

# Lab Report



## TITLE:

An Experiment Demonstrating Effects of Fly Repellents on Infectious Insects on Human

## STATEMENT OF THE PROBLEM

Vector borne diseases caused by infectious insects are no longer a cause of alarm but rather, a cause of concern globally. Researches indicate that, infectious insects accounts to more than 18% of vector borne diseases, causing more than one million deaths every year in the world. Some insects are infectious especially when they happen to interact with the human beings. For instance, A Fly is a notorious example known for contaminating the human foodstuff when it lands on it.

Flies can infect human with diseases like typhoid, cholera, dysentery, and sometimes it can transmit tuberculosis. Since houseflies do not bite to pass pathogens into the human body, the diseases' causing agent is present on its mouthparts and defecates like vomitus and feces. For prevention mechanism, people seems to doubt efficiency of fly repellents. Many have suggested that flies are now biologically resistant to many commercial fly repellents. This prompted us to conduct an experiment to validate these contentions.

## OVERALL, EXPERIMENT QUESTIONS

1. Does the density of flies' accumulation affect diseases transmission?
2. Are there any preventive mechanisms that could prevent flies from contaminating human food?
3. Do commercial fly repellents work well to prevent flies from spreading diseases?

## HYPOTHESIS:

- H1:** Flies are inclined to rest and defecate more on notecards untreated with fly repellents than on notecards treated with fly repellents.
- H2:** Flies are inclined to rest and defecate on a notecard equally, irrespective of whether it has been treated with fly repellents or not.

## MATERIALS:

The experiment will need four slides of notecards, two cages covered with mosquito nets, a strong commercial fly repellent, and a collection of healthy flies.

The flies were gathered using a fly traps.

## PROJECT ASSUMPTIONS/CHALLENGE

Although the data for the project may be available, getting it into the meaningful format for use in organizations require more inputs. Normally, users can easily sort the report, however, they are not easily created by the same end users. Occasionally, this may require integration and tweaking

with the input from operational managers, although this is clearly uncommon. Nevertheless, the integration and tweaking can be unique and positive for data users. The integration entails some issues, for instance registering a patient incorrectly to spur widespread negative impacts for billing. Some of the errors observed in the process of healthcare data learning requires the relevant departments to restructure their communication channels effectively in order to deal with the integration issues. Creating centralised communication platforms within the facilities enables flexibility and creativity in the training opportunities. As the facilities implement sites, it is significant to reduce the patient visits until the service providers can comfortably offer services to the high numbers.

## PROCEDURE:

In the laboratory, one of the cage (labeled C1) was filled with large number of flies. We took two slides of notecards, one sprayed with repellent while the other remained untreated. The untreated slide is for the control group.

The other cage (labelled C2) was filled with fewer flies, we also put two notecards, one treated with the repellent, and the other one remained untreated. The set-up of the experiment stayed in the laboratory for one week.

The purpose of the mosquito net was to ensure that flies were enclosed in the cage throughout the entire period of the experiment. The notecards offered a surfaced where the flies could land and rest. Researches have it that, whenever a fly stops to rest, often, they either vomit or excrete feces on surfaces. Basing on this knowledge, using the notecards enabled easy counting of defecates from flies and allowed easy comparisons under different conditions.

## RESULTS:

### Observation:

After one week, in cage C1, the untreated notecard had been smeared with 16 fly spots while the treated notecard recorded 2 spots only. On the other hand, in cage C2, the untreated notecard still recorded more number of spots than the treated notecard. However, the spots were fewer compared with the recordings in cage C1.

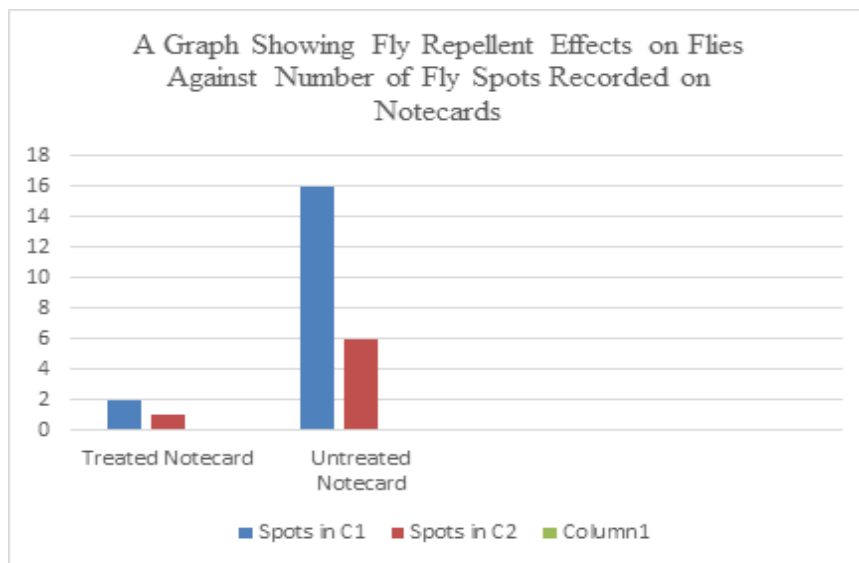
The two cages had different results due to different in density concentration of flies per location. Cage C1 had many flies and recorded many spots on untreated slides, whereas cage C2 had fewer population of flies hence recording fewer spots on untreated spot too.

**NOTE:** The number of spots suggested the number of times a fly landed on the notecard.

### Inferences

In cage C1, the untreated slides recorded many fly spots because the flies will incline to rest on slide not sprayed with repellent. Flies find it comfortable to land on this slide more than once. On the contrary, the treated notecard recorded few sports because they tend to avoid the notecard with fly repellent. From the results, it implies that; fly repellents works effectively enough to repel flies away.

## Graphical Representation



## CONCLUSION:

The findings validate the H1 hypothesis which presumes; "Flies are inclined to rest and defecate more on notecards untreated with fly repellents than on notecards treated with fly repellents."

The findings infer that, flies tend to avoid surfaces sprayed with a fly repellent and otherwise settle on surfaces free from repellent. Now this gives proof that there is a preventive mechanism against infectious insects like flies. On the other, the flies preferred to land on the untreated notecard because there was no effect of repellents. The insects were simply avoiding the effect from the repellent and opted to land on a safer ground.

Additionally, whenever the density of flies' population is high in a particular location, the contamination chances tend to increase. Comparing the results from the two cages, the cage with the higher density of flies' population recorded a higher number of fly spots on the notecard than the cage with fewer density of flies' population.

In particle example, a household sprayed with fly repellent will have fewer or no traces of flies flying around compared to house not sprayed with a fly repellent. Basing on the background information, flies transmit bacteria and other pathogens via their mouthparts, vomitus, and spots. Expelling them with a repellent tend to reduce chances of having your foodstuff being contaminated hence reduces chances of getting infections like cholera and typhoid too. Spraying households' surfaces with fly repellent will ensure that there are few or no traces of flies within the room. People should embrace fly repellent and using it will protect them against cholera, typhoid, and dysentery hence reducing the world mortality rate.