carbohydrate will raise the blood glucose level, expressed as a percentage of a 50 gram glucose administration (i.e. the GI for glucose is defined as 100). However, the practical utility of the GI is limited in some circumstances because the amount of available carbohydrate per serving can vary greatly. For example, watermelon has a high GI (72) but because it is mostly water, there is relatively little carbohydrate per serving. The Glycemic Load (GL) was developed to account for the carbohydrate per serving and is defined as the GI x carbohydrates/serving. Using this metric, the GL of watermelon is only 8. Processed foods have a much higher GL than whole foods: the GL of white bread is 44 whereas taro root is 13. Fibre is the portion of total carbohydrate that is not digested or absorbed by the body and plays an important role in reducing the GL¹⁰. Dietary fibre is found primarily in starchy foods and slows the absorption of carbohydrates, improves insulin sensitivity, and increases satiety^{11,12}.

While most carbohydrates are metabolized to glucose, table sugar (sucrose) deserves special attention because it is metabolized into glucose and fructose. Fructose does not significantly raise the blood glucose levels but directly causes visceral fat accumulation and insulin resistance¹³. Historically, fructose was consumed in relatively low amounts, primarily in fibre containing fruits. However, the modern diet contains high levels of fructose in the form of added sugars and high fructose corn syrup present in most processed foods, sodas, juices, sauces, cookies, cakes, bread and soups.

To evade the harmful effects of added sugars, artificial fructose free sweeteners such as aspartame, erythritol, and stevia were developed to have a glycemic index of zero¹⁴. Once thought of as healthy sugar substitutes, these artificial sweeteners have been found to also raise insulin and correlate with obesity¹⁵. Artificial sweeteners and diet soda consumption were recently associated with an increased risk of cardiovascular disease^{16,17}.

Insulin levels and insulin resistance are also influenced by the timing and frequency of meals.

After each meal, insulin levels rise, followed by a fasting state when insulin levels drop. During the fasting state, glucose homeostasis is maintained in part by fat catabolism via gluconeogenesis. Frequent snacking between meals will result in persistently elevated insulin and abrogate the fasted state. Furthermore, snacks are often highly processed with a high glycemic load. Some authors advocate for intentional intermittent fasting to minimize insulin levels and maximize the duration of the fasted state¹¹⁹. Common methods include time-restricted eating (eating only during a defined time period, commonly 8 hours) and the 5:2 diet (normal eating 5 days per week with calorie restriction 2 days per week).

In addition to diet, non-dietary interventions are critical for managing obesity and diabetes. Physical activity, including both aerobic exercise and resistance training increases insulin sensitivity¹²⁰. Stress causes hyperinsulinemia and insulin resistance via increased cortisol secretion. Chronically elevated cortisol levels are associated with obesity¹²¹ and higher waist to hip ratios¹²². Some methods to reduce stress include exercise, yoga, mindfulness meditation and massage therapy.

Dietary Recommendations

The two main dietary guidelines that will be followed are the Mediterranean Diet and the latest Dietary Guideline for Americans (2020-2025). These guidelines are in line with moderate calorie intake, reducing insulin secretion and resistance. The Mediterranean Diet emphasizes plant-based foods like vegetables, fruits, whole grains and healthy fats like olive oil. For protein, the Mediterranean Diet restricts red meat to one serving a week while fish/seafood, nuts and legumes are encouraged to be eaten at least three times a week. The overarching points of the latest Dietary Guidelines for Americans are:

1. Follow a healthy dietary pattern for every life stage.
2. Customize and enjoy nutrient-dense food and beverages.
3. Focus on meeting food group needs with nutrient-dense foods and beverages and stay within calorie limits.
4. Limit foods and beverages higher in added sugars, saturated fats and sodium, and limit alcohol beverages.

Conclusion

In conclusion, dietary carbohydrates that raise glucose levels result in hyperinsulinemia and insulin resistance and greatly increase the risks of diabetes and obesity. Simple dietary strategies can mitigate these risks, including prioritizing whole, unprocessed, and fibre-rich foods, and minimizing refined carbohydrates, added sugars, and snacking. Lifestyle interventions such as regular physical activity, adequate sleep, and reduced stress also contribute to weight management.

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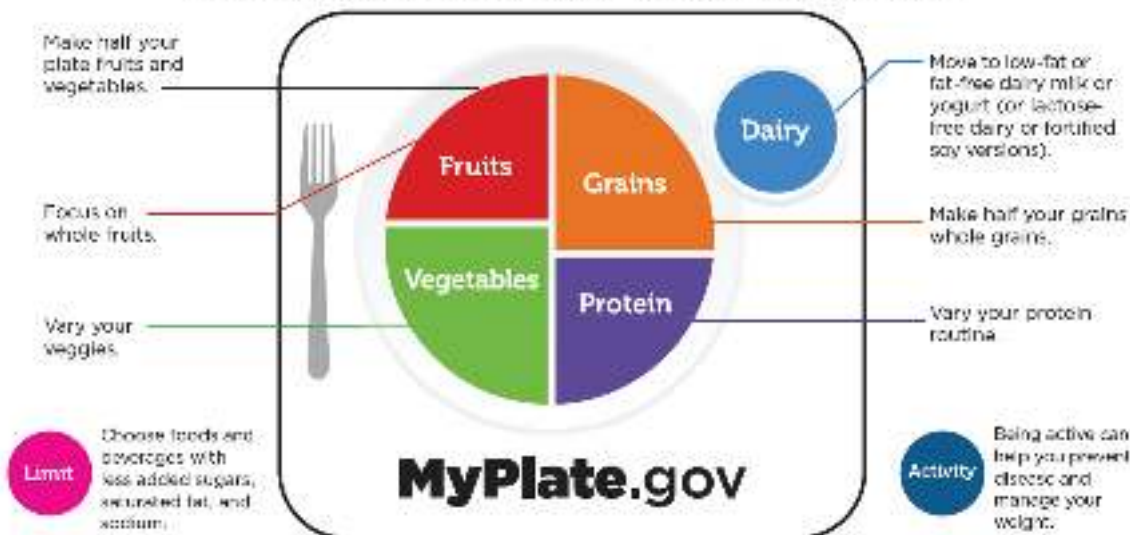
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Healthy eating is important at every life stage, with benefits that add up over time, bite by bite. Small changes matter.



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Fruits	Vegetables	Grains	Protein	Dairy
<p>Focus on whole fruits, like fresh, frozen, canned, or dried.</p> <p>Buy fruits to have them available to add to your meal or eat as a snack. If you buy juice, select 100% fruit juice.</p>	<p>Take a variety of vegetables and add them to mixed dishes like casseroles, sandwiches, and wraps.</p> <p>Fresh, frozen, and canned count, too. Look for "reduced sodium" or "no-salt-added" on the label.</p>	<p>Choose whole-grain versions of common foods such as bread, pasta, and tortillas.</p> <p>Not sure if it's whole grain? Check the ingredients list for the words "whole" or "whole grain."</p>	<p>Take a variety of protein foods such as beans, soy, seafood, lean meats, poultry, and unsalted nuts and seeds.</p> <p>Select seafood twice a week. Choose lean cuts of meat, and ground beef that has been 85% lean.</p>	<p>Choose low-fat (2%) or fat-free (skim) dairy. Get the same amount of calcium and other nutrients as whole milk, but with less saturated fat and calories.</p> <p>Lactose intolerant? Try lactose-free milk or a fortified soy beverage.</p>
<p>Daily Food Group Targets — Based on a 2,000 Calorie Plan Visit MyPlate.gov/MyPlatePlan for a personalized plan.</p>				
<p>2 cups 1 cup counts as: 1 small apple 1 large banana 1 cup grapes 1 cup sliced mango ½ cup raisins 1 cup 100% fruit juice</p>	<p>2½ cups 1 cup counts as: 2 cups raw spinach 1 cup cooked collard, kale, or turnip greens 1 small avocado 1 large sweet potato 1 cup cooked beans, peas, or lentils 1 cup cut cauliflower</p>	<p>6 ounces 1 ounce counts as: 1 slice of bread ½ cup cooked oatmeal 1 small tortilla ½ cup cooked brown rice ½ cup cooked couscous ½ cup cooked quinoa</p>	<p>5½ ounces 1 ounce counts as: 1 ounce cooked lean chicken, pork, or beef 1 ounce tuna fish ½ cup cooked beans, peas, or lentils 1 Tbsp peanut butter 2 Tbsp hummus 1 egg</p>	<p>3 cups 1 cup counts as: 1 cup dairy milk or yogurt 1 cup lactose-free dairy milk or yogurt 1 cup fortified soy milk or yogurt ½ ounce hard cheese 1 cup kefir</p>



Choose foods and beverages with less added sugars, saturated fat, and sodium.

Limit:

- Added sugars to <60 grams a day
- Saturated fat to <22 grams a day
- Sodium to <2,300 milligrams a day



Don't forget physical activity!
Being active can help you prevent disease and manage your weight.

Kids ≥ 60 min/day Adults ≥ 150 min/week

Review Article

Importance of BMI in Football Medicine in Pacific

Author: Dr. Divya Singh

Introduction

In examining the significance of Body Mass Index (BMI) within the realm of football medicine in the Pacific, it is imperative to establish a foundational understanding of how BMI serves as a pivotal metric for assessing footballers' health and performance. Football, a widely popular sport in the Pacific region, particularly Fiji Islands, faces challenges such as increasing rates of obesity and related health issues among players (high NCDs rate in Fiji). By focusing on the BMI, Medical professionals can identify individuals at risk of developing conditions such as diabetes, which has been noted as a critical health issue globally, particularly in regions like Australia (A-League) and New Zealand where dietary habits significantly impact health outcomes. Furthermore, implementing BMI assessments not only aids in improving footballers' performance but also plays a crucial role in promoting long-term health and wellness among football players in Fiji, thereby enhancing the overall quality of Football/Sports medicine in the region.

Overview of Body Mass Index (BMI) and its relevance in Football Medicine

The Body Mass Index (BMI) serves as a vital metric in sports medicine, particularly in understanding the physical profiles of footballers; including football players in the Pacific region particularly targeting Fiji. This measure, which correlates body weight and height, helps in categorizing athletes into different weight classes that can significantly impact performance and health. In the context of football, where agility, speed, and endurance are critical, monitoring BMI enables coaches and sports physiotherapist to design tailored training and nutrition programs that optimize player performance while mitigating injury risks. Moreover, the assessment of BMI can also elucidate disparities among players from various backgrounds, contributing to a more equitable approach in team selection and development pathways. For instance, analysing differences in BMI among athletes can provide insights into the varying advantages held by certain demographics, a concern echoed in previous research regarding talent identification in sports.

