

Multi - Attribute Decision Analysis in Public Health – Analyzing Effectiveness of Alternate Modes of Dispensing

1+1=



**It seems we are on the eve
of the great discovery...**

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Strategic Plan

- Identify Issues in the Current Approach
- Identify Solutions
 - Identify Alternate Modes of Dispensing
 - Define the each Alternate Mode of Dispensing
 - Define the Dispensing Process
 - Identify Advantages and Restrictions of Each Approach
- Identify a Simple Method to Analyze the Efficiency of Each Alternate Mode of Dispensing for a Specific Jurisdiction



Reference

Khan, S. 2007. Multi-Attribute Decision Analysis in Public Health - Analyzing Effectiveness of Alternate Modes of Dispensing. Master's Thesis. Advisor: A. Richter. Naval Postgraduate School.

https://www.hsdl.org/homesec/docs/theses/07Sep_Khan.pdf

OR

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Current Approach

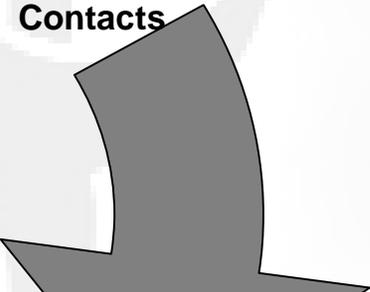
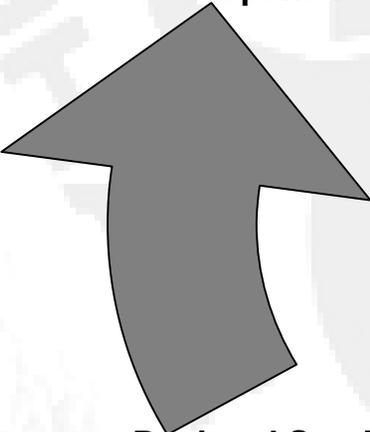
Info & Instructions to Public

Agent Identified

POD Sites Opened

CEOC Notifies City Emergency Contacts

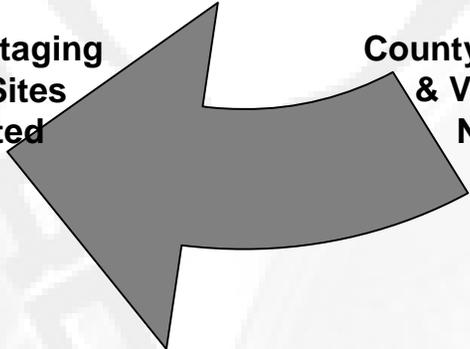
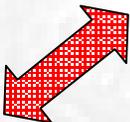
Mutual Aid & SNS Requested



