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Lang Prize: Reflective Essay

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From Oppression to Hope:

How Library Resources Turn Malaria Eradication into Potential Reality

A Tale of Disease and Genocide

Among the many tragedies of war, disease compounds suffering like no other. As a survivor of the Cambodian Genocide from 1975 to 1979, my father would recount tales of his escape through untamed jungles and risky return to rescue what remains of his family, though one story oddly stood out—malaria. This life-threatening disease had been endemic to Southeast Asia for generations, but in a time of forced labor and starvation, it essentially guaranteed death. My father remembers the characteristic intense, periodic fevers that lasted for hours, combined with body chills that made the hunger cut as deep as execution axes. Outbreaks ravaged through the concentration camps, leaving behind hopelessness and despair in an already oppressive environment.

Fifty years later, malaria still persists. Sustained efforts to combat the disease have driven it toward elimination in Cambodia, yet antimalarial drug resistance threatens to undo all progress. After listening to my father's story, I wondered if there existed a reasonable way to eradicate the disease within the next ten years. It seemed almost impossible since malaria spreads through the bite of infected mosquitoes, which are stubbornly not going extinct anytime soon. The UC Davis Library helped direct my uncertain doubts toward achievable answers, culminating into a 12-page vector-borne disease control plan that not only mirrors the approach of the World Health Organization but also highlights the growing threat of drug resistance that drives eradication to become a top priority.

Information Research Process

Library Research Guide

First, I needed to lay a foundational outline from which I could build upon. However, although I planned to start with general background information then switch to peer-reviewed journal articles, I did not know how to begin my research. I initially attempted to scour the online library catalog for a book specifically about malaria in Cambodia, but no such book existed. Following the advice of STEM Librarian Ruth Gustafson and Health Sciences Librarian Erik Fausak, I perused the library research guide and key books list specially curated for the ENT 153 Medical Entomology course. The description under each book gleamed with promise, so at that very moment, I headed straight to the Peter J. Shields Library and checked out all the physical books from the list that I could find, including *Medical Entomology for Students* by M.W. Service, *Biological and Environmental Control of Disease Vectors* by M.M. Cameron and colleagues, and *Integrated Vector Management: Controlling Vectors of Malaria and other Insect Vector Borne Diseases* by G. Matthews.

Once I reached home, I scanned the table of contents and index for mentions of malaria or Cambodia. After bookmarking the relevant sections, I realized that none of these books mentioned Cambodia in the context of malaria. I took a step back and shifted gears for a moment to reflect on what I had learned so far. By constructing a rough skeleton of topics that I aimed to discuss, followed by further subtopics that would focus on particular details, I noted that I possessed sufficient background information on the biology of the vector and the pathogen but neither the epidemiology nor pathology of malaria. Now, using my organized outline, I returned to the online library catalog, though this time, I came equipped with an upgraded approach.

Advanced Search Strategies

Instead of using the simple search mode, I opted to elevate my game with the advanced search function. Key search terms included “malaria,” “Cambodia*,” “disease*,” and “vector*,” where the asterisk wildcard broadened my inquiry to include variations of the corresponding word. I relied on Boolean operators, especially AND and OR, to refine and control the results, producing higher precision and relevance. I also combined only two of the search terms with one Boolean operator to avoid excluding potentially useful sources. To streamline the results into a more manageable selection, I filtered them to consist of English only and restricted the start date to the year 1975 for historical records or 2010 for recent findings. As a result of these changes, I located more sources that imparted additional context, such as identifying aspects of *Anopheles* mosquito eggs from M. Berenbaum’s *Bugs in the System: Insects and Their Impact on Human Affairs*.

Additionally, I examined the references cited in the books to uncover original primary sources, like the prevalence of malaria among Cambodian refugees during the genocide and the spread of chloroquine-resistant strains in Cambodia by 1960 (Dahlberg 1980; Payne 1987). I then turned my focus toward discovering more primary sources from PubMed, a biomedical database recommended by the library research guide. Thanks to UC Davis, I accessed countless journal articles to which I applied the same advanced search strategy. Firsthand scientific data encompassed the majority of my references, for the direct evidence reinforced the reliability, integrity, and accuracy of my work.

