

# PMI 214 Notes

Sam Fleischer

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- WHO definition of “Integrated Vector Management” is defined as a “rational decision-making process for the optimal use of resources for vector control”
- Five key elements:
  - Integrated approaches
    - \* The desired outcome is to reduce disease. Controlling the vector is a means to the ultimate goal. Almost all IVM approaches include uses of drugs and vector control methods
    - \* IVM strategies are supposed to *minimize* the use of chemicals
  - Capacity building
    - \* Must develop physical infrastructure, control some financial resources
  - collaboration within the health sector and other sectors
  - Advocacy, social mobilization, and legislation
    - \* Vector control is not in a vacuum
    - \* Regulatory and legislative controls are important - must have relationships with politicians
    - \* Empowerment of communities - currently not well implemented, but arguably the most important means of vector control - we must educate and then rely on the public
  - evidence-based decision-making
    - \* Using solid academic research to make decisions
- Key challenges to successful vector control is the lack of intersectional collaboration
  - govt. ministries
  - municipal entities
  - stake-holders in communities
- Adulticide
  - Paris Green (Toxic)
  - DDT, Lindane (Environmental concerns, and resistance)
  - Organophosphates carbamates (Environmental concerns, and resistance)
  - Pyrethroids (Larviciding, environmental concerns, and resistance)
- Larvicide
  - Petroleum Oil (Toxic)
  - Vegetable oil
  - fish
  - B.t.i. and B.s. (resistance?)
  - Methoprene (IGR) (resistance?)
- An IVM strategy should include as much source reduction or control measures as possible
  - In Africa, pools on mud roads
  - In California

- \* underground rain drains
- \* PG&E electricity vaults
- Mosquitoes are exhibiting behavioral resistance to avoid chemical exposure
  - Widespread use of bed-nets caused massive selection for the phenotype allowing mosquitoes to feed at sunset, rather than at night.
- There are secondary vectors for Malaria - some nonzero percentage of transmission.
- Incompatibility Insect Technique - releasing sterile males into the population.
- Traps
- Parasitic fungi on mosquitoes
- Rice cultivation is creating major breeding sources of malaria vectors
- Canals are a problem - must have deep, fast-flowing canals - not slow-flowing shallow canals