Regional Staging & POD Sites Activated

County & City Staff & Volunteers Notified

Badging & Training



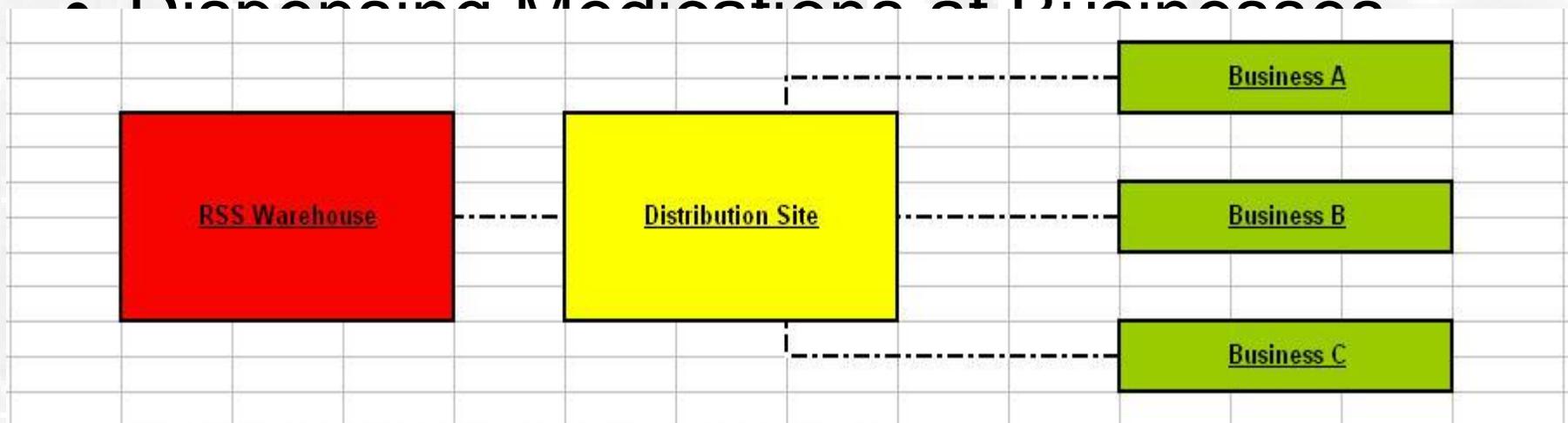
Issues

- Lack of Infrastructure
- Problems with Exercise Data
- Difficulty Finding PODs
- Staffing Challenges
 - Procurement
 - Coordination
 - Families
 - Training
- Security and Traffic Control
- Interdependency of Issues
- Overall Coordination



Solution: Alternate Modes of Dispensing

- Pre-positioning of Medications
- Dispensing Medications at Business



- Dispensing Medications
- Door to Door Dispensing
- Drive Thru Dispensing
- Dispensing Thru Pharmacies



Pre-Positioning of Medications

- In the Study we considered two different kinds of pre-positioning:
 - For all government employees (civil service and contract) and their families
 - For all hospital patients
- Funding Sources:
 - CDC
 - MMRS
 - UASI
 - HRSA



Pre-Positioning of Medications

The Process: Medications could be stored at government offices and hospitals or they could be stored in a centrally located warehouse under the control of the health department. LHDs must provide clear guidelines as to what the responsibilities are of each agency receiving the medications. The LHDs would be responsible for writing and managing grants and ensuring that the drugs are rotated before they expire. If the drugs are pre-deployed then it would be the responsibility of the agency accepting the drugs to maintain their cache under strict supervision of the LHD. No agency would be allowed to distribute drugs without the consent of the Public Health Officer of the LHD. If the drugs are located at a central warehouse it would be the responsibility of the LHD to maintain the cache; the partner agency would be responsible to pick up and dispense the drugs during an emergency. A signed MOU would be required between agencies detailing the maintenance of the cache and the requirements and responsibilities of both agencies. LHDs would be responsible for ensuring compliance with the policies of the program and would therefore need to create a registry for all personnel working for each partner agency. The registry must include all locations of the drugs, the amount of drugs and contact information of the personnel responsible for dispensing at the partner agency.



Pre-Positioning of Medications

- **Requirements:**
 - Requires coordination with partner agencies
 - Requires storage and cache maintenance
 - Requires clear guidelines of what the requirements of each agency would be
 - Requires drug rotation
 - Ensuring compliance
 - Creation of employee registries
- **Advantage:**
 - Essential personnel can be prophylaxed before SNS arrives
 - Will keep a large subset of the general population away from PODs
 - Can start mass prophylaxis as soon as SNS arrives
 - Ensures continuity of government
 - Ensures that hospitals are adequately staffed
 - Bolsters POD staff numbers by being an incentive for government agencies to send non-essential staff to work at PODs
 - Low security requirements
 - Time required to prophylax first responders is minimal
 - Staffing requirement is minimal if needed at all



Dispensing at Businesses

- Lessons learned by businesses from SARS:
 - Major work force loss
 - Major economic loss
 - Employees prioritize personal safety over job security
 - Employees have a high concern for their family
- Businesses Can be an untapped resource



