

CONSEQUENCES OF DIRE POVERTY: FLESH EATING JIGGERS: *The Hidden Epidemic*

This document relates to the UN SDG #1: Poverty, and SDG #3 Health and Well-Being. This commentary focuses on tungiasis in **Sub-Saharan Africa**, but it is present in the Caribbean, Central and South America, and India, but not in Europe or North America.



(Images: health.com right; Journals.plos.org; middle: dailystar.co.uk)

JIGGER INFESTATIONS AMONG THE POOREST HUMANS: In large geographic

swaths on our planet, people are prey to the pestilence of *Tungiasiasis*. This disease is caused by the fleas known as *Tunga Penetrans* (aka jiggers, *chigoe* or sand fly), that burrow into human flesh, lay eggs and then the larvae live on the blood of the host. Exposed skin on the bare feet of people are the most vulnerable areas on the body, but infections are seen elsewhere such as the hands knees and ankles. Prolonged infection results in gangrene and death. People who lack basic protections such as footwear or flip flops, present easy targets for burrowing fleas. Jiggers impact marginalized communities of low socio-economic status—mostly those who live on less than \$1 a day, in rural locales, with no access to medical care. Jigger infestations occur in poor populations and can be as high as 60% with older adults, the disabled, and children 5-14 years being the most impacted. Tungiasis is often associated with social stigmatization.

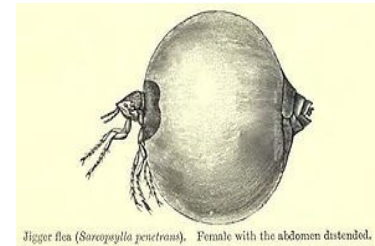
The affliction is found primarily in sub-Saharan Africa (SSA). The jiggers have migrated there from Central and South America.¹ Despite the known epidemic of jiggers, they are a largely unexplored affliction and very little governmental and private sector partnerships exist to provide relief. Most of the treatment is given free by non-profit groups. Removing jiggers outside medical facilities is a primitive process—using small scalpels, and without pain medication.



¹ Jiggers have spread to other parts of the world, including India and other Asian regions.

When done locally by the victims themselves, thorns are often used. Cleaned jigger sites display deep pits on the skin (Image above, pg. 1, bottom: Reddit.com).

Jigger eggs hatch into larvae in about 3-4 days and feed on organic matter and blood. *Tunga penetrans* has two larval stages before forming pupae. The pupae are in cocoons. The larval and pupal stages take about 3-4 weeks to complete. Afterwards, adults hatch from pupae and seek out a capillaries for blood meals “ (Centers for Disease Control). In short:



- **Tungiasis is caused by female sand fleas, which burrow into the skin and lay eggs.**
- **Tungiasis can cause abscesses, secondary infections, gangrene and disfigurement.**
- **The disease is found in most tropical and subtropical areas of the world; the poorest people carry the highest burden of the disease.**
- **Both animals and humans are susceptible.²**

IMPACT: Repeated infections mutilate the feet, hands, elbows, knees, of the infected people. Impaired physical fitness of adult household members has a deleterious effect on life quality of households.



Children afflicted with tungiasis show inability to walk, attend school, play, or perform other life-necessity and life-quality needs. Bacterial superinfection may cause other life-threatening complications such as blood poisoning, erythema, (reddening of skin) edema (excess fluid in skin), desquamation.³ Pain and

itching are a constant presence. Itching induces scratching of the lesion facilitating the shedding of eggs, and pupae. Abscesses, sometimes large, are frequent. (Images Left: jigger-ahadi.org).

² *Tungiasis* is the medical term for jigger disease..

³ *Desquamation* means rough scaly skin, often discolored—see picture above right.

TREATMENT: In infected regions the sand fleas are often removed horrifically and imperfectly by the sufferers themselves, using thorns, safety pins, hair pins or other sharp



objects at hand. With these, the victims try to poke out the sand fleas, their egg sacs, and larvae that live under the skin.

Charitable organizations do come on site and partially fill the gap between the public and private sectors.

However, their resources are limited.

They use small scalpels which are slightly more effective than the home-made tools used by the affected people. Nevertheless, scalpels, pose their own hazards that arise from unskilled or accidental wounding.



Removing the burrowed parasites can cause local inflammation if the parasite ruptures and in doing so, introduces pathogenic bacteria into the wound--leading to further infection of the lesion. Furthermore, using the same implements on several people one after another, risks the spread of the hepatitis B virus (HBV), hepatitis C virus (HCV) or HIV. After removal of the sand fleas and their habitats, the wound needs aftercare—such necessary things, as sterile dressings, tetanus vaccination, pain relievers, etc., all of which are not available to the suffering poor.

