

# Design Review Case Study – Assignment B – Problem Description

## Cell & Tissue Engineering

### Introduction

To begin your CTE design review you will research background information, write a draft of the critical project description, and the motivation for solution technology you are focusing on. For the purposes of this class, you do not need to do elaborate population and market estimates (this you will get in another design course!), however, you will address both to a limited, but thoughtful and quantitative degree in this assignment.

### Part 1: Problem Description

In paragraph form describe what problem the solution will be/is addressing. This paragraph should end with a statement about how this solution overcomes the problem. This may be just one facet of a complex disease or injury.

Your description should include an overview of the target tissue/organ and/or pathological condition you are working to solve. Explain the causes of the target problem and symptoms that result from it (medical, financial and emotional). Describe any unique features of the tissue/structure that make it problematic – both function and composition (cell types, cell numbers, matrix composition and architecture). Last, describe how this problem is currently managed and by what type of healthcare provider. This section should be heavily supported by references.

### Part 2: Motivation

Again, in paragraph form, explain the motivation for addressing this problem – both the size of the patient population and the estimated market potential.

In order to estimate the number of patients this solution will serve you must know the characteristics of the patient population you are targeting. Is this solution for a first or third world population? Does that population readily adopt CTE-based treatments (is there history of this)? What is the total need (total afflicted) for a solution vs. the unmet need (total untreated)? How will the patient population change over time? Provide relevant data and statistics.

Now that you've detailed your patient needs you can estimate the market potential for your solution. These types of estimates are very complex and often require outsourcing to consultants that specialize in this field. For this assignment you are simply asked to use available information on your target problem and patient population to do "back of the envelope" estimates for the market potential. Think about how much the customer will buy - if at all. Who do you expect to pay for this solution (CMS? Private insurance?). Is the market expected to change due to rates of growth or decline in the target problem? Provide relevant data and statistics. This section should be heavily supported by references.

This document is a draft of a section that will be included in your final report. It is intended as a tool for you to get feedback on your progress. It is expected that this document be full-text (not a bulleted list) and include references.



## Additional Information

- Resources on proper citation and best practices in online research are available online at the JHU Krieger School Writing Center.
- Page limit 2, final point value 20/100, include project topic in header
- Reminder, drafts are worth 50% of the final point value 10/100
- Use MLA format.

## Grading Rubric

Points	Component	Description
6	Content (3pt Background) (3pt Motivation)	<b>Background and problem description</b> Adequate description of the target problem and target patient population. Thoughtful estimate of patient population size. Referenced data and statistics.
		<b>Motivation (patient and market potential)</b> Thoughtful estimate of market potential. Referenced data and statistics.
2	Organization and Structure	Clearly organized content with natural progression and structure. Informative subheading when necessary. Double spaced.
2	Writing	Superior narratives and analyses that are clearly and simply written. References included as appropriate.
10	<b>SUM</b>	