Dispensing at Businesses

The Process: A business POD would require an MOU between the LHD and the private sector partner that will specify the roles and responsibilities of both agencies. It would be the responsibility of the LHD to notify business partners about the activation of the dispensing plan, separate and repackage medication that will be allotted to each business, create and send forms, as well as notify a responsible party regarding the location (the distribution site) and pick up time for the prophylactic medications. The health department would also be responsible to train key personnel to provide just-in-time training to the business POD staff. Businesses would be responsible for picking up and dispensing drugs to their employees with proper medical oversight, distributing forms and information sheets to their employees, setting up and staffing a business POD and returning all unused items along with completed patient forms back to the department of health (Crow, 2007b). After an MOU is signed, the LHD would issue an authorization letter to the businesses, and the person responsible to pick up the medications would have to bring this letter along with photo identification in order to gain access to the distribution site. Once the decision to activate the Business POD dispensing plan is made, the LHD will notify their point of contact at each business and ask them for the total number of employees on their payroll and give the time and location for pick up of their medications. A distribution site would be set up to distribute drugs to businesses. The company point of contact would either arrive at the site or send a representative with the letter of authorization to pick up the medications. This representative would be responsible for taking the medications back to their business POD. Medications would be dispensed to all employees who would also receive prophylactic drugs for their families. Large businesses typically have occupational health nurses on staff to oversee issues such as workers' compensation and therefore provide medical oversight; they may in some cases choose to contract their employee health services from an outside agency such as an industrial health clinic or a medical consultant firm to come in during an emergency and provide for medical oversight of dispensing. Nevertheless, businesses may be unable to locate medical staff to provide proper dispensing oversight. In such a case, businesses would ask employees if they have any relative who has a medical license – such as a nurse, doctor, pharmacist or dentist – and would be willing to take responsibility of medical oversight during dispensing. In the worst case scenario, the LHD would provide medical staff for medical oversight. However, the goal of this alternate mode of dispensing is for the LHD NOT to deploy any medical personnel.



Dispensing at Businesses

- **Requirements:**

- Target large employers and ideally those that deal with critical infrastructure such as power, water and communication
- Requires an MOU with partner agencies
- LHD responsible for pre-event planning and activation notification
- LHD responsible for training staff
- Best to implement a hub and spoke model with businesses primarily responsible to pick up medications
- Businesses to provide medical oversight (occupational nurses) of the dispensing process

- **Advantages:**

- Reduce pressure on PODs
- Reduce pressure on staffing resources
- Reduce pressure on security resources
- Provides incentives for businesses to participate by reducing economic loss
- Can help create a sense of normalcy



Dispensing to Sheltered in Populations

- Target populations that cannot (or with great difficulty) make it to a POD
 - Nursing Homes
 - Group Homes
 - Residential Care
 - Hospice



Dispensing to Sheltered in Populations

The Process: The biggest challenge that Oklahoma City encountered in setting up its SIPs dispensing plan was the creation of a registry, because finding their target agencies was very challenging. The Oklahoma City/County Health Department worked closely with state agencies that were involved in licensing, other agencies that deal with the target population, and even resorted to using the phone book. The registry included all locations of the target population, the number of people living there and the number of staff working there along with the members of their immediate household. They also identified a single primary and two secondary points of contact during an emergency to be notified of the location of the SIP site. These contacts were required to be a licensed medical professional (Public Health Training Network, 2006). The LHD would issue an authorization letter to each participating agency after an MOU had been signed. The primary points of contact would be called during an emergency and notified about the location and time where they could pick up their medications. The primary point of contact or a designee would bring the authorization letter and a photo identification to pick up the drugs for the facility. The designee would be given the drugs and forms to be filled out for each patient and returned to the LHD. It would be the responsibility of this representative to dispense the drugs to the resident population at their facility (Public Health Training Network, 2006).