Role of BMI in Assessing Player Health

The assessment of body mass index (BMI) serves as an essential metric in evaluating player health within

the realm of football medicine, particularly in the Pacific region. BMI not only provides insight into players' weight relative to their height, but it also correlates with several health outcomes, including chronic pain and cardiovascular issues. As evidenced by research highlighting the associations between BMI and medical conditions (NCDs) among former Fiji Footballers, higher BMI levels were found to be related to increased prevalence of chronic pain and cardiometabolic diseases, critical factors affecting footballers' performance and quality of life. Furthermore, the impact of nutritional deficiencies, such as vitamin D inadequacy, has been shown to exacerbate muscle weakness and soreness among athletes (a major concern with Fijian Footballers after passing the age of 35 and still playing veterans tournament), which can also be influenced by BMI. Thus, monitoring and managing BMI is vital for promoting long-term health and optimizing athletic performance in football players.

Understanding how BMI helps in evaluating physical fitness and health risks in football players

Evaluating the body mass index (BMI) of football players is crucial for understanding their physical fitness and associated health risks. BMI serves as a simple yet effective screening tool that categorizes athletes into weight categories, aiding in the identification of potential health concerns such as obesity and cardiovascular disease. This is particularly relevant in the context of lifestyle diseases, which, according to, significantly impact public health, emphasizing the need for active lifestyles. Moreover, maintaining an optimal BMI allows football players to enhance their performance while mitigating the risk of injury. The correlation between physical activity and overall health is further supported by research indicating that participation in sports fosters physical well-being, as noted in, underscoring the essential role of evaluating BMI. By integrating BMI assessments into sports medicine practices, health professionals can better tailor their interventions to optimize footballers' health outcomes.

Analysing the correlation between BMI, athletic performance, and susceptibility to injuries in football

The interplay between Body Mass Index (BMI), footballers' performance, and injury susceptibility in football is a complex subject necessitating comprehensive analysis. Athletes with higher BMI may possess the muscle mass advantageous for physical demands on the field, but excessive weight can also elevate the risk of injuries, particularly within high-impact positions. A study on rugby union athletes highlights that specific genetic variations contribute to athletic performance and injury vulnerability, suggesting that BMI's impact may vary by position and individual genetic predisposition. Furthermore, as concussion incidence remains a pressing issue in sports, female athletes exhibit a notable susceptibility linked to anatomical differences, including neck strength, which reflects the need for sports medicine to account for sex differences when evaluating injuries. Thus, understanding the correlation between BMI and these factors is pivotal for developing tailored training regimes and injury prevention strategies within football medicine, particularly in the Pacific context (20 districts males averaging weight 68.4kg whilst females 59.5kg).

Conclusion:

In conclusion, the significance of Body Mass Index (BMI) in football medicine, particularly within the Pacific context, cannot be overstated. BMI serves as a pivotal tool in assessing athletes' body composition, offering insights into their health and performance potential. Given that collegiate football players face unique pressures that may lead to disordered eating behaviours, as highlighted in the research, maintaining an appropriate BMI is crucial for their overall well-being. Moreover, understanding the physiological disparities between local footballers and their international counterparts, underscores the importance of tailored training and nutritional programs that address these differences. Ultimately, effective BMI management is essential not only for optimizing footballer performance but also for promoting long-term health among football players in the Pacific region (particularly Fiji). This multifaceted approach could help mitigate risks associated with body image and performance, ensuring athletes remain both competitive and healthy well-being throughout their careers.

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Review Article

Bench the BMI? New Guidance Redefines Obesity

Author: Dr. Neil Skolnik

Obesity is one of the most common conditions we see in primary care. It affects over 40% of adults in the United States. There are very few, if any, diseases where there is so much misunderstanding, bias, and confusion about the correct way to approach it. Many people still think of obesity as a failure of will. It is not. Once a person has gained weight, hormonal shifts and metabolic alterations lead the body to resist weight loss. We've known this for years, yet many clinicians still struggle to fully wrap their heads around this fact.

I'm Dr Neil Skolnik, and today I am going to talk about a new international consensus statement put together by *The Lancet Diabetes & Endocrinology* Commission on the definition and diagnostic criteria for clinical obesity. This statement has important implications for our treatment of individual patients and for insurance approval for the medicines we prescribe. It is also a statement to pay attention to because it has been endorsed by major medical organization worldwide, including the American Association of Clinical Endocrinology, the American Diabetes Association, and the American Heart Association.

The Commission makes two main recommendations. The first of these is that obesity should be categorized as "clinical obesity" or "preclinical obesity."

The Commission defines clinical obesity as a condition where the risk to health associated with excess adiposity has already materialized and can be objectively documented. So, if the patient has metabolic syndrome, diabetes, arthritis, or functional limitations due to their obesity, they have clinical obesity.

Preclinical obesity is excess adiposity without alteration of body function. A patient who has preclinical obesity may or may not develop complications of obesity in the future. The pragmatic rationale for this distinction was to create a sense of urgency in the treatment of clinical obesity, and to influence both clinicians and policymakers such as insurers to understand the importance of treating obesity aggressively.

The Commission's second main recommendation is that body mass index (BMI) should be used as a screening tool, after which confirmation of excess or abdominal adiposity should be undertaken to confirm whether the patient has obesity and/or where in the body the adipose tissue has accumulated. The traditional BMI-based definition of obesity is not very accurate. It does not differentiate between lean body mass (which is muscle, bone, and organs) and fat body mass. It is the balance of lean and fat body mass that influences risk. Furthermore, BMI does not give insight into body fat distribution, which is important because increased visceral and abdominal fat increase the metabolic and cardiac risk.

The traditional definition of obesity in non-Asian adults is a BMI of ≥ 30 , and overweight is a BMI of 25-29.9 (for Asian adults, the respective numbers are a BMI of 25-27.5 or higher for obesity and 23-24.9 for overweight).

For any disease, accurate diagnosis is important, and obesity is no different. The concept of BMI to define obesity was based on population data, but on an individual level defining obesity solely by BMI can lead to overdiagnosis of obesity in people with BMIs > 30 and underdiagnosis of obesity in those categorized by BMI as overweight. This is particularly true for people closest to the cutoff points.

Of interest, studies have shown that BMI has good specificity ($> 90\%$) for identifying obesity in those with a BMI > 30 , but poor sensitivity (about 50%), meaning that many people classified as overweight by BMI actually have excess adiposity.

We now have highly effective medications that we can prescribe for weight loss. In people with obesity without diabetes, semaglutide leads to a mean weight loss of 15%, and tirzepatide leads to a mean weight loss of 21%. These are powerful medicines which, in addition to weight loss, have beneficial metabolic and biomechanical effects as well as positive effects on many obesity-related complications such as cardiovascular disease, obstructive sleep apnea, and osteoarthritis.

We want to make sure that we prescribe them to the right patients. *The Lancet* Commission, on a pragmatic level, aims to help us define the group of people who will clearly benefit the most from these medicines.

The Commission recommends that BMI be used as a screening tool and that confirmation of excess adiposity or abdominal adiposity then be done either with direct body fat measurement with dual-energy x-ray absorptiometry (DEXA), bioimpedance or other method, or anthropometric criteria — most commonly, waist circumference (> 35 inches in females, > 40 inches in males). Within every BMI category, higher waist circumference is a marker for higher health risk from obesity.

In summary, the Commission suggests that classifying obesity into clinical obesity and

preclinical obesity allows us and policymakers to better understand the importance of and prioritize the treatment of those whose obesity has current health consequences while still advocating for treatment of those with preclinical obesity. Second, screening for obesity using BMI and then using either direct measures of adiposity such as DEXA or bioelectrical impedance or waist circumference will reduce misclassification of obesity.

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Reprint Article

Fiji’s HIV Crisis is a Regional Challenge that Demands a Regional Response

Author: Dr. Sharon McLean

In the words of UNAIDS Asia Pacific Regional Director Eamonn Murphy, rising HIV infections in Fiji “put the entire Pacific region at risk”. Fiji’s minister of health declared an official HIV outbreak in January, citing 1,093 new cases from January to September 2024 – triple the number from the same period in 2023. The World Health Organization defines a disease outbreak based on the number of cases being in excess of normal expectations. Similar to an epidemic, an outbreak typically refers to a more limited geographic area. Declaring an outbreak enables prompt public health response measures and mobilises domestic and international resources to respond to the crisis.

Why is there an HIV outbreak?

The outbreak has been attributed to Fiji’s ongoing methamphetamine crisis. The island nation is a major hub for drug trafficking to Australia and New Zealand, contributing to an upsurge in drug use. Preliminary Ministry of Health data show half of the newly diagnosed individuals receiving anti-retroviral therapy contracted HIV through injecting

drugs. However, the crisis extends beyond drug use. Increasing urbanisation, homelessness and unemployment, coupled with disconnection from traditional land and culture, contribute to risky health behaviours.

Many Fijians express concern that eroding family values are driving this behaviour, with reports of children as young as eight using drugs, engaging in prostitution or begging. Low HIV awareness and social stigma compound these factors. Many Fijians are reluctant to get tested and, if positive, to receive care. Knowledge of HIV prevention is low: a 2021 survey found less than a third of those aged between 15 and 24 had comprehensive HIV knowledge.

A decade of underfunding and reduced international support has also undermined Fiji’s HIV prevention strategies and service. This has exacerbated low levels of HIV/AIDS awareness, and the deterioration of health and treatment services.

Why is the region at risk?

Fiji is a regional hub for education and business, attracting students and economic migrants from across the region. There's a real risk the virus will spread to other island nations via returning workers and students, potentially undetected for long periods.

Fiji is also a major tourist destination. Unsuspecting visitors, whose fun in the sun extends to drug use or unsafe sexual activities, may be at risk.

There is also a risk of reputational damage for the tourism industry, whose success relies on marketing Fiji as a safe and happy destination. With Fiji still recovering from COVID's impact on tourism, the new crisis is a major threat.

Fiji is also experiencing significant outward migration (5% net in 2023), mostly to Australia and New Zealand. This raises the risk of virus spread through established migration pathways, including labour mobility policies such as the Pacific Australia Labour Mobility scheme and New Zealand's Recognised Seasonal Employer schemes.

The HIV surge will be costly for the country and the region. HIV/AIDS strains household finances through lost income and increased healthcare costs, diverts public spending from other areas, with flow-on impacts for national and regional economies.

What is being done to combat the outbreak?

The Ministry of Health's 90-day HIV Outbreak Response Plan fast-tracks high-impact interventions. These include harm-reduction programs, condom distribution, and prophylactic pre-exposure treatment.

