

# Elective Report

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## Objectives

1. What are the prevalent infectious diseases in Perú? How do they differ from the UK?
2. How are microbiology services organised and delivered? How does that differ from the UK?
3. Develop skills in diagnosis and management of patients with infectious disease.
4. Improve knowledge, professionalism and efficiency clinically, exploring microbiology as an interest. Develop interest in academic medicine. Reflect on how the placement has changed aspirations and attitudes to your future career and practice.

## Introduction

I have spent a one month rotation in the Instituto Alexander von Humboldt(IAVH). It is located in Lima, the capital city of Perú.

### Prevalence of infectious diseases in Perú

Perú is a country exhibits great diversity in its degree of urbanisation, ethnic populations and population density. There is also diversity in its geography and climactic conditions; this includes cold mountainous conditions, dry desert coastal regions and the hot, humid and high altitude jungle. This allows for a great deal of biodiversity, which in turn leads to a variety of tropical and infectious disease presentations that are not found in the UK.



Figure 1: Dry coast, Paracas National Reserve  
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According to 2011 data from the World Health Organisation (WHO), prevalence of HIV in Perú is 250 per 100,000 population(1). The WHO data also placed the prevalence of tuberculosis in Perú as 117 per 100,000 population(1). In contrast, the UK prevalence of HIV and tuberculosis is lower at 150 and 19 per 100,000 population respectively(2).

Diseases discussed below are not endemic in the UK. The occasional case usually presents in a traveller.

Paracoccidiomycosis is an illustrative example of a disease that is borne from unique conditions in certain parts of Perú. It can present similarly to tuberculosis and typically occurs in male farmers from the humid and high altitude jungle.

The overall incidence of malaria in Perú is 267 per 100,000 population according to the WHO data(1). Malaria is a disease that is relatively common in the jungle areas of Perú. It also occurs in

the mountain regions and to a lesser extent in the coastal regions. *Plasmodium vivax* is the most common species(3). *Plasmodium falciparum* represents the majority of remaining cases(3).

Cutaneous and mucocutaneous leishmania are endemic in Perú. *Leishmania braziliensis* and *Leishmania guyanensis* are the main species in the jungle. *Leishmania peruviana* is prevalent in the mountainous regions(4). Visceral leishmania is not commonly diagnosed in Perú.

Dengue is hyperendemic in Perú. There is evidence of its transmission from jungle areas to coastal areas(5).

### **Service Organisation**

The IAVH is a specialist institute for infectious diseases and tropical medicine, which provides services to all of Perú to those who require it. They have a ward with over 30 beds and outpatient clinics. They are allied to the Cayetano Heredia University Hospital. Samples are taken with specialist care and investigations are carried out on site. Cases requiring their expertise are referred there. There is a hospital in Iquitos, which is in the jungle area. However, often they are overwhelmed with cases there. These are then referred to the IAVH in Lima and present to the IAVH's department. Microbiology in the IAVH is divided into several departments. There are separate departments for parasitology and mycology. There is also provision for experimental biology. All staff are highly experienced in the IAVH. In comparison to the UK, the services are organised in a similar manner. Standard microbiological investigations are carried out on site in hospitals. Due to the low incidence of tropical infectious disease in the UK, patients are referred to specialist centres analogous to the IAVH in Lima such as the Hospital in Tropical Diseases in London as appropriate for specialist microbiological investigations.

Perú is an economically developing country. It does not have a nationalised healthcare system. Investigations and healthcare are provided to patients who are insured or paying out of pocket. There is however a low-cost government insurance scheme available as well as government hospitals. There are also special programs providing free treatment for diseases such as tuberculosis, sexually transmitted infections, leishmania and HIV. However, diagnostic microbiological and virological investigations are often not included in these programs. Despite all this and other resource limitations, the IAVH manages very well and displays great capabilities in advanced comprehensive healthcare for their patients.

### **Diagnosis and management of infectious disease**

I have had the opportunity to see many cases of patients with various infectious diseases. These include familiar diseases such as HIV and unfamiliar infections such as Human T-Lymphocyte Virus 1 and myiasis. Infectious diseases are important in differential diagnoses. I learned it was important to evaluate the social history thoroughly from travel, living conditions, nutrition to animal contacts.

I have also had the opportunity to see specimens under the microscope in the laboratories, recognising the subtle differences between species and subspecies. The laboratory is often gives



the definitive diagnosis. A clinician should be familiar with the laboratory to understand how samples need to be taken and handled, as well as investigations that are available as options. Despite the importance of microbiological services, imaging also plays an important role in tropical medicine. For example, CT-scans are useful for identifying and delineating abscesses.

I learned that a holistic approach to management was optimum. It is crucial that patients who are immunosuppressed are mindful of their environment, hygiene practices and dietary habits.

### **Academic medicine**

The IAVH is a veritable hub of research and academic activity. Every Tuesday, a whole day is dedicated to reviewing journal articles and cases. There is departmental teaching as well as contributions to teaching across the whole general hospital. The IAVH staff are evangelically enthusiastic about teaching and up-to-date evidence-based medicine. Critical reasoning and questions are encouraged. I find it very enjoyable and stimulating to have such a strong academic component to clinical practice; I would like to integrate this into my future practice.

The IAVH also has a global and national attitude to health. They make important contributions to the literature. They are also involved in public health. Doctors from all over the world and the country visit the IAVH frequently. The IAVH is also involved in organising local conferences in global topics such as antimicrobial resistance. The surveillance and appropriate use of antimicrobials is an important global health issue: The World Health Organisation have a policy package against this growing public health problem(6).

### **Conclusion**

Overall, the experience at the IAVH has been eye-opening. I have learned a great deal about tropical and infectious diseases. I have learned to think holistically about the patient as an individual. I have also learned to think about diseases within a global public health framework. My interest in academia, teaching and research has developed further; I have seen such an inspiring example in the culture of the IAVH. I aspire to become a physician that excels as a teacher, researcher and clinician at a centre that holds all these aspects of medicine as valuable. My experience at the IAVH has demonstrated that this goal is achievable.

## References

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