Dispensing to Sheltered in Populations

- **Requirements**

- Working through agencies that regularly deal with SIPs sites
- Finding SIPs sites
- Keeping an updated registry
- Community Engagement
- Clearing misinformation

- **Advantages:**

- Requires minimal staffing
- Requires minimal security
- Reduces pressure on transportation resources
- Facilities have their own medically licensed staff
- Helps a subset of the population that may otherwise be unable to get help



Dispensing at Colleges and Universities

- There are approximately 16 million students attending colleges and universities in the United States today
- College and university health centers in the United States provide low-cost primary health care to 80% of students nationwide
- There are no federal requirements for universities or colleges to have a health center on campus but most do



Dispensing at Colleges and Universities

The Process: The university/college POD would be a closed POD for students, staff and faculty with valid institution identification. LHDs must ensure that a university or college has a proper location to set up the POD and conduct a security assessment to make sure that the area can be secured by university police or the local law enforcement agency. LHDs must also verify the clinical and non-clinical work force available to run a university/college POD and the number of students attending the institution. Universities with an extremely large student body may require additional clinical staff from the LHDs to prophylax within the forty-eight-hour timeframe. A mandatory MOU between the college or university and LHD would articulate the roles and responsibilities of each. Following the activation of the plan, it would be the responsibility of the LHD to notify the colleges and universities and obtain essential information regarding student and faculty numbers. Since some large universities with multiple campuses have a transportation system, they would therefore have the drivers and resources to pick up medication from a designated location and deliver them. Those without transportation assets could request resources from campus police or the LHD. It would be the responsibility of the university to set up, staff and operate a POD with guidance available from the LHD. It would be the responsibility of the university/college to return all filled out forms and unused assets to the health department. Since some colleges and universities are state-run, LHDs must consult their state board of education as well as the university management during early stages of planning. There is debate whether to allow students to pick up medication for their families, since university staff and faculty would be allowed to do so. The main argument against this is that college students may be from out of town or living in student housing – in other words, away from their families. However, at community colleges students are typically local and reside near their families. This issue must be resolved by each jurisdiction at early stages of planning.



Dispensing at Colleges and Universities

- **Requirements**
 - Consult Board of Education during early stages of planning
 - Ensure that the College or University can provide adequate staff and security
 - Ensure that the College or University can provide an adequate site
 - The College or University would be responsible for collecting essential information
- **Advantages**
 - Reduce pressure on POD
 - Provide Medical and Non-Medical staff
 - Have the infrastructure to set up a POD
 - Campus police can provide security or tap into other resources
 - Could be a potential recruitment center for POD staff and interpreters



Dispensing at Major Hotel Chains

- Some major metropolitan areas such as Los Angeles, Las Vegas, and New York not only have large local populations but must also deal with a fluctuating population of tourist and business travelers.
- It may be extremely difficult for this population to locate PODs as they may not be familiar with the surroundings



Dispensing at Major Hotel Chains

The Process: To make such a plan operational an MOU between the LHD and the hotel and resort chains would be required. It would be the responsibility of the LHD to provide the hotel chains with proper forms, medications, and training to key personnel involved in the dispensing process. It would be the responsibility of the hotel and resort chains to set up and run the POD and provide all medical and non-medical staff required for dispensing; they would also have to demonstrate the availability of space and staff before the MOU could be signed. Hotel and resort chains often have an occupational nurse on staff for issues such as workers comp or may choose to contract with an industrial health clinic or a medical consultant firm. It would be the responsibility of the hotel and resort chains to return all patient forms and unused medications to the LHD.



Dispensing at Major Hotel Chains

- Requirements:
 - The Hotels be located in an area that acts as a tourist hub
 - The Hotel be able to provide adequate staff
 - The Hotel must have transportation resources
 - The Hotel would be responsible for collecting essential information
 - Must deal directly with Hotel Management and Security companies
- Advantages:
 - Reduce pressure on PODs
 - Can provide staffing and security
 - Provides economic incentive for hotels
 - Effectively deals with the non local population within the jurisdiction
 - Can provide guests with adequate information and directions through Hotel TV station



Dispensing Through HMO

- In the United States today 85% of the population has some form of health insurance
- During a medical emergency most individuals turn to their health care provider or primary physician typically associated with an HMO
- Many leading HMOs conduct flu vaccine clinics for their members and therefore have some form of experience dealing with mass prophylaxis.