This complements the HIV Surge Strategy 2024–2027, a long-term road map for strengthening Fiji's health system based on the United Nations' global "95-95-95" targets: 95% rates of testing, treatment and viral suppression in the population. However, as the health minister noted, the outbreak declaration "reflects the alarming reality that HIV is evolving faster than our current services can cater for".

Consequently, external assistance is ramping up. The UN Development Programme has

delivered 3,000 anti-retroviral drugs to Fiji. The Australian government's Indo-Pacific HIV Partnership with UNAIDS is also supporting Fiji to scale up prevention. Funding is starting to trickle down to the front lines. For example, with support from Australia and New Zealand, the Fiji Reproductive and Family Health Association is working with experts on awareness, prevention and care strategies to reverse the surge.

Fiji is not immediately affected by US President Donald Trump's decision to withdraw the US from the World Health Organization and a threatened defunding of HIV treatment programs around the world. But the uncertainty makes addressing the outbreak even more urgent.

What can Australia and New Zealand do at home?

Both countries bear particular responsibility and face specific risks. Their domestic drug markets drive regional trafficking, fuelling Fiji's meth crisis and the HIV outbreak. Continued support for regional anti-narcotics initiatives is crucial, as is addressing domestic drug demand. As beneficiaries of Fijian labour migration, Australia and New Zealand also have a duty of care for migrants. This includes education, screening and treatment for Pacific communities, and access to preventive treatments which are currently not funded for migrants in either country. Finally, tourists and travellers need to be educated about the risks, and take precautions.

The outbreak declaration demonstrates Fiji's commitment to addressing the crisis but success will require regional cooperation. Australia and New Zealand are key stakeholders whose domestic policies and support can significantly affect the outbreak's trajectory, contribute to a unified Pacific response and protect regional public health.

Acknowledgement

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Opinion

My Journey as a Young Indo-Fijian Gay Man Living with HIV

Author: *Mr. Mark Shoheel Lal*

On May 1st, 2024, my life changed forever. I walked into the Suva Sexual Reproductive Health Clinic, expecting a routine check up, but I walked out with the knowledge that I was now living with HIV. In that moment, a flood of emotions washed over me: fear, uncertainty, and a deep sense of isolation. The world around me felt as if it had suddenly shifted, and I was left standing at the edge of something unknown.

I am a young Indo-Fijian gay man, a part of a community that has long been marginalized. Stigma surrounds not just my sexuality but now my health status as well. The weight of those societal expectations and prejudices felt suffocating. But I knew one thing for certain, I was not going to let this define me.

The weeks following my diagnosis were some of the most challenging of my life. I had to process what this meant for me, my future, and my relationships. Would my family accept me? Would my friends still stand by my side? Would I still be able to pursue my dreams? These questions haunted me, but I refused to let them consume me.

My family was embarrassed when I came out publicly. It was difficult for them to face the scrutiny, the whispers, the societal judgment. But over time, they have started to come around. They are learning, they are trying, and I am grateful. While I once feared their rejection, I now see hope in their willingness to understand.

On June 13th, 2024, I took my first step toward reclaiming my life. I began treatment. Starting antiretroviral therapy (ART) was both a physical and emotional journey. The medication was a reminder of my new reality, but it also symbolized hope. With each pill, I was taking control of my health, ensuring that I could live a long and fulfilling life. I never allowed myself to bow to stigma; I refused to let others define me by their ignorance.

Navigating life as a person living with HIV (PLHIV) in Fiji has its challenges. The stigma surrounding HIV is still deeply rooted in our society, making disclosure a difficult decision. I feared being judged, losing opportunities, and being reduced to nothing more than my status. But I also knew that my silence would not change anything.

One of the most difficult moments in my journey happened right at the Suva Sexual Reproductive Health Clinic, when the lab technician taking my blood looked at me and said, "This is your life now." Those words shattered me. In that instant, it felt like my future was being written for me: one of limitation, of struggle, of shame. But I refuse to accept that narrative. No PLHIV should ever feel this way. We never asked for this, but we got it. And we deserve compassion, not condemnation.

Being HIV positive has made finding employment almost impossible. Now that I have come out publicly, I still struggle. I get screamed at, "HIV!" as if my status is a weapon to be used against me. People are afraid to be near me, as if I am a danger. But this only tells me that there is still so much work to be done in Fiji. Like I have always said, these words do not define me, they only push me to work harder.

Without my friends, I don't know if I would have made it through those first few weeks. Amit's Huggett, Luke Seeto, and my partner Peter Sipeli stood by me when I felt like my world was falling apart. They reminded me of my strength, of my worth, and of the life I still had ahead of me. Their support helped me become the strong and healthy man I am today.

The positivity I have received online, through my page *Living Positive Fiji*, has also been life-changing. Raising awareness for HIV and AIDS has given me a sense of purpose. The overwhelming messages of encouragement and gratitude pushed me to love my advocacy work even more. It reaffirmed that my voice matters and that my story can help others.

I found my purpose in life, and that is to advocate for HIV awareness and fight stigma. My journey has led me to dream bigger. I am even planning to pursue a Master's in Public Health to strengthen my advocacy and contribute to policy changes.

I am 23 years old, studying at the University of the South Pacific, pursuing a double major in Pacific Policing, Politics & International Affairs. My education fuels my advocacy, giving me the knowledge and tools to fight for systemic change.

On January 30th, 2025, I found out that I was undetectable. That moment was a relief, a milestone that reaffirmed my health and the effectiveness of my treatment. But even with that victory, a harsh reality remained: Fiji had been facing an HIV medication shortage from May 2024 to January 2025. And to this day, there are still no viral load test kits available. It is heartbreaking to witness this crisis, knowing that so many others are left in uncertainty about their health status.

I was lucky enough to go to therapy with Mr. Carlos Perera, who helped me a lot in my journey. His guidance was invaluable, giving me the strength to navigate my emotions and find resilience in my struggles. But ever since he left for overseas, I wonder, do other PLHIV have any other support group? In my opinion, there is no real structured support system for PLHIV in Fiji. What can we do about this? What can I do about this? The lack of mental health and emotional support for PLHIV is deeply concerning, and it is something that needs urgent attention.

HIV does not define me. I am still Mark, an ambitious student, a loving partner, a passionate advocate, and a young man determined to break barriers. I refuse

to let HIV take away my dignity or my dreams. If anything, this journey has given me a renewed sense of purpose.

I want to use my voice to educate, to challenge misconceptions, and to show others, especially young people that life does not end with an HIV diagnosis. We are still capable of love, of success, of joy. We are not broken. We are not dirty. We are simply human, deserving of the same dignity and respect as anyone else.

Living with HIV has taught me resilience. It has shown me the power of self-love and the importance of community. To those who are newly diagnosed, know that you are not alone. There is support, there is treatment, and most importantly, there is hope.

I am here. I am thriving. And I will continue to fight for a world where no one has to live in fear because of their status.

This is my journey, and it is only the beginning.

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Opinion

“Living with HIV as an iTaukei Male in Fiji: A Personal Reflection”

Author: Anonymous

When I first received the request to write about my experience as a PLHIV (Person Living with HIV), I felt uncomfortable. Sharing something so personal isn't easy, especially in a society where being open about struggles especially as a man is seen as a sign of weakness. But I also know that by speaking up, I can help others who are going through the same struggles in silence.

One of the biggest challenges I've faced is accessing healthcare in a way that feels safe and respectful. I've never liked going to the STI Hubs. The doctors there change frequently, and more often than not, I find myself dealing with a new or intern doctor every time I visit. This constant rotation creates a deep sense of mistrust. When you're living with HIV, trust in your healthcare provider is crucial; not just for medical reasons, but for your emotional well-being. On top of that, the lack of discretion at the Hub is overwhelming. The waiting area can at most times be crowded, and the stares from others add to the anxiety. It makes an already difficult situation even harder to bear.

Beyond the medical challenges, there's the cultural expectation of what it means to be an iTaukei man. We are raised to be strong, to never show weakness, and to never talk about our struggles. I grew up hearing "taura va'agane" – take it like a man. But how do you "take it like a man" when you're dealing with a life-altering diagnosis? When you're battling the mental toll that comes with it? I have personally recovered from severe mental health struggles, which led to multiple hospitalizations. Yet, mental health is another topic we aren't supposed to talk about. The weight of these expectations can be suffocating, making it even harder for iTaukei men living with HIV to seek support.

Another challenge I've had to endure is the way people look at me differently after seeing me repeatedly at the Hub. While no one outright exposed my status, I could feel the change in how people treated me. The stares, the whispers, the uncomfortable silences, all of it added to my fear of being judged. Working for the government, I've become more aware of how easily people make assumptions. Over time, I noticed how certain colleagues and acquaintances interacted with me differently, as if they knew something but wouldn't say it outright. It's a painful realization, knowing that people don't see you the same way just because of where they've seen you or what they think they know.

Since my diagnosis in the last couple of years, I've also had to endure the pain of being called a "disease" by people I once considered close friends. I've been gossiped about by family members I thought I could trust. Even worse, I've lost relationships with people I had confided in, simply because they feared that knowing my truth would somehow put them in a vulnerable position. The most heartbreaking moment came when my HIV status was exposed in front of my own family and friends during a heated argument at a family gathering. The way I was treated afterward, like I was something to be avoided, was painful beyond words. The emotional toll of that experience still lingers, affecting my mental health, my self-worth, and even my ability to focus at work.

There are times I feel completely alone. Even in spaces that are supposed to bring comfort, like church, I struggle to find messages that speak to my reality. The sermons often feel disconnected from what I'm going through, making it even harder to feel a sense of belonging. Faith is supposed to be a source of strength, but when you feel invisible even in religious spaces, the isolation deepens.

What makes things worse is the general lack of awareness among healthcare professionals about the unique struggles of PLHIV. Many general practitioners (GPs) don't have the necessary training to provide not just medical treatment but also the emotional and psychological support needed for people in our position. This gap in knowledge and sensitivity is a major barrier to care. Many of us hesitate to visit GPs or even access basic health services because we fear judgment or being treated as just another "case" rather than as a human being with fears, emotions, and dignity.

So what can be done? Since I am not a health expert in this field but I pose some suggestions; First, we need better training for healthcare professionals. GPs and other frontline medical workers should receive education on HIV, not just from a clinical perspective but also from a human one. They need to understand the stigma and mental health struggles that come with the diagnosis. Second, we need safe, discreet, and trustworthy healthcare spaces. PLHIV should not have to feel exposed or judged when they seek care. And finally, we need more conversations, within our communities, our families, and especially among iTaukei men. Strength isn't about suffering in silence. True strength is found in supporting one another, in breaking the silence, and in creating a world where no one has to feel alone in their journey.