Resource Evaluation

For each journal article, I read the abstract first to determine if and how the paper was related to a specific topic of interest. Next, I scanned the discussion section to obtain a summary of the results and their implications, then checked the authors’ backgrounds and disclosure to verify their credibility and detect biased viewpoints. Likewise, I noticed how

frequently the paper had been cited to gauge its trustworthiness, value, and impact to the scientific field. I interpreted relevant figures to not only gain a better understanding of the data but also validate the official inferences, taking special note of the statistical significance. Finally, I viewed the associated result sections to confirm my independent analysis and solidify a connection back to my topic, cross-examining the new material with my accumulated conclusions to ensure appropriate coverage and accuracy.

On the other hand, I evaluated books using a different set of criteria. Because they were considered to be secondary sources and therefore generally less reliable than primary research papers, I restrained their use for widely accepted background knowledge, such as the fact that mosquitoes spread malaria (Service 2012). Furthermore, the book must contain a direct relevance to the topic in question, which most lacked. I explored *Vector Biology, Ecology and Control* by P.W. Atkinson, for example, but it did not cover mosquito biology, ecology, and control to an equal depth compared to the alternative sources that I inspected. Typically, peer-reviewed journals carried a more immediate and straightforward applicability, so I traced the information back to the original source whenever possible.

Challenges

Due to the purge of intellectuals during the Cambodian Genocide, little documentation about previous malaria outbreaks survived the chaos. To gather historical context, I relied heavily on books that touched upon this time period, then located the reference to find the original paper. In addition, many peer-reviewed publications addressed malaria broadly, but they lacked direct relevance to my topics. I adjusted my search strategy to incorporate fresh terms such as “net*,” “drug*,” and “prevent*.” On top of that, I originally intended to narrow the publication date range to within the last 5 to 10 years, but I expanded it due to the lack of pertinent information.

There were also very few papers on current control strategies against malaria in Cambodia. Rather than selecting for English sources only, I adopted an alternative, unique investigative technique in which I visited the Cambodian government websites and official social media accounts to hunt for ongoing policies and complementary papers, painstakingly Google-translating everything as I go. Plus, instead of limiting my inquiry to only Cambodia, I enlarged my investigation to include studies conducted in other regions, such as Africa. These wider perspectives enhanced my comprehension regarding both the biological and economical impacts of malaria as well as the objective effectiveness of various control strategies. Logically, I cross-referenced studies for accuracy and applied these findings to Cambodia with the reasonable assumption that due to our common human biology, the disease afflicts populations in a mostly equivalent manner, regardless of geography.

Freedom Generates Innovation

No single source held all the answers. To uncover a solution for the dilemma of potential malaria resurgence, I synthesized numerous informational avenues to build my disease control plan from scratch, interweaving primary data and background context together. Initially, I stumbled in the dark, lost within the vast void of uncertainty, yet through trial and error, a systematic approach emerged that steadily produced actionable results. Little by little, I dived deeper into the subject matter, discovering novel ideas at every turn of the road and looping them back to my developing plan. Most importantly, I unearthed the past context of the disease, present impacts on everyday people, and a future community-driven approach that minimizes financial costs while empowering the local people to claim authority over their own fates.

Without the open, unrestricted access to information granted by a library, creating a vector-borne disease control plan would have been impossible. My original product spawned from the union of virtuous curiosity and exposure to diverse resource availability—including specialized databases—that I personally scrutinized and integrated into a comprehensive work

of quality and depth. Preserving the freedom of information exchange is not only crucial for the development of critical reasoning, but it is also vital for the advancement of human society.

As I remember the intellectual purge during the Cambodian Genocide and internalize my father's traumatic experiences, one lesson becomes clear. Libraries serve as critical nodes that uphold freedom. And it is the freedom to see, to learn, and to share that continuously starves oppression and paves the way toward innovation, ultimately improving millions to billions of lives around the world.

No AI tools/technologies were used in the writing of this essay.

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