Dispensing Through HMO

The Process: HMOs should be given the freedom to determine their own form of dispensing, either setting up their own traditional POD, dispensing through their own pharmacy or setting up a drive thru POD. It is generally not recommended that HMOs dispense medications through their hospitals. In fact, this should be strongly discouraged and HMOs should be required to create dispensing sites away from their hospitals. All prophylaxis plans would be required to be evaluated by the LHD prior to the event. Delivery options would need to be worked out as HMOs typically have their own logistics planning section and could therefore provide trucks and drivers. This is recommended in cases where multiple PODs would be set up by HMOs.



Dispensing Through HMO

- **Requirements:**

- Target Large HMO's that have hospital and clinic infrastructure
- Cannot charge fee for service

- **Advantages:**

- People are typically familiar with their HMO and will turn to them for help
- HMOs have staffing (medical and non-medical) resources
- HMOs share a strong bond with their members
- Easy to locate medical records
- Have experience running a POD like operation
- Can typically provide their own logistics



Door to Door Dispensing

- The Postal Plan
 - USPS deliver drugs during an emergency
 - Only available in designated areas
- Other Options
 - Door to Door Delivery via partnership with school districts
 - Partnership with other delivery services (FedEx, UPS, DHL) that have the infrastructure



Door to Door Dispensing

The Process: Door-to-door delivery can still be accomplished in non-CRI cities as seen in the case of Chesapeake, Virginia. This LHD accomplished the task of prophylaxing its population of 218,000 utilizing help from the school districts. Using school buses, bus drivers, escort vehicles and eight medical personnel, the LHD dispensed medication to 1,100 individuals in less than two hours. The receipt was confirmed by a phone call into an automated system that kept track of the delivery via GIS. The planners in Chesapeake Health Department now plan to prophylax their entire population using 200 school buses and with help from local Community Emergency Response Teams (CERTs) and the Medical Reserve Corps (MRC) (Linder, 2004).



Door to Door Dispensing

- Requirements:
 - Assess feasibility
 - Cost-Benefits
 - Analyzing limited attribution
 - Staffing to run the outdoor operation
 - Need to plan for security
- Advantage:
 - Maintain isolation for contagious agents
 - Prevent panic
 - Controlled delivery
 - Delivery services can provide logistics infrastructure



Drive Thru Dispensing

- Originally popularized by influenza clinics
- Adopted and tested in several jurisdictions
- The Orlando LHD's plan has a throughput of 761 people per hour using thirteen medical and fifty seven non-medical staff (total of seventy) per shift



Drive Thru Dispensing

The Process: A drive-thru POD should be located close to major roads, highways or freeways in order to prevent traffic jams. It is highly recommended that the ingress and egress points be large enough to allow multiple lanes of traffic. Similarly, the location should be large enough to accommodate multiple lanes for dispensing (Linder, 2004). The Orlando plan calls for ten lanes of dispensing to ensure a high throughput and to prevent overflow of traffic onto neighboring streets (Pate, 2007). Traffic control and security plans would have to be excellent to prevent an overflow of traffic onto adjacent freeways, highways or streets and to prevent road rage that could severely disrupt the process. It is generally not recommended that a drive-thru POD have more than three stops in order to keep the traffic flowing freely. The first stop would be for a quick triage and form completion; the drivers would then be separated based on contraindications into a separate line and the rest would go through common lines. The final stop would be to pick up the medications.



Drive Thru Dispensing

- **Requirements:**

- Cannot be in hazardous environmental conditions
- Day time operations only
- Plan and escape route for vehicles that have broken down
- No access to restrooms for clients
- Increased risk of road rage, or CO/CO2 buildup
- Must be located close to major highways

- **Advantages:**

- A big advantage of drive-thru PODs is that their feasibility has been tested by the flu vaccination clinics each year
- Space requirements are much more dynamic and are not bound by the strict constraints that traditional PODs are held to
- In terms of security, law enforcement agencies have stated that they find it much easier to control traffic at a drive-thru POD than at a traditional POD
- The environment within the car can be climate controlled, hence protecting the population from extreme heat or cold