To those out there who are living with HIV in silence, I want you to know that your struggles are valid. You are not alone. And change is possible, but it starts with us speaking up, even when it's uncomfortable.

Author: Anonymous

Review Article

Antiretroviral Drugs – A Lifesaver.

Author: Dr. Dashika Balak

Antiretroviral drugs (ARVs) have changed the entire outlook of HIV. Globally, so many lives of people living with HIV (PLHIV) has been saved because of ARVs. ARVs serves as both treatment for HIV and prevention of HIV.

History of ARVs

In 1987, the FDA approved the first ever ARV to be used as a treatment for HIV and AIDS. Azidothymidine (AZT), which is commonly known as Zidovudine, was a failed cancer drug from the 1960s which could stop HIV from multiplying and help people with AIDS live longer. At the time, AZT was the most expensive drug in history, and did not work very well when used to treat HIV on its own. It caused undesirable side effects such as liver problems and low blood cell counts that were potentially lethal. Over the years many different ARVs were discovered and approved by FDA.

The groundbreaking discovery was in 1996 where Highly Active Antiretroviral Therapy (HAART) was approved. HAART could boost the life expectancy of someone with HIV by 15 years. HAART, also known as Combination Antiretroviral Therapy (cART), refers to taking a combination of three or more drugs to treat HIV. This method was more effective at suppressing the virus than using a single drug and became the preferred HIV treatment method by 1997.

However, PLHIV had to take multiple pills a day when HAART first became the standard of care. This complex routine, along with drug side effects, made treatment adherence challenging. The first combination of two ARVs in a pill was approved in 1997 which combined ARVs from the same drug class. Later in the year 2000 the first triple combination of ARVs in a pill, from two drug classes, was approved.

Now there are over 30 different ARVs from six main drug classes. Each class of drug attacks HIV at a different stage of the HIV lifecycle.

The principals of HIV treatment or antiretroviral therapy (ART) are:

1. at least three drugs should be used from two drug classes,
2. two NRTIs serve as the backbone of the regimen, and
3. once therapy is started it must be continued.

The goals of ART are to:

1. suppress the viral replication and therefore reduce HIV viral load to untransmissible levels,
2. increase the CD4 counts and therefore improve immunity,
3. reduce HIV-related morbidity and mortality and therefore improve of quality of life and prolong survival, and,
4. prevent transmission of HIV.

Challenges associated with ART are that it cannot eradicate HIV, mutations can develop, resistance can occur, combination therapy is required which can give rise to more drug toxicities and more drug interactions, and that it is a lifelong therapy therefore adherence is critically important.

The **six drug** classes of ARVs are as follows:

1. Nucleoside reverse transcriptase inhibitors (NRTIs)

NRTIs inhibit the action of the reverse transcriptase enzyme by competing with the natural nucleoside, thereby inhibiting incorporation into the viral DNA and stopping the process of reverse transcription from viral RNA to DNA. The following are the approved NRTIs which are currently available:

- Zidovudine (AZT) – approved in 1987
- Lamivudine (3TC) – approved in 1995
- Abacavir (ABC) – approved in 1998
- Tenofovir disoproxil fumarate (TDF) – approved in 2001 (commonly known as Tenofovir)
- Emtricitabine (FTC) – approved in 2003.

2. Non-nucleoside reverse transcriptase inhibitors (NNRTIs)

This class of ARV inhibits the action of the reverse transcriptase enzyme. It binds directly to the reverse transcriptase enzyme and prevents the reverse transcription of viral RNA to DNA. The following are the approved NNRTIs which are currently available:

- Nevirapine (NVP) – approved in 1996, and the extended-release in 2011
- Efavirenz (EFV) – approved in 1998

- Etravirine (ETR) – approved in 2008
- Rilpivirine (RPV) – approved in 2011, and for ages two and up in 2024
- Doravirine (DOR) – approved in 2018

3. Protease inhibitors (PIs)

PIs bind to the protease enzyme, thereby preventing the correct cleavage of viral proteins; thus they prevent new immature viruses from being assembled and released from infected cells. This will prevent the immature virus from becoming mature viruses and infecting other CD4 cells. The following are the approved PIs but some have been discontinued, especially the ones approved in the 1990s:

- Saquinavir (SQV) – approved in 1995
- Ritonavir (RTV) – approved in 1996 (this acts as a booster so combined with other PIs)
- Indinavir (IDV) – approved in 1996
- Nelfinavir (NFV) – approved in 1997
- Lopinavir (LPV) – approved in 2000
- Atazanavir (ATV) – approved in 2003
- Fosamprenavir (FPV) – approved in 2003
- Tipranavir (TPV) – approved in 2005
- Darunavir (DRV) – approved in 2006

4. Integrase strand transfer inhibitors (INSTIs)

Commonly known as integrase inhibitors, this class of ARV binds to the integrase enzyme, thereby preventing the insertion of viral DNA into the CD4 cell's DNA. The following are the approved INSTIs which are currently available:

- Raltegravir (RAL) – approved in 2007
- Dolutegravir (DTG) – approved in 2013
- Cabotegravir (CAB) and long-acting cabotegravir (CAB-LA) – approved in 2021

5. Chemokine receptor (CCR5) antagonist

CCR5 antagonist blocks the CCR5 co-receptor which prevents the entry of HIV. This class of drugs will only work on people whose strain of HIV uses CCR5 co-receptors. It is not recommended for people whose strain of HIV uses CXCR4 co-receptors or both CCR5 and CXCR4 co-receptors. The following is the approved CCR5 antagonist which is currently available:

- Maraviroc (MVC) – approved in 2007

6. Fusion inhibitors

A fusion inhibitor blocks the HIV from merging (fusing) with the membrane of the CD4 cell, hence inhibiting the entry of HIV into the CD4 cell. The following is the approved fusion inhibitor which is currently available:

- Enfuvirtide (ENF) – approved in 2003

Current HIV treatment recommendations

In Fiji, we follow the WHO recommendations on ART and our guidelines are based on these recommendations. Currently, our HIV treatment regimens are from the following HIV drug classes for both children and adults:

1. 2 NRTIs + 1 INSTI – serves as the first-line regimen
2. 2 NRTIs + 1 NNRTI – serves as the alternate first-line regimen
3. 2 NRTIs + 1 PI – serves as the second-line regimen
4. 3 NNRTIs (this combinations should be avoided but only be used if one runs out of all options).

Therefore the ARVs we use as part of the above regimens are as follows:

HIV positive neonates and children <30 kg (age and weight appropriate):

Population	Preferred first-line regimen	Alternative first-line regimen	Special situations
Children	ABC+3TC+DTG	ABC+3TC+LPV/r	ABC+3TC+EFV (or NVP)
			AZT+3TC+EFV (or NVP)
		ABC+3TC+RAL	AZT+3TC+LPV/r (or RAL)
Neonates	AZT+3TC+RAL	AZT+3TC+NVP	AZT+3TC+LPV/r

For children and neonates who are HIV positive, there are no triple combination of ART but they usually have a combination of two ARVs which are NRTIs plus a single ARV (from a different drug class). Most of the ARVs available for the children are either available as dispersible tablets or elixirs.

The neonates who are born to HIV positive women and are awaiting HIV confirmation, go on HIV prophylaxis which is either a single ARV (Zidovudine) or a combination of two ARVs (Zidovudine + Nevirapine), depending on the risk profile of the women.

HIV positive adults and adolescents >30 kg (including pregnant or breastfeeding women)

Population	Preferred first-line regimen	Alternative first-line regimen	Special situations
Adults and adolescents	TDF+3TC+DTG	TDF+3TC+EFV	AZT+3TC+EFV (or NVP)
			TDF+3TC+PI (or RAL)
			ABC+3TC+DTG
			TDF+3TC+RAL

ARV drug toxicities and drug interactions

Just like any other medications, ARVs have side effects or toxicities and can interact with other drugs. Each ARV in each drug class has its own toxicities and drug interactions. Therefore, it is very important to monitor the patients closely once they are initiated on ART. The current first-line triple combination of ART has very minimal side effects which is mostly mild and can be managed by providing symptomatic treatment, if needed. Some patients may not even have any side effects. Usually within a couple of weeks the side effects subside but if it persists more than two months than the ARVs many need to be switched within the same drug class. Some of the common side effects with the current first-line triple combination in adults and adolescents are headache, nausea, diarrhea, insomnia, skin rash, dizziness, agitation, weight gain and in some cases abdominal pain, fatigue, and low white blood cell count.

Whereas some of the common side effects in neonates and children are hypersensitivity reaction especially to Abacavir, headache, nausea and vomiting, diarrhea, stomach pains, loss of appetite, tiredness, lack of energy, fever, general feeling of being unwell, difficulty sleeping, muscle pain and discomfort, joint pain, cough, irritated or runny nose, skin rash, hair loss.

Drug interactions can increase ART-related toxicities and decrease the efficacy of ART. The most common drug interaction is with rifampicin for many of the ARVs. For more detailed drug interactions, you can visit the University of Liverpool website: <https://www.hiv-druginteractions.org/> or use the app iChart.

Treatment failure

Treatment failure occurs when a patient develops resistance to ART, which means the treatment is not effective anymore so the patients start to deteriorate. This will require a change in the treatment from first-line to second-line ART. There are three types of treatment failure:

- Clinical failure
- Immunological failure
- Virological failure

Before changing to second-line ART, adherence counselling is imperative. Commencement of second-line ART regimen should be reconsidered if there is poor adherence to first-line ART regimen. Second-line ART is far more complex and likely to fail with poor adherence. Changing to a second-line ART is not the solution for poor drug adherence.

HIV drug resistance

HIV drug resistance (HIVDR) is caused by a change (mutation) in the genetic structure of HIV that affects the ability of a particular drug or combination of drugs to block the replication of the virus. All current ARVs, including newer classes, are at risk of becoming partly or fully inactive because of the emergence of drug-resistant virus.

Currently, in Fiji we do not have the capacity to test for HIVDR so if there are any suspected cases, samples are sent overseas. Having a genetic sequencing machine for HIVDR in the country will assist in surveillance of potential HIVDR and procure appropriate ARVs for the country.

Treatment as prevention (TasP)

A big part of HIV prevention is to use ART to reduce the risk of HIV transmission. ART can decrease the HIV viral load in an individual's blood and bodily fluids to such a low levels that blood tests can't detect it, when the individual maintains consistent adherence. This is known as undetectable viral load. As long as the individual maintains an undetectable viral load, HIV will not affect their health and HIV then cannot be transmitted sexually to others. This is known as U=U (Undetectable = Untransmissible = Zero Risk).

