

Innovation

Medical Application

Medical Nutritional Supplement Case Study

A firm with technology to formulate and produce food bars had previously designed, developed and launched a product for dialysis patients.

These patients were generally fluid-restricted, clinically malnourished, need life-long nutrition supplementation.

The nutrition supplement bar met customers' specific needs without fluid- yet was a *major failure.*

Medical Nutritional Supplement Case Study

- Firm was interested in pursuing new markets for food supplements, but realized the old approach didn't work
- Firm decided to refocus, and applied the methodology used in Innovation Six Sigma
 - Identify firm's strategy – where firm wants to go
 - Explore and prioritize the opportunities
 - Understand the potential customer's world and needs
 - Innovate concepts that create value:
 - Increase benefits and useful factors, decrease costs and harmful factors

Medical Nutritional Supplement Case Study

Firm then followed the Design, Optimize, and Verify Tools used in both Innovation and Design Six Sigma for detail designing the product and manufacturing process

Marketing and positioning of the product was accomplished with the application of Six Sigma tools in the marketing area

Key Applicable Tools

- Value Creation Strategy
- SWOT
- Market Perceived Quality Survey

- Opportunity Identification
- Customer Outcomes

- Customer Value Chain
- Project Portfolio Management
- Technical Innovation
- Design of Experiments/ Conjoint

Opportunity Identification

World Forces: Demographic changes:

Americans are becoming fatter, living longer, and acting like they should be able to live well with out thinking about it

Supporting Key facts:

- Diabetes is a growing national phenomena
- People expect to be able to lead a normal life, with out 'medicine', even if they have diabetes
 - 10 million diagnosed diabetics; chronic disease manageable but incurable
 - Goal of management: keep blood sugar from being too high or too low
 - 4 million use insulin to lower their blood sugar
 - All insulin-using diabetics are at risk of hypoglycemia: blood sugar goes too low

Opportunity Identification

Systems Observations:

- Event: (Customer driven): address disease with specific drugs
- Pattern: (industry driven): maintain wellness with drugs and exercise
- Structure: (industry driving): create health with nutrition and life style

Life Cycle:

Products to address nutrition of diabetics is just starting, many products are very basic. Should be moving to the make it work well, make it have better performance.

Adoption:

Lead users are starting to take foods intended for other purposes and use for sugar control

Opportunity Identification

Industry Evolution:

Pharmaceutical firms are concentrating on the big issues with block buster breakthroughs based on chemicals, bio-genetics is coming up from under, still major R&D...is there place for nutrition in between curves or under to address niche?

Process Need or Discontinuity:

- People can control sugar when awake, not when asleep
- Other areas can do time release, why not sugar control?

Unexpected Occurrences: Failure

In prior program, discovered that product met all technical specs, and clinicians loved it

BUT clients would not buy it, stores would not stock it, and ad agency was more interested in the bigger buck medical equipment

Opportunity Identification

Incongruities

People are getting fatter and living poorer life styles, but expect to live a full, long life, without having to work on it

Insurance will cover you if you are sick and dying, but will not cover you to become and stay healthy

Logic of the Process

Diabetes control is a high tech science, until you go to sleep: 8 hours out of 24 are not covered

New Knowledge

Time release products, encapsulation applied in multiple fields

New R&D on sugar control versus age, body type

Opportunity Identification

Market and Industry Structure:

- Pharmacy chains are becoming big block stores
- Pharmaceutical firms are concentrating on 'medicine', not 'life style', nutrition, or 'wellness'
- Big box stores are starting to stock 'wellness' items to support the aging consumer

Opportunity Identification

Directed Product Evolution:

- Insulin control has gone from shots, to pumps, to time release pills, to....
- Super-system: Regulation will be controlled with in surrounding food/ water/ air/ clothes/ house....
- Increasing dynamism and controllability: instead of one product that works sub optimum for all, one product that adapts per user
- Ideal final result: regulation will occur by itself, regulation is not needed because sugar level shifts will not be an issue, the disease cures itself

Customer Value Chain, Desired Outcomes

- Identified customers, benefits and costs
 - clinicians, parents, patients, pharmacy chains, advertisements
- Interviewed and observed environment and needs
- Held focus groups with prospective customers, went to support group meetings
 - Created a better understanding of fears, concerns, price, distribution points, clinical contacts

Identify Customer Outcomes



What does the customer want in the regulation of insulin (product focus)