Dispensing Thru Pharmacies

- Private sector pharmacies could be a potential partner for health departments during a public health emergency requiring mass prophylaxis.
- Pharmacies located at retail stores, wholesale markets, and chain pharmacies can accomplish a part of mass prophylaxis.
- The public is typically familiar with their local store, and the public knows and trusts them, a factor that will be critical to the success of a mass distribution effort.
- There is a retail pharmacy within five miles of 95% of the U.S. Population



Dispensing Thru Pharmacies

The Process: Due to a large number of pharmacies in any area, it may be impossible or in some cases ill-advised for LHDs to obtain MOUs for all pharmacies under a brand name. It would be best to consider geospatial analysis and find optimal locations such as areas without PODs, areas with low security concerns and areas with a moderate population density. Retail store, warehouse and chain pharmacies have existing systems and relationships that enable them to deliver medicines in large quantities to the public and should therefore be considered an important partner in mass prophylaxis



Dispensing Thru Pharmacies

- Requirements:
 - Large chain pharmacies preferred
 - They cannot charge for the drugs
- Advantages:
 - Conveniently located
 - Inventory Management System
 - Secure location to store drugs
 - Staffing resources available
 - Willing to help LHDs
 - Strong bond with community



The Case of Los Angeles County

- Population
 - 9.9 million residents
 - 1 million tourists
 - 1 to 2 million undocumented residents
 - Invisible borders with Neighboring Counties

Estimate

**12 million people to
prophylax in 48 hrs**

- 167 PODs required
- Staffing required 48,096



Comparing Alternate Modes of Dispensing

- Generally hard to cross compare due to a unique set of advantages and disadvantages offered by each across several criterion
- Multi-attribute value function is one approach that supports multi criteria decision making
 - Allows users to set weights (relative importance) to each criteria
 - Standardizes units to allow cross comparison
 - Can perform marginal and sensitivity analysis rapidly under a variety of scenarios



Multi-Attribute Decision Analysis

- Steps
 - Select Criteria
 - Build Objective Hierarchy
 - Setting Bounds
 - Creating Individual Value Functions
 - Analyzing Relative Importance
 - Sensitivity Analysis



