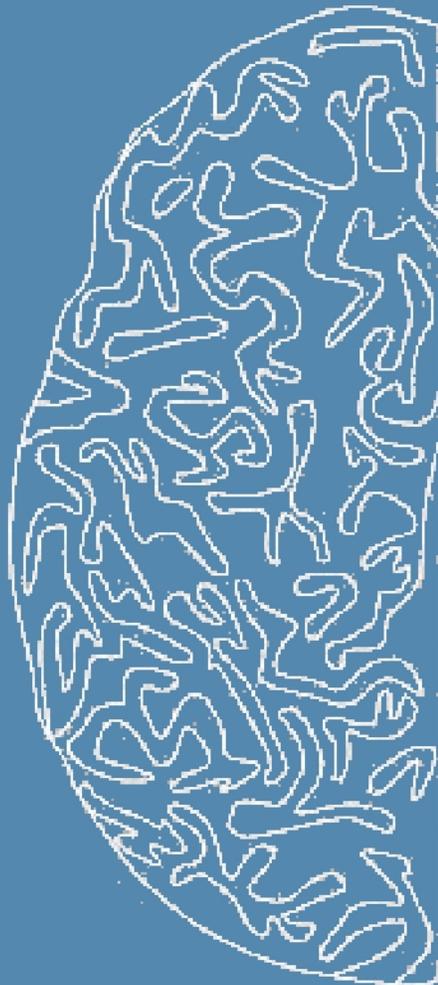
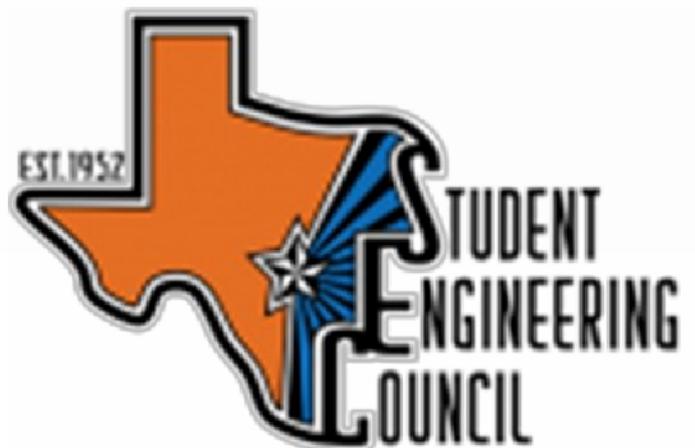


Case Competition



**BIOMEDICAL
ENGINEERING
SOCIETY**

**UNIVERSITY
OF TEXAS
STUDENT
CHAPTER**



Objective

Design and create a solution that improves the effectiveness of antimicrobial treatment, with the goal of preventing and/or controlling antimicrobial resistance while keeping in mind the administration policy at the local, state and/or national levels. Construct your solution with regards to the health-related impacts of administering these treatments and the motivation for keeping antimicrobial treatment in the market. Keep in mind the economic and ethical situations in your targeted region(s) of implementation. Consider a feasible solution that can be efficiently and effectively implemented, and be sure to include how it will be financially sustainable during its effective time period. Also discuss why your idea is a step up from how this issue was previously handled. Be prepared to refute potential arguments against your solution.

Consider the following:

- ❖ Your solution does not have to be a physical object, it can be something intangible like a new policy; again, consider feasibility.
- ❖ Research previous solutions or attempts to solve the problem.
- ❖ Is the impact of your solution immediate or long-standing?
- ❖ Who benefits and who does not benefit from your idea?
- ❖ Be conscious of the “real world” application - do not use inaccessible materials, unrealistic ideas.
- ❖ Ethical dilemmas that could come up regarding fund allocations or distribution of the remedy, etc., and how to circumvent them.
- ❖ What accelerates the emergence and spread of antimicrobial resistance?
- ❖ Why is antimicrobial resistance a global concern?
- ❖ The consequences and implications of “Superbugs.”

Idea:

- ❖ Novel
- ❖ Practical

Solution Implementation:

- ❖ Net Positive Impact
- ❖ Minimal Ethical and Cultural Effects
- ❖ Economic Technical Feasibility

Proposal:

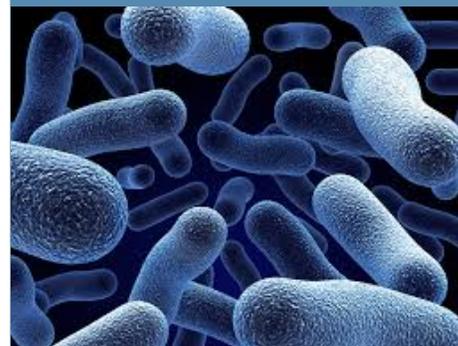
- ❖ Business Plan for Implementation
- ❖ Relevant Financial Information
- ❖ Long-term Effect

Quality of Presentation:

- ❖ Neat and Organized
- ❖ Smooth Transitions
- ❖ Contains all Necessary Information
- ❖ Within Time Constraint

Background

Just like an unexpected natural disaster can end millions of lives, so can deadly diseases, no matter how prepared we humans are. Waging a war against the powerful microbial world is a mighty task taken on by scientists and researchers across the world. Drugs and vaccines are our sole weapons to fight old and emerging diseases. However, the microbial world has unleashed upon us the problem of antimicrobial resistance, to which our efforts against have been futile. Antimicrobial resistance occurs when microorganisms gradually change their genetic structure due to exposure to antimicrobial drugs (such as antibiotics, antifungals, antivirals, antimalarials, and anthelmintics). Microorganisms that develop antimicrobial resistance are sometimes referred to as “superbugs.” The misuse and overuse of antimicrobials have accelerated the process of such genetic mutations. Poor infection control, inadequate sanitary conditions, the improper utilization of antimicrobial agents, the use of fake and counterfeit medicines, poor prescribing habits, non-compliance to prescribed treatments and inappropriate food-handling in developing countries have encouraged the spread of antimicrobial resistance. As a result, medicines are rendered ineffective and infections continue to persist in the body, thereby increasing the risk of spreading to others. According to the World Health Organization (WHO), antimicrobial resistance threatens not only the diseased, but jeopardizes progress on health outcomes by the medical industry. In the European Union, about 25,000 patients die each year from infections caused by selected multidrug-resistant bacteria and the associated costs are estimated at about 1.5 billion euros per year. In the United States of America, infections with pathogens resistant to antimicrobials cost the health-care system in excess of US \$20 billion. The implications of antimicrobial resistance are deadly in terms of mortality, cost and progress. Before microbes hail themselves victorious in this war, humans need to prove themselves by combating this serious issue.



Summary

A successful presentation will include an innovative solution to the problem at hand, thorough research of the solution, a business plan to implement the solution that includes a thorough understanding of the risks and rewards, potential pitfalls, opportunities for further development, etc., relevant financial information such as business development, marketing, funding and expenses, etc., and the long-term impact of the proposed solution in an organized and aesthetically-pleasing presentation.

Competition Day

The competition will be held on November 12, 2016. Teams will be notified of their presentation times beforehand. Each team will have 15 minutes for their presentation: 10 minutes to present their solution and 5 minutes to answer questions from the judges. Dress code for presenters is Business Professional. The 1st place team will be awarded \$700. The 2nd place team will be awarded \$300. The 3rd place team will be awarded \$200.

Good Luck!

2016 Fall BMES Case Competition

Supported by SEC

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Texas BMES