Maintain and prolong quality of normal life

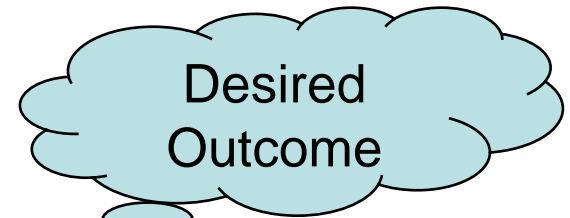
I'm scared of amputation, or of falling asleep and never waking up

If I lose circulation I may lose my fingers, toes, and eyesight. If I lapse into a coma, I may die

If it is not in control I can lose circulation, or lapse into a coma

In order to control my blood sugar level reaction to diabetes

Why does a customer buy blood sugar and insulin regulation? (Benefit Outcome Focus)



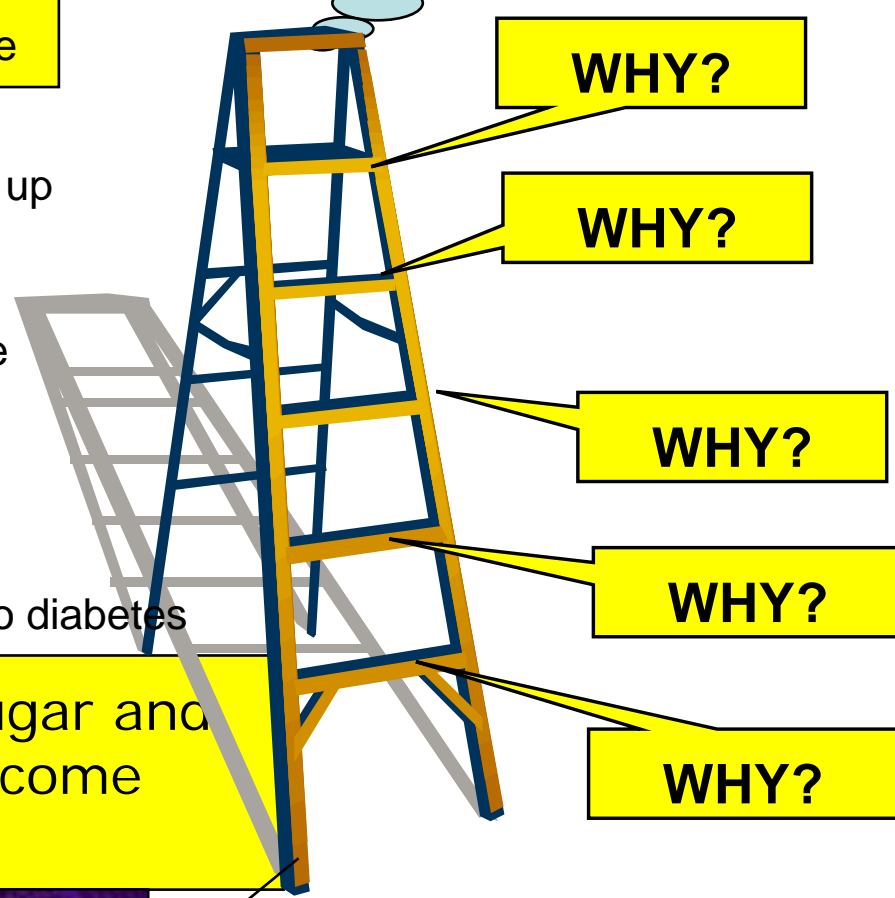
WHY?

WHY?

WHY?

WHY?

WHY?



Performance, Features, Physical items: Detailed Facts

ref (10)

Understanding True Customers and Needs

- The Customer Needs
 - Insulin users typically eat a night-time snack
 - Very important: prevent hypoglycemia without causing hyperglycemia
 - Consequence: constant anxiety trying to manage diets
 - Greatest fear: "...that I will die in my sleep."

Marketing Design of Customer Options , Cost, Communication, Convenience Channels

- Cost and Options
 - Determined key issues were portability, having to think about taking bar, concern that will cause harm or not be predictable – key points to cover in communication
 - Conjoint to determine package size/ flavor/ price
- Communication to be done with firm that understood people, not medical agency
 - Picked ad agency knew diabetes , instead of hypodermic needles
- Convenience for customer determined to be key
 - Worked with understanding major pharmacy chains and wholesalers needs
 - Result: Penetrated all major pharmacy chains, Stocked in all major wholesalers without ever paying slotting fees (very difficult)

Project Results

- Impressive growth in sales
- Extraordinarily high reorder rate
- Got much publicity
- Got numerous offers to buy business, sold product to large pharmaceutical firm

“Understanding our customer helped us invent a better product”

Customers do not buy products, they purchase outcomes. Design and Innovation Six Sigma help the team to understand the opportunities, customer desired outcomes, and innovate to create value