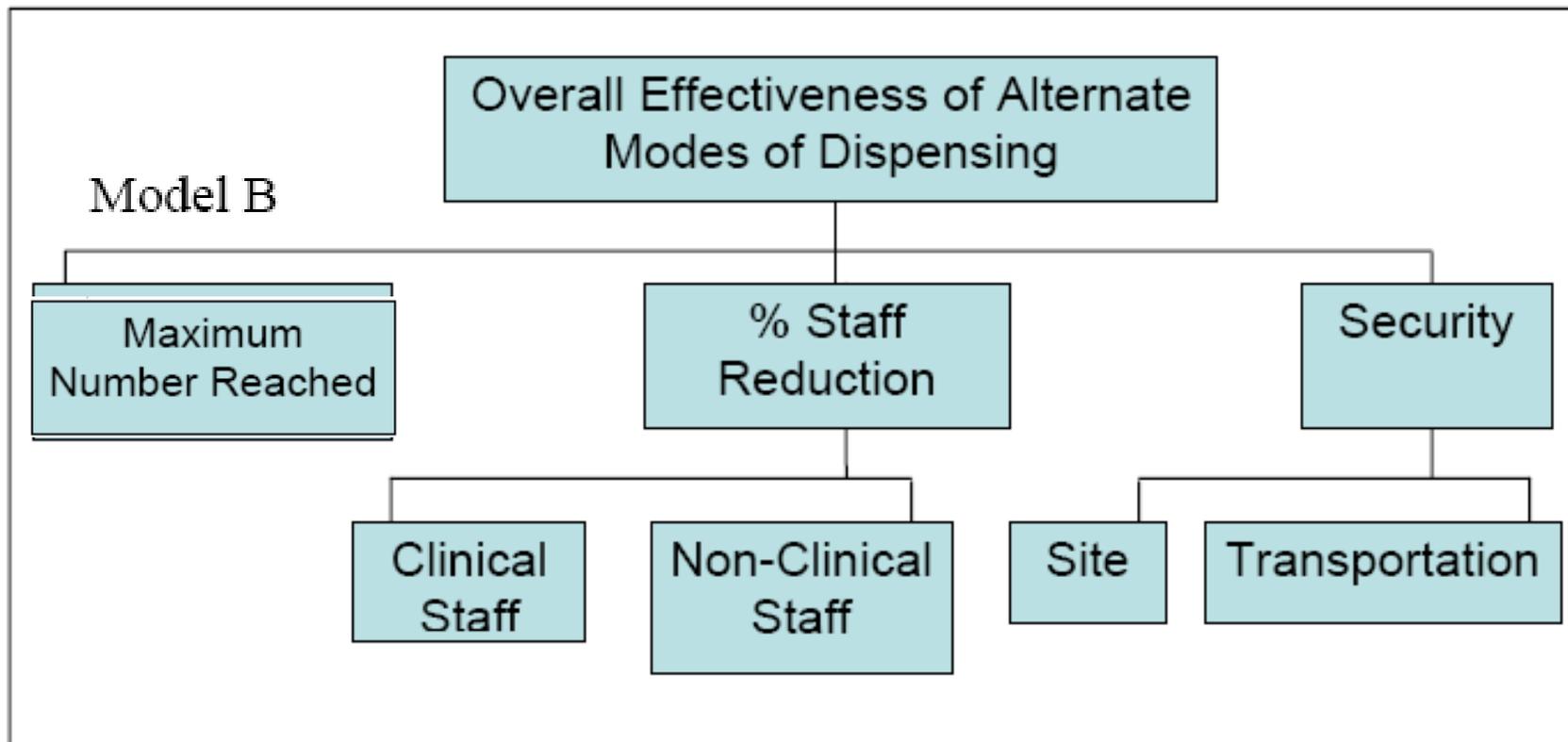
Criteria for Evaluation

- Two different trends emerge from our alternate modes of dispensing
 - For some of them Speed is important
 - For other there is a cap as to how many people can be reached, thus making speed arbitrary
- Security: Two security considerations need to be taken into account, Site and Transportation
- % Staff Reduction is absolutely important while considering all alternate modes of dispensing



Criteria and Hierarchy

Hierarchy of Attributes in Model A for Analysis of Overall Effectiveness for Alternate Modes of Dispensing.



Applying the Model B to Los Angeles County

	Dispensing Options	Max No.	% Staff Reduction		Security	
			Clinical	Non-Clinical	Site	Transportation
1	Civil Service	1,934,982	100%	100%	4.1	4.5
2	Hospitals	405,497	100%	100%	3.8	4.4
3	Businesses	1,402,565	91.6%	68.3%	5.3	5.1
4	SIPs	463,321	66.6%	-5.6%	5.3	3.8
5	Universities	653,243	83.3%	36.6%	5.3	4.5
6	Hotels	213,212	91.6%	68.3%	5.2	6.0
7	Kaiser	1,200,000	100%	100%	4.9	4.2
8	Door-to-Door	1,095,592	100%	100%	6.6	7.5



Setting Bounds for Model B

	MINIMUM	MAXIMUM
Maximum Number Reached	72,000	720,000
Staff Reduction - Clinical %	0%	100%
Staff Reduction - Support %	25%	75%
Security - Transportation	6.4	1
Security - Site	7.6	1