Post-exposure prophylaxis (PEP)

PEP is offered to a person who may have been exposed to HIV after a comprehensive risk assessment of the possible source, the exposed person, and the circumstances surrounding the exposure to HIV. The goal of PEP is to reduce the possible transmission of HIV.

Currently in Fiji, we are providing PEP in two scenarios:

1. **Occupational PEP** - is the provision of ART to prevent the possible transmission of HIV after the health care worker has been exposed to blood and other potentially infectious bodily fluids at work. This includes exposures such as when the skin is penetrated by a contaminated sharp object, e.g. needle-stick injuries, and when the non-intact skin or mucus membrane is exposed to potentially infectious bodily fluids.
2. **Non-occupational PEP** - is the provision of ART to the person who has been raped and/or sexually abused by a known HIV positive person and also to individual cases where a high risk of transmission has been identified.

There is greater benefit if PEP is initiated within 24 hours after exposure and none if given after 72 hours. Eligibility criteria for PEP is:

- Less than 72 hours has elapsed since exposure; and
- The exposed individual is not known to be HIV-positive; and
- The person who is the source of the exposure is HIV-positive or has an unknown HIV status; and
- A defined risk of exposure.

PEP medication is the same as the first-line ART regimen and is only taken for 28 days. Currently

PEP is only available at the SRH clinics, MSP and at divisional hospitals.

Pre-exposure prophylaxis (PrEP)

PrEP is an HIV prevention strategy where HIV negative individuals take ARVs before coming into contact with HIV to reduce their risk of becoming infected. The medications work to prevent HIV from establishing infection inside the body. Individuals at high risk of HIV include those with HIV-positive partners, people who inject drugs, and individuals with multiple sexual partners. PrEP provides an additional layer of protection and empowers individuals to take control of their HIV prevention. Currently in Fiji, PrEP can only be offered to a HIV negative woman who is in a sero-discordant relationship, wants to become pregnant, and whose partner is not fully suppressed. There is no PrEP available for the key populations such as sex workers (SW), men who have sex with other men (MSM), transgender (TG) people and people who inject drugs (PWID). A PrEP feasibility study has been conducted but the report is yet to be out.

Globally, there are three PrEP products:

1. Oral TDF (tenofovir disoproxil fumarate)-based PrEP is safe and effective, reducing HIV risk by up to 99% if used consistently. It is a pill used daily or when needed ("on-demand", around the time of sex). Adherence is crucial for effectiveness. Side effects are rare and usually mild.
2. Long-acting injectable Cabotegravir (CAB-LA) was shown to be 66% more effective than daily oral PrEP in MSM and TG women and by 89% in cisgender women. It is administered every eight weeks, offering an alternative for those who struggle with daily oral PrEP adherence.
3. Dapivirine vaginal ring (DVR) is a female-initiated topical PrEP. In female sex workers and other women at high HIV risk, DVR can reduce HIV risk by 50%. Side effects are mild and pass within 1-2 weeks. As the DVR releases dapivirine locally in the vagina, it is not expected to have impact on pregnancy or a newborn and can be used by pregnant and breastfeeding women.

The DVR and CAB-LA have not been specifically studied among people who inject drugs, but both can be used to prevent sexual transmission of HIV. In the current outbreak situation, PrEP will be a considerably effective prevention intervention which can reduce new HIV acquisitions

Cost of ART

The cost of ART has significantly decreased over time, particularly due to the availability of generic drugs. The prices of ART was about US\$14,000 per person per year for first-line regimens in high-income countries in 1990 which dropped to about US\$1,200 per year in low- and middle-income countries in 2003. By 2018, the price per person per year in sub-Saharan Africa was under US\$100 for most fixed-dose combinations. The prices of other fixed-dose combinations also have continued to decline over the past few years. The current first-line ART costs less than US\$45 per person per year in many low- and middle-income countries.

In Fiji, all the ARVs which are available for HIV treatment, PEP, and PrEP only for HIV negative woman in a sero-discordant relationship who wish to become pregnant, are free for the people in the country as the ministry procures these medications.

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Review Article

"Advancements in Hyperbaric Medicine: Addressing Diving-Related Complications and Innovative HBOT Treatments in Contemporary Research"

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Hyperbaric medicine includes the medical use of hyperbaric oxygen (HBO) in a controlled environment, contributing significantly to the management of various health conditions, in particular those associated with diving and the underwater environment. Among the most critical applications of hyperbaric medicine there is hyperbaric oxygen therapy (HBOT), which provides for the breathing of pure oxygen in a hyperbaric chamber. This therapeutic intervention is fundamental in the treatment of complications related to diving, in particular the decompression disease (DCS) and arterial barotrauma, which have been recognized as prevalent risks among divers.

The decompression disease, also known as 'curves', occurs when divers rise too quickly, leading to the formation of nitrogen bubbles in the blood flow and in the tissues due to the decrease in room pressure. This condition can manifest itself with a variety of symptoms, ranging from joint pain to serious neurological impairments (Sionek-Wręga & Wręga, 2024). Recent literature suggests a considerable frequency of DCS accidents, which has been connected to factors such as immersion profiles, level of experience and adherence to security protocols (Nelson et al., 2024). The implications of these results underline the need for rapid diagnosis and effective treatment; HBOT acts as a milestone in the management of DC, facilitating the reduction of nitrogen bubbles and

promoting the prevasion necessary to relieve the symptoms.

Arterial barotrauma, on the other hand, is a less frequent but equally serious complication that can arise during diving. This condition generally derives from the inability to equalize the pressure and can lead to catastrophic consequences, including the pulmonary barotrauma and the embolism of cerebral arterial gas (Cage) (Sionek-Wręga & Wręga, 2024). Treatment often requires immediate hyperbaric intervention to deal with the resulting gases and recent studies indicate that early HBOT can basically improve the results in such cases, underlining the importance of further explorations in this area (Nelson et al., 2024).

The investigation of HBOT effectiveness for diving related complications shows off a spectrum of results. The therapeutic window for HBOT in the treatment of DC has been well consolidated, with guidelines that support the treatment in terms of specific time to optimize recovery. Emerging research has produced encouraging results regarding prolonged treatment programs, multiple diving and additional methodologies such as pre-contracting strategies, potentially expanding the scope of HBOT applications in acute scenarios (Sionek-Wręga & Wręga, 2024).

The evolution nature of hyperbaric medicine also highlights the development of innovative techniques aimed at improving HBOT protocols. For example, additional therapies such as systemic administration of antioxidants and the use of additions to drugs during the HBOT are under investigation, with the initial results that indicate potential synergistic benefits in the reduction of oxidative stress supported during diving related injuries (Nelson et al., 2024). These innovations reflect a shift towards a more nuanced understanding of the physiological impacts of the hyperbaric environments and open the way to improve clinical practices.

In summary, the current literature underlines HBOT full role in facing common complications related to diving such as decompression disease and arterial barotrauma. The continuous exploration of the treatment methodologies and the strengthening of security protocols remain critical in mitigating the risks associated with diving, thus promoting awareness and improving the results in hyperbaric medicine., Hyperbaric (HBOT) oxygenation has been widely studied for its applications in the treatment of various diving complications, especially decompression disease (DC) and carbon monoxide poisoning (CO). The body of literature that surrounds these applications serves as a basis for understanding HBOT effectiveness and security in these acute clinical scenarios.

The decompression disease, a condition precipitated by the formation of nitrogen bubbles in the tissues and the circulation after the rapid decompression, has been a focal point of HBOT research. Jingami et al. (2024) provided an exhaustive analysis of HBOT effectiveness in DC management. His systematic review revealed that Hbot significantly reduces the incidence of neurological sequelae associated with severe cases. It is important to note that the authors emphasized the rapid start of therapy as a critical

factor to improve the results for affected divers. The study stressed that administering HBOT within the first 24 hours after the exhibition, the maximized therapeutic benefits. In addition, the data suggests that multiple HBOT sessions can improve recovery, demonstrating a dose-response relationship in treatment.

Similarly, Andrews and Harch (2024) examined HBOT as an intervention for carbon monoxide poisoning, where it serves to accelerate the elimination of carboxyhemoglobin of the blood torrent and mitigate the neuronal lesion. His findings corroborated the usefulness of Hbot in several degrees of exposure to CO, which shows that HBOT treated displayed a significant reduction in cognitive deficits and neurological symptoms compared to standard treatment. The authors pointed out that although normobaric oxygenation remains a conventional treatment modality, HBOT provided a more effective alternative in acute cases with neurological affectation.

To better understand the underlying mechanisms for these beneficial purposes, Capó et al. (2023) investigated the biological processes activated by HBOT in cases of DCs and CO poisoning. The authors postulated that the hypoxic environment generated during HBOT promotes vasoconstriction, thus reducing the edema surrounding nitrogen bubbles in cases of DCs and facilitating resorption. In addition, the increase in partial oxygen pressure improves the supply of oxygen to ischemic tissues, a vital mechanism for optimal recovery in the toxicity of carbon monoxide. In particular, Capó et al. He also explored HBOT role in the modulation of inflammatory responses, which suggests that therapy could attenuate the proinflammatory cytokine environment commonly observed in cases of poisoning by DC and CO.

HBOT exploration in the context of diving -related complications is expanding to include innovative applications beyond traditional treatment indications. Research on complementary therapies that combine HBOT with pharmacological agents or other modalities is promising. For example, the potential to use HBOT to improve the therapeutic efficacy of neuroprotective drugs in CO poisoning guarantees greater research, as suggested by recent clinical trials.

As the body of literature continues to grow, the evolutionary understanding of HBOT biological

impacts on diving -related ailments indicates a significant need for continuous research. Collectively, studies emphasize the double importance of clinical efficacy and patient safety, advocating guidelines that further define HBOT role in hyperbaric medicine contexts. Emerging ideas about known and novel mechanisms of HBOT advocate their continuous use as a critical intervention in the management of sequelae of diving complications. Therefore, research underlines both the need for standardized treatment protocols and the exploration of interdisciplinary approaches to improve the results of patients in the field of hyperbaric medicine., The application of hyperbaric oxygen therapy (HBOT) in the treatment of dive -related complications demonstrated considerable therapeutic potential; However, it is essential to recognize the potential risks and adverse effects associated with treatment. Recent systematic reviews provide a comprehensive view of complications resulting from HBOT, with a particular emphasis on oxygen toxicity and pulmonary barotrauma. Zhang et al. (2023) conducted a systematic review that evaluates the incidence and implications of oxygen toxicity, noting that high partial pressures oxygen can lead to the central nervous system (CNS) and pulmonary toxicity. Those under HBOT are at risk of oxygen toxicity in the CNS, particularly during pressure greater than 2.5 atm, which can manifest through symptoms such as visual disorders, seizures and altered mental state. In addition, pulmonary toxicity is a significant concern that can result from prolonged exposure to high oxygen levels, characterized by symptoms, including cough, pulmonary edema and altered gas change.