INTERNATIONAL RESPONSES:

WORLD HEALTH ORGANIZATION (WHO): At the 66th World Health Assembly,



members agreed to increase and assimilate tactics against hidden or ignored tropical disease epidemics such as *Tungasiasis* and to plan investments to improve the health and social well-being of affected populations. WHO works with Member States and partners to ensure the implementation of resolution WHA66.12. Despite such agreements, within WHO and within other international agencies, *Tungasiasis* is a spreading disease in Africa, Central and Southern America, India and other Asian nations. Additional reports of intervention are shown in the sources reported at the end of this

document in the section of Research Sources.



UN SUSTAINABILITY DEVELOPMENT GOALS

(SDGs) : Goals #1, and #3, Poverty and Health and Well-Being, respectively, are particular subsets of the vision of the of the United Nations' 17 SDGs for planetary sustainability by

2030. Each goal has 5-10 targeted actions. All 17 goals focus on sustainability and link with each other, some more than others.)

THE DYNAMIC NATURE OF POVERTY & HUMAN HEALTH: The UN has long maintained that poverty is both a cause and a consequence of poor health. Poverty increases the chances of poor health and poor health, and bad hygiene, in turn, ensnare destitute populations to remain in destitution. Infectious and neglected tropical diseases kill and weaken millions of the poorest and most vulnerable people each year.

The UN SDG Report (2018) notes that: “Transitioning towards more sustainable and resilient societies also requires an integrated approach that recognizes that these challenges—and their solutions....” The UN has warned world governments that they must reflect on how societies can be made more resilient while confronting challenges such as *tungiasiasis*. The window of opportunity is closing in fast. The agency states that: “A good place to start is by establishing robust water and sanitation infrastructure, ensuring access to clean and affordable energy, building safe and ecologically friendly cities, protecting ecosystems, and instituting sustainable consumption and production patterns.” (UN SDG Report, 2018.)

DEONTOLOGICAL ASPECTS FOR BIG PHARMA CONSIDERATION: It has been often observed in scholarly writing, as well as in popular writing, that global “Big Pharma’s” social responsibilities to the developing world are insufficiently addressed, and that they must exercise these responsibilities by investing in research and development related to diseases that affect developing nations, offering discounts on drug prices, and initiating drug giveaways. Richard Saynor, Vice President, GlaxoSmithKline (2018) observed: “On the part of pharmaceutical companies, we have a responsibility to help people gain access to high-quality healthcare and the medicines that they need, no matter where they live in the world or how much they can afford.” Other pharmaceutical companies have expressed similar sentiments—but the hidden epidemics among the global poor in less developed nations still remains hidden.

SELECTED RESOURCES:

1. “WHA66.12 Neglected tropical diseases” (2013, WHA66.12, CC BY-NC-SA 3.0 IGO) Sixth World Health Assembly, WHO

Neglected tropical diseases (NTDs) include several parasitic, viral, and bacterial diseases that cause substantial illness for more than one billion people globally. Affecting the world’s poorest people, NTDs impair physical and cognitive development, contribute to mother and child illness and death, make it difficult to farm or earn a living, and limit productivity in the workplace. As a result, NTDs trap the poor in a cycle of poverty and disease.

2. Deka, M.A. (2020) “Mapping the Geographic Distribution of Tungiasis in Sub-Saharan Africa,” *Tropical Medicine and Infectious Disease* 5, no. 3: 122.

“The geographic distribution of tungiasis is poorly understood, despite the frequent occurrence of the disease in marginalized populations of low socioeconomic status.”

3. World Health Assembly, WHO (2021) “Neglected tropical diseases” Information document.

“Neglected tropical diseases (NTDs) are a diverse group of 20 conditions that are mainly prevalent in tropical areas, where they mostly affect more than 1 billion people who live mostly impoverished communities. They are caused by a variety of pathogens including viruses, bacteria, parasites, fungi and toxins. These diseases cause devastating health, social and economic consequences to more than one billion people.”

4. Pan American Health Organization, (2022) WHA.12, Washington, DC, January 27, 2022

“On the eve of the first World Day for Neglected Tropical Diseases, the Pan American Health Organization (PAHO) is urging governments to provide comprehensive and universal care for the millions of people affected by these poverty-related diseases in the Americas.

Leprosy, dengue, leishmaniasis, schistosomiasis, dog-mediated human rabies, scabies, Chagas disease, intestinal parasites and trachoma are some of the more than 20 pathologies present in the region – where they are also known as neglected infectious diseases – afflicting more than 200 million people at risk.

"Preventing and treating these diseases is cost-effective. Strategies to combat them include bringing prevention, diagnosis and treatment closer to vulnerable communities, as well as improving their living conditions, such as access to education, drinking water, basic sanitation and housing," said Marcos Espinal, PAHO's director of Communicable Diseases and Environmental Determinants of Health.”

VIDEOS:

1. “Random video of Laban’s jigger digging”--<https://youtu.be/hXewHBcaql8> . Cut and paste into browser.
2. “Javan’s many painful jiggers dug out”--https://youtu.be/Ptteq_qV8sU. Cut and paste into browser.
3. “Emmanuel plus five jiggered siblings “--https://youtu.be/dDC3U_5mcO0. Cut and paste into browser.



(Image above: change.org)

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