In addition to the risks related to oxygen, pulmonary barotrauma is another significant complication associated with HBOT. Tanaka et al. (2024) stressed that barotrauma can occur when individuals face variations in pressure on lungs that exceed their ability to draw, especially during rapid climb phases or descent without proper decompression. Risk factors for pulmonary barotrauma can be exacerbated in individuals with pre-existing pulmonary conditions or those who do not adhere to established diving profiles. This barotrauma potential requires careful monitoring and adherence to protocols designed to minimize these complications.

The guidelines for secure practices in hyperbaric facilities are fundamental to mitigate these risks. Hyperbaric and hyperbaric medical society (UHMS) has published standards that emphasize

the importance of selection and preparation for HBOT. Biggs et al. (2022) elaborated the criteria for the safe selection of patients, emphasizing that individuals with certain against -indications, such as untreated pneumothorax, some forms of chronic obstructive pulmonary disease or specific types of middle ear dysfunction, may be increased by results adverse when subject to hyperbaric conditions. The prerequisite for metabolic stability before HBOT and the need for complete pre-treatment evaluations are highlighted as critical components in minimizing the incidence of complications.

Despite the established efficacy of HBOT for various dive -related conditions, including decompression disease and carbon monoxide toxicity, adherence to the described guidelines and continuous monitoring of patients during therapy plays a crucial role in reducing the incidence of adverse effects. The integration of advanced monitoring technologies and treatment strategies in clinical practices can improve the safety profile of HBOT. Continuous assessment of patient responses to treatment and protocol adjustment according to individual needs can further minimize the risks associated with therapy.

Emerging innovative treatment protocols in recent research, including exploitation of various oxygen mixtures and pulmonary protection strategies, aim to mitigate these deleterious effects and maximize therapeutic benefits. Continuous research on HBOT -related pathophysiological mechanisms will provide information to optimize safety guidelines and treatment strategies, promoting a balanced approach to use hyperbaric drugs for diving conditions. Recent advances in hyperbaric medicine have shown the potential of hyperbaric oxygenation (HBOT) to extend beyond its traditional applications, particularly in addressing complex chronic conditions. In particular, studies have begun to explore HBOT effectiveness in the treatment of fibromyalgia and diabetic foot ulcers. Chen et al. (2023) provide an exhaustive review of the underlying mechanisms by which HBOT can relieve the symptoms of fibromyalgia, including its role in improving the oxygen supply, the reduction of inflammation and the promotion of neuroprotection. The authors emphasize that the hypoxic environment created during HBOT can counteract hypoxic conditions in tissues that are often involved in fibromyalgia, which can provide symptomatic relief for patients suffering from this weakening condition.

At the same time, Tao and Yuan (2024) investigate the effects of HBOT on diabetic foot ulcers, a complication with substantial morbidity in diabetic patients. Their findings suggest that Hbot promotes wound healing through improved angiogenesis and collagen synthesis, together with the improved function of fibroblasts. The authors emphasize that the combination of HBOT with standard attention protocols can lead to faster healing times and reduced infection rates, which suggests a promising complementary therapy to control diabetic foot ulcers effectively.

Literature also addresses innovative delivery methods for Hbot that begin to emerge, which can transform its clinical applicability. KULSHRESHTHA et al. (2024) Discuss the advent of portable hyperbaric chambers, which could facilitate outpatient treatments and increase accessibility for patients who can benefit from HBOT regular sessions. This change towards greater accessibility is significant, particularly for chronic conditions that require continuous management.

In addition, the integration of synergistic therapies with Hbot is a mature area for exploration. Studies are investigating the combination of HBOT with pharmacological interventions and other therapeutic modalities, such as physiotherapy and regenerative medicine. Preliminary evidence suggests that such multimodal approaches could improve the efficacy of treatment, as well as expedite patient care (Kulshreshtha et al., 2024). This innovative integration can lead to better patient results and a reduction in the economic burden of chronic conditions.

In addition, emerging research is deepening the HBOT application in psychiatry, with encouraging results that indicate their potential to relieve the symptoms of posttraumatic stress disorder (PTSD) and traumatic brain injury (TBI). Initial clinical trials have shown improvements in mood and cognitive function after HBOT treatment, which suggests a new way to handle the psychological conditions influenced by physical trauma (Chen et al., 2023).

Collectively, these studies reflect a dynamic and evolving landscape for HBOT, highlighting their versatility as a therapeutic modality. The exploration of its innovative applications presents promising routes to improve patient care in hyperbaric medicine, particularly as research continues to validate and refine these emerging treatments. As the field progresses, it will be

imperative to systematically evaluate the long-term results associated with these new HBOT applications to establish solid clinical guidelines and optimize treatment pathways for patients with different medical needs., Study cases and clinical practices in the field of hyperbaric medicine have increasingly incorporated innovative protocols of hyperbaric oxygen (HBOT), in particular to face the complications relating to diving. Recent literature highlights a multidisciplinary approach that combines skills of various medical sectors to optimize patients' results. For example, Idris et al. (2024) report a series of cases involving patients with decompression disease (DCS) who have shown significant recovery if treated with a new sequential HBOT protocol. This approach, which included a combination of HBOT sessions together with physiotherapy and psychological support, involved a reduction in pain levels and an improvement in functional results compared to traditional HBOT practices. These results suggest that complementary therapies can improve HBOT effectiveness in the management of DC, underlining the need for a holistic treatment framework.

Another case worthy of note by Moreira Monteiro et al. (2023) examined patients with arterial gas embolism (age) following immersion accidents. The study employed an innovative HBOT regime that led to variable pressure protocols aimed at reducing the risk of re-clocking and improving the elimination of gas. The results indicated a significant reduction in neurological deficits and a total improvement in recovery metrics. The multidisciplinary collaboration in this study has led to specialists, neurologists and rehabilitation therapists, who facilitated a global treatment strategy and underlined the importance of teamwork in clinical environments.

In addition, innovative HBOT treatments have expanded to deal with the associated complications deriving from underwater accidents, including cognitive disabilities and psychological conditions. Clinical tests are accumulating around the additional use of cognitive-behavioral therapy together with HBOT, as reported in recent studies focused on post-traumatic stress disorder (PTSD) in divers (Drake et al., 2023). Patients undergoing this combined treatment have shown marked improvements in psychological well-being and quality of life quality after treatment. These interdisciplinary approaches seem to offer promising paths to improve the recovery trajectories in the

populations affected by health problems related to diving.

In addition, the progress of technologies and monitoring of the hyperbaric chamber monitoring have improved the improvements in the safety and efficiency of patient treatment. Sophisticated monitoring of vital signs and real-time data on the responses to treatment facilitate more precise adjustments to the HBOT protocols, satisfying the needs of individual patients (Johnson et al., 2024). Study cases reveal that these tailor-made interventions are related to improved clinical results, further demonstrating the potential benefits of technological integration within the HBOT practices.

The integration of advanced imaging methods, such as functional magnetic resonance imaging and the imaging of the diffusion tensor, has also been designed in clinical contexts to monitor the effectiveness of the treatment in divers with neurological complications (Smith et al., 2024). These imaging techniques allow the evaluation of cerebral microstructural changes during HBOT, providing convincing evidence of neuroprotective effects and adaptive recovery processes. As evidence corpus continues to grow, he underlines the need for continuous research to understand the entire spectrum of benefits deriving from the application of new HBOT protocols in different clinical scenarios.

Overall, the application of innovative HBOT treatments within cases study illustrate a significant promise in facing the complications related to diving. By promoting the collaboration between healthcare professionals and integrating new technologies and therapeutic strategies, hyperbaric medicine is evolving to meet the complex needs of more effective patients, laying the foundations for improving clinical results., Future research directions on hyperbaric medicine (HBM) promise to expand the scope and effectiveness of hyperbaric oxygenotherapy (HBOT) in the management of complications relating to diving. An essential impulse for HBM's progress lies in the need to face unexplored clinical indications in which HBOT can produce significant therapeutic benefits. Recent studies have underlined the need for complete investigations to establish the validity of HBOT in a wider spectrum of conditions, going beyond the traditionally cited indications such as the disease of decompression and the embolism of arterial gas. Emerging literature highlights promising

results in conditions such as wounds not healed, cerebral ischemia and even post-immersion cognitive function accidents that justify further explorations (Mensah-Kane and Sumien, 2023).

In addition, the optimization of HBOT regimes, including dosage and administration protocols, has a critical area for the current survey. The current research indicates that the changes in the pressure pressure, the duration of exposure to oxygen and frequency must be systematically evaluated to identify the most effective strategies. It is essential that future studies deliberate on the bio-physiological mechanisms underlying the variable responses to HBOT in different patient populations. Standardizing treatment protocols can not only improve therapeutic results, but also facilitate comparability between clinical studies, thus strengthening the overall test for HBOT in the treatment of health problems related to diving (Torpolotto et al., 2024).

The integration of innovative therapies together with consolidated HBOT practices represents a significant opportunity to improve patient care. While Hyperbaric Medicine continues to evolve, the researchers have started to explore the synergistic potential of combining HBOT with additional treatments such as pharmacological agents, regenerative medicine approaches and new wound care technologies. For example, recent studies suggest that additional therapies such as stem cell treatments combined with HBOT can produce healing skills enhanced in case of injuries related to diving (Lowe, 2024). Furthermore, the understanding of the relationship between the hyperbaric conditions and the responses to oxidative stress in the body can open paths for additional antioxidant therapies, which could mitigate potential secondary complications deriving from oxidative damage.

Tackling HBOT long-term results presents another critical direction for future research. It is important not only to focus on immediate clinical benefits, but also to evaluate the way interventions affect the long-term health trajectory of patients who have undergone complications related to diving. Longitudinal studies are needed to evaluate the duration of HBOT effects, potential recurrence rates and overall quality of life quality indicators among patients who have suffered HBOT. These investigations would provide priceless data that could influence the clinical decision-making process and the allocation of resources within hyperbaric structures (Kwee et al., 2024).

In the advancement of the field of hyperbaric medicine, the collaboration between doctors, researchers and technologists will be fundamental. The supplementary approaches that incorporate the multifaceted treatment methods will serve as a catalyst to deal with the complex challenges associated with health problems related to diving. The evolving panorama of HBM, fueled by rigorous research investigations and innovative therapeutic combinations, positions it at the forefront in the medical response to complications related to diving, ultimately offering hope for the results of improved patients.

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Case Study

Atopic Dermatitis -Tackling the Untackled: A Case Study

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Abstract

Atopic dermatitis (AD) is a chronic relapsing eczematous skin disease characterized by pruritus and inflammation and accompanied by cutaneous physiological dysfunction¹. A majority of these patients also have a personal or family history of "atopic diathesis." The term "atopic diathesis" refers to the presence of allergic rhinitis, bronchial asthma or AD. The diagnosis of AD is based on a constellation of signs and symptoms.^{1,2}

There is no single "gold standard" diagnostic test for AD. In majority of the cases, the diagnosis is made clinically. The globally considered clinical scaling to measure the response of treatment to atopic dermatitis are the Eczema Area and Severity Index (EASI), Scoring Atopic Dermatitis (SCORAD), and the Investigator Global Assessment (IGA), which assess the severity and extent of the condition, with additional measures like the Dermatology Life Quality Index (DLQI) to evaluate the impact on quality of life.³

Introduction

Atopic dermatitis (AD) is a common and chronic skin disorder that can have a significant impact on the quality of life of affected individuals and their families. The exact etiopathogenesis of AD is still elusive, but it results from a complex interplay between environmental and genetic factors and it probably represents more than one condition. There are many hypotheses regarding the underlying mechanisms. Current research is focused on the roles of the immune system, skin structural gene mutations, defects in the skin cells (keratinocytes), the skin surface microbiome (bacteria, viruses and yeasts), and many other factors. The skin barrier defect is a key feature of AD, and it allows allergens, irritants, and microorganisms to penetrate the skin, triggering an immune response and leading to inflammation and itchiness. Environmental factors such as exposure to certain allergens or irritants can exacerbate AD symptoms, while bacterial and viral infections can also contribute to disease severity.^{2,3}

There is no single gold standard diagnostic test for AD. The diagnosis is made based on clinical criteria, which include the patient's medical history, physical examination findings and the characteristic symptoms of AD such as pruritus, erythema, and eczematous lesions in a typical distribution. Although blood tests like checking for elevated immunoglobulin E (IgE) levels, Allergy patch test can sometimes support the diagnosis. A skin biopsy may be performed to rule out other skin conditions that can mimic AD.¹

Epidemiology and Clinical Patterns

Atopic individuals can also suffer from other dermatitis or dermatoses, and to delineate AD lesions from other conditions, Hanifin and Rajka for the first time proposed a systematic approach toward the standardization of the diagnosis of AD by incorporating three major/basic and 23 minor features. They suggested that a diagnosis of AD can be established if three of the major and three of the minor criteria are present.⁴

Major/basic features

1. Pruritus
2. Typical morphology and distribution: flexural lichenification or linearity in adults, facial and extensor involvement in infants and children
3. Chronic or chronically relapsing dermatitis
4. Personal or family history of atopy (asthma, AR, atopic dermatitis)

Minor or less-characteristic features

1. Xerosis
2. Ichthyosis/palmar hyperlinearity/keratosis pilaris
3. Immediate (type 1) skin test reactivity
4. Elevated serum IgE
5. Early age at onset
6. Tendency toward cutaneous infections (esp. *Staph. aureus* and Herpes simplex)/impaired cell-mediated immunity
7. Tendency toward nonspecific hand or foot dermatitis
8. Nipple eczema
9. Cheilitis
10. Recurrent conjunctivitis

11. Dennie-Morgan infraorbital folds
12. Keratoconus
13. Anterior subcapsular cataracts
14. Orbital darkening
15. Facial pallor/facial erythema
16. Pityriasis alba
17. Anterior neck folds
18. Itch when sweating
19. Intolerance to wool or lipid solvents
20. Perifollicular accentuation
21. Food intolerance
22. Course influenced by environmental/emotional factors
23. White dermographism/delayed blanch.

Differential Diagnosis of AD

There are a number of genetic and metabolic disorders where an eruption resembles AD (with or without other atopic disorders) or which are associated with a raised IgE level. Many such conditions are immunocompromised states. Thus, in other words, the following conditions are to be suspected when a patient is having eczema-like AD but is not responding to conventional treatment.

- Agammaglobulinemia
- Anhidrotic ectodermal dysplasia
- Ataxia-telangiectasia
- Coeliac disease
- Cystic fibrosis (heterozygote)
- Histidine depletion (experimental)
- Hurler's syndrome
- Hyper IgE syndrome
- Hypereosinophilic syndrome
- Jung's disease
- Nephrotic syndrome
- Netherton's syndrome
- Phenylketonuria
- Wiskott-Aldrich syndrome

Most of these conditions are rarely, but not infrequently diagnosed in day-to-day practice.

CASE REPORT

An 8-month-old child with the history of reddish rashes over face and limbs on and off since his age of 5 months. He later developed insomnia as a consequence to itchy skin. As there is no single gold standard diagnostic test for AD, the diagnosis was made by examining the skin and reviewing the child medical history. After consulting the patient's family, patient was treated with Topical Fluticasone, intense moisturizer and Tacrolimus as maintenance drug. In this context, Khobragade reports that 2 weeks of treatment with a combination of fluticasone and mupirocin led to a significant improvement in AD in 90% of the patients in an open-label uncontrolled study⁶ We asked the patient parents to come for follow up after 3 months. After 3 months, patient feels better and showed considerable improvement in the disease within 3 months. Pre-treatment and post treatment pictures of patient were documented and compared.

Histology of Eczema

The spongiotic tissue reaction pattern is characterised by intercellular oedema within the epidermis (spongiosis). Initially, there is a widening of intercellular spaces between keratinocytes and elongation of the intercellular bridges. Further accumulation of fluid leads to the formation of intraepidermal vesicles.⁵

Atopy Patch Test

There is no 'gold standard' for atopy patch tests. Positive results may correlate with a history of allergen-specific flares of dermatitis.

When compared with classic tests of IgE-mediated hypersensitivity, the atopy patch test has a higher specificity but a lower sensitivity. The classic tests may have some value as screening tests for IgE hypersensitivity, but the atopy patch test may add specificity.

The atopy patch test does not replace the classic methods of diagnosis of IgE-mediated allergy.⁷

Predictors of positive atopy patch test reactions include:

1. Increased specific serum IgE
2. Positive skin prick tests
3. Flares of dermatitis associated with exposure to specific allergens
4. Increased total IgE
5. Long duration of eczema
6. Rhinoconjunctivitis

Treatment

Topical corticosteroids form the mainstay of topical treatment and, along with emollient, are able to control the condition in more than 80% of the cases. However, as use of long-term topical corticosteroid has the potential to produce local and systemic adverse effects, topical Tacrolimus has come up as a useful treatment modality for the long-term control of the disease.⁶



Discussion

Atopic dermatitis (AD) is a chronic inflammatory skin disease that is characterized by pruritic skin lesions, disrupted skin barrier function, dysregulation of the immune system¹. Early recognition and prompt treatment of AD can improve outcomes and prevent disease progression. Treatment options for AD include skin care measures such as the use of emollients and avoidance of triggers, as well as pharmacologic therapies such as topical corticosteroids and calcineurin inhibitors. In severe cases, phototherapy and systemic immunosuppressive agents may be required.^{1,2} Anti-inflammatory treatment with topical corticosteroids or topical calcineurin inhibitors is effective in reducing inflammation and improving symptoms. Systemic antihistamines (H1) can relieve pruritus and adjuvant therapy includes UV irradiation, preferably of UVA1 wavelength or UVB 311 nm⁵. However, there is no single effective treatment for AD. The management of pruritus is also important, as it can cause significant discomfort and lead to skin trauma. Treatment of skin infections, which can be a common complication in patients with AD, is also necessary to prevent further skin damage. Topical corticosteroids are typically the first-line pharmacologic treatments for AD and are effective in reducing inflammation and improving symptoms. Prophylactic use of topical corticosteroids may also be beneficial in preventing flare-ups.¹

Education about the disease and optimal skin care practices are important in preventing and managing flare-ups. Early intervention and a proactive management approach can help prevent disease progression and improve quality of life for patients with AD.

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Conclusion

Atopic dermatitis is indeed a chronic and highly pruritic skin disease, which typically presents in early childhood and can have a significant impact on the patient's quality of life. It is important for healthcare providers to carefully evaluate the patient's medical history, perform a thorough physical examination and consider additional diagnostic tests such as skin biopsy or patch testing to confirm the diagnosis and rule out other potential conditions. Prompt and effective management of AD is important to minimize disease progression and improve quality of life.

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Opinion / Update

The HIV Crisis, Harm Reduction, and the GP

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I was recently invited to talk on “Lifestyle and Risk Reduction”. Reflecting, to best structure my presentation given the breadth of the topic was pertinent. In this era of information where everyone is exposed to healthy and unhealthy lifestyle behaviors, I needed to return to grassroots. Reflecting on my slides I pondered in the ideology of “*what is health?*” and “*what are the determinants of health?*”.

The definition of health has been conceptualized multiple fold. The most familiar would be that from the WHO in 1948 stating: “**Health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity**”.^[1]

In 1953, Deitrich Bonhoeffer defined health as simply ‘*the strength to be*’. In the 1970s, Christopher Boorse strongly advocated for the ‘*biomedical model*’ of health. In 2011, Huber and colleagues proposed the formulation of health as ‘*the ability to adapt and to self manage*’.^[2]

As for determinants of health, for those familiar with the rainbow model, know that there are various factors that can impact the health outcomes of an individual. Some of which are predetermined and non-modifiable, such as **biological** inherited genetic risks, age, gender and ethnicity. Others include some which are predetermined and somewhat modifiable, such as **cultural** and **religious** influences. Then there are those that are dynamic and modifiable, such as the **physical** environmental factors including housing, water and sanitation, living and working conditions, air quality, transportation and road networks and accessibility to services, and more broadly **socio-economic** factors such as level of education, nature of employment and disposal income, and social networks and support. Lastly, modifiable **behavioral** factors which are our choices on what we eat and drink, how active or inactive we are, how meaningful our relationships tend to be, and how much stress we expose ourselves to.^[3]

As physicians, considering the entire spectrum of health determinants, there are many things in a patient’s life that eventually mold and influence

behavioral choices. As such, reasons for poor health in most patients are multifaceted contributing to the overall picture. Without a holistic environment that is conducive to making healthy lifestyle choices, one cannot expect an individual to be healthy.

The HIV Outbreak

With this backdrop in context, I apply this to the HIV crisis and raise some thought-provoking questions that we need to focus upon. On January 22nd the Minister for Health, at the launching of the Fiji National HIV Surge Strategy 2024-2027, officially declared the HIV outbreak in Fiji stating that the rise in the number of new cases had finally met the definition for an outbreak of HIV nationally.

Fiji recorded a staggering 1093 new cases of HIV infection from the period of January 2024 to September 2024, in just 9 months. The age group most affected is 20–29 years, accounting for 553 (51%) cases. Another staggering disproportion noted is that 990 (90.6%) of these new cases are individuals of I-taukei descent. Only 572 (52%) of these new cases have been successfully linked to care, and among them, only 443 (77%) cases have confirmed transmission routes. Of these cases, 223 (50.3%) have reported Injecting Drug Use (IDU) as a primary mode of transmission, while 202 (45.6%) have reported sexual transmission as a primary mode of transmission.^[4]

Considering the determinants of health, and its various conceptualizations, an important question that arises from this stark statistical revelation is: *What are the health determinants amongst young I-taukei men that make them the most prevalent group with HIV infections? Furthermore, of these determinants, which are most immediately modifiable to help design targeted interventions?*

Another question that arises is: *How exactly is the criterion for a HIV outbreak defined, or rather what is the threshold of cases that need to be met before the outbreak could be officially declared?* If one was to look at the incidence of HIV in Fiji over the past few years, one would easily notice an exponential rise since 2022. In the decade prior to that we had accumulated 999 new cases, with a

gradual increase from a low of 62 new cases in 2012, to a high of 151 new cases in 2021. There was a stark increase of 62% in 2022 with a total of 245 new cases, and a further 69% in 2023 with a total of 415 cases.^[5] These are based on the documented cases that were identified by the then surveillance networks and measures that existed. There is also no denying that not all positive cases in the community were being identified. I am certain that there may be some statistical modelling and projections on which the expected prevalence numbers are calculated. *However, based on the degree of increases in 2022 and 2023, was it not adequate to consider it an outbreak then? If not so, was it not enough to trigger some form of response or targeted interventions earlier?*

Risk Reduction

With the launch of the Fiji National HIV Surge Strategy and its alignment with the National Narcotics Strategic Plan, there is hope and commitment from our leaders towards addressing this outbreak. The HIV Surge Strategy was officially approved by the Cabinet on 10th September 2024. The National Strategy focuses on aligning legislation with international standards, increasing access to HIV testing and treatment, expanding harm reduction programs, promoting education and awareness, strengthening data collection, and advocating for necessary policy changes.^[6]

Another alarming statistic is that 20.4% of the newly diagnosed cases in 2024 are attributable to intravenous drug use. Amongst the objectives outlined in the Survey Strategy, there is mention of the expansion of harm reduction programs such as needle exchange programs and supervised injection sites to help reduce the risk of HIV transmission and other harms associated with injectable drug use. It is promising to see that there is consideration by both the Minister of Health and the Permanent Secretary of Health in the Surge Strategy towards the needle exchange program.^[5] However, one may wonder, nearly 6 weeks down the line since the launch, there is little if any action that has been visible on the ground regarding harm reduction.

There is a multitude of evidence as early as from the 1990s that show the most effective harm reduction strategy for preventing HIV transmission amongst intravenous drug users worldwide has been the needle and syringe program (NSP). These programs enable IDUs to have access to clean needles and syringes thus preventing them from using and sharing contaminated equipment and

hence significantly reducing the risk of HIV transmission amongst this group.^[7,8,9]

Other harm reduction strategies used globally include opioid substitution therapy, supervised injection site, increased HIV testing and treatment, education and outreach programs and decriminalization and policy reform. Amongst these harm reduction strategies, NSPs have consistently shown the highest effectiveness in reducing HIV transmission amongst IDUs in various settings globally.

There may be a valid argument against NSP by some stakeholders claiming it may further encourage youth to engage in intravenous drug use, however, there hasn't been any objective evidence to reflect this globally. Such an argument would be as moot as the argument that came about when making condoms easily accessible to prevent the rise in sexually transmitted infections was criticized as being encouragement for young people to engage in sexual activity. The valid argument for NSP in this scenario boils back to the core principle of creating a safe and healthy environment. High risk behavior is normal in young adults, possibly a normal part of development. It is the responsibility of leaders, healthcare providers, and parents to help provide a safe environment to minimize further harmful effects.

The GP and the Outbreak

An important aspect of the surge strategy includes the decentralization of testing and treatment services. Private GPs are likely to be actively involved in this and possibly form the forefront of this response to take services as close as possible to PLHIV. The aim is to enhance easier access to services and better treatment compliance. It is important for GPs to familiarize themselves with common ARVs used in the country for treatment, POCTs and confirmatory testing, and laws on HIV ensuring that the service is non-discriminatory. In assisting the Ministry of Health with this outbreak response the family physician must upgrade clinical and counselling skillsets.

Let us all collectively engage in the program, reducing the burden of the outbreak, or else this Surge Strategy may just be another ambitious document like the National Strategic Plan on HIV and STIs 2012-2015, and 2016-2020. As detailed and ambitious as those plans were, the current crisis is indicative that the objectives of those plans were clearly not met, or rather implemented poorly, or not implemented at all.

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Medico-Political Column

The Limits of the Fijian Healthcare Public-Private Partnership (PPP)

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The COVID-19 pandemic prompted the WHO to provide scientific and technical support to all states requiring guidance. In 2020, Fiji was introduced to the Healthcare-PPP model at both macroeconomic and microeconomic levels. While the potential benefits of this initiative are recognized, its implementation has sparked national controversy, necessitating urgent discussion on its limitations.

The former government introduced the macroeconomic PPP model just before a general election, citing the imminent collapse of the public healthcare system. However, whether this decision was politically motivated or a genuine emergency response remains unclear. The lack of prior consultation with fellow politicians, healthcare professionals, and the general public further exacerbated concerns. The true extent of the financial burden was not disclosed until the current government assumed office, and transparency remains limited, with the Ministry of Economy solely managing its progress. This opacity raises serious concerns about fiscal accountability and stakeholder involvement. Additionally, the microeconomic Healthcare PPP was awarded to a select group of general practitioners, sparking criticism from the broader medical community. The fundamental objective of the Healthcare PPP is to improve healthcare access for vulnerable populations. However, the current framework lacks a defined policy directive, leaving critical areas such as health screening, awareness programs, diagnostic services, treatment

options, and financial safeguards unstructured. The program has since expanded to include dentists, pharmacists, and pathology laboratories, with recent entries from medical insurance providers and overseas-based medical entrepreneurs. This unchecked expansion raises the risk of deviating from its core mission, prioritizing financial gains over public health and increasing the threat of "State Capture."

As Fiji transitions from autocracy to democratic governance, the need for transparency and accountability in public health policies is paramount. The Healthcare PPP's limitations remain ambiguous to healthcare professionals and policymakers alike. The current government must take decisive steps to refine the PPP in collaboration with stakeholders, ensuring fiscal responsibility while protecting pensioners' superannuation funds. The Fiji College of General Practitioners should advocate for a national summit on the Healthcare PPP to establish clear objectives, enforce financial transparency, and ensure equitable healthcare distribution. With the 2025 budget review underway, policymakers must be held accountable to critically evaluate and fine-tune both macroeconomic and microeconomic aspects of the PPP to align with the nation's healthcare priorities.

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Letters to the Editor

Yoga, Meditation, and Pranayama: Tools for Stress Management and Trauma Relief in HIV/AIDS Patients and Their Loved Ones

Introduction HIV/AIDS continues to be a major global health challenge, not only because of its physical impact but also due to the emotional and psychological toll it takes on patients, their families, and their communities. While antiretroviral therapy (ART) strengthens the immune system and prolongs life, holistic approaches such as yoga, meditation, and pranayama (breathwork) can complement medical treatment by reducing stress, managing trauma, and improving overall well-being.

Understanding the Emotional Impact of HIV/AIDS A diagnosis of HIV/AIDS often brings fear, anxiety, depression, and social stigma. Many individuals struggle with self-acceptance and worry about discrimination. Families and friends of those living with HIV/AIDS may also experience stress and emotional burden. These psychological challenges can weaken the immune system and negatively impact overall health.

How Yoga, Meditation, and Pranayama Help Scientific studies have shown that yoga, meditation, and pranayama can significantly improve mental and physical health. These practices activate the parasympathetic nervous system, reducing stress hormones like cortisol, which can weaken immunity. Additionally, they enhance emotional resilience, self-awareness, and inner peace.

1. Yoga for Strength and Balance

- Practicing yoga postures (asanas) helps strengthen the body, improve flexibility, and enhance blood circulation.
- Yoga promotes relaxation, reducing stress levels and improving sleep quality.
- Gentle yoga poses, such as Child's Pose (Balasana) and Legs Up the Wall (Viparita Karani), can be highly beneficial for relaxation and immune support.

2. Meditation for Mental Clarity and Emotional Healing

- Meditation helps individuals develop mindfulness, which allows them to observe their thoughts and emotions without judgment.
- It enhances emotional stability and reduces anxiety, depression, and feelings of loneliness.
- Mindfulness meditation has been scientifically proven to lower blood pressure, reduce inflammation, and boost immune function.

3. Pranayama for Immunity and Vitality

- Breathwork techniques, such as Anulom Vilom (alternate nostril breathing) and Bhramari (humming bee breath), help calm the nervous system and reduce stress.
- Deep breathing increases oxygenation, which supports cellular function and strengthens the immune system.
- Regular pranayama practice can improve lung capacity and overall respiratory health, which is crucial for those with weakened immunity.

Overcoming Stigma and Seeking Help One of the biggest challenges for people living with HIV/AIDS is the stigma associated with the condition. This stigma often prevents individuals from seeking medical or emotional support. Yoga and meditation encourage self-acceptance and cultivate compassion, helping individuals overcome negative self-perceptions. Practicing these techniques in community settings also fosters a sense of belonging and support.

Accessible Resources for Learning Yoga, Meditation, and Pranayama Many organizations and wellness centers offer yoga and meditation programs. Some Organizations like The Art of Living, Indian High Commission – Swami Vivekananda Cultural Centre and Health & Happiness Hub offer yoga and meditation and pranayama workshops. Online platforms, mobile apps, and virtual support groups also provide accessible resources for learning and practicing these techniques from home. Hospitals and mental health professionals increasingly recognize the value of these holistic practices and may recommend local programs.

Conclusion HIV/AIDS management requires a comprehensive approach that includes medical treatment, emotional support, and holistic wellness practices. Yoga, meditation, and pranayama offer powerful tools for stress relief, trauma healing, and immune system support. By integrating these practices into their daily lives, individuals living with HIV/AIDS—and their loved ones—can cultivate resilience, inner peace, and overall well-being. No one should hesitate to seek help; support is available in many forms, and healing begins with self-care and community connection.

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Notes

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