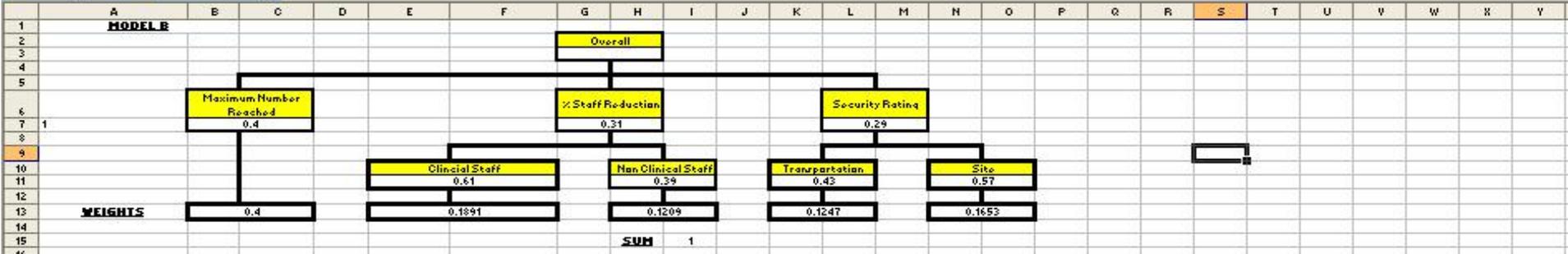


Assessment of Model B

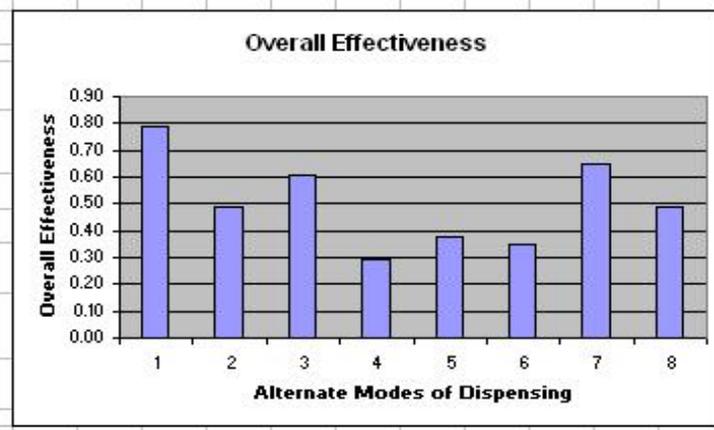
- Value functions
 - Straight line approximations
 - Lower limits: traditional POD
- Weights
 - Obtained from survey

Max No.	% Staff Reduction		Security	
.40	.31		.29	
	Clinical	Non-Clinical	Site	Transportation
	.61	.39	.57	.43

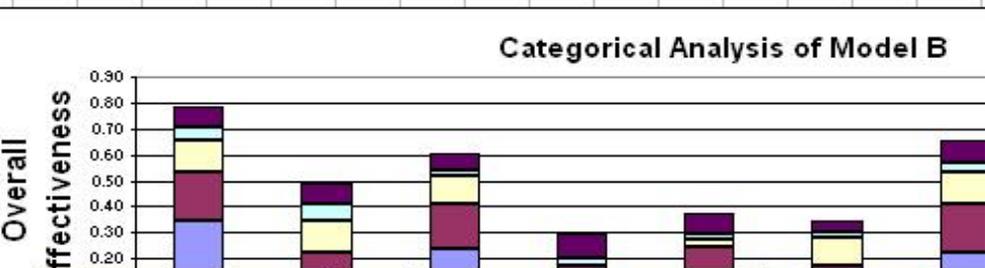




DISPENSING OPTIONS	Maximum #	% STAFF REDUCTION		SECURITY		TOTAL
		CLINICAL	NON-CLINICAL	TRANSPORTATION	SITE	
Pre-paritoning of Medications for Government Employee and their Family	0.36	1.00	1.00	0.43	0.47	0.79
Pre-paritoning of Medications for Hospital Patients, Staff and Family of the Staff	0.09	1.00	1.00	0.48	0.48	0.49
Dispensing of Medications at Private Business	0.60	0.92	0.87	0.20	0.38	0.60
Dispensing of Medications to Sheltered in Population	0.12	0.67	0.00	0.20	0.58	0.20
Dispensing of Medications to Students at College and University	0.22	0.83	0.23	0.20	0.47	0.38
Dispensing of Medications to Hotel Chain for their Residents, Employee and Family of Employee	0.00	0.92	0.87	0.22	0.24	0.35
Dispensing of Medications to Members of Kaiser Permanente	0.56	1.00	1.00	0.28	0.52	0.65
Door to Door Dispensing	0.44	1.00	1.00	0.00	0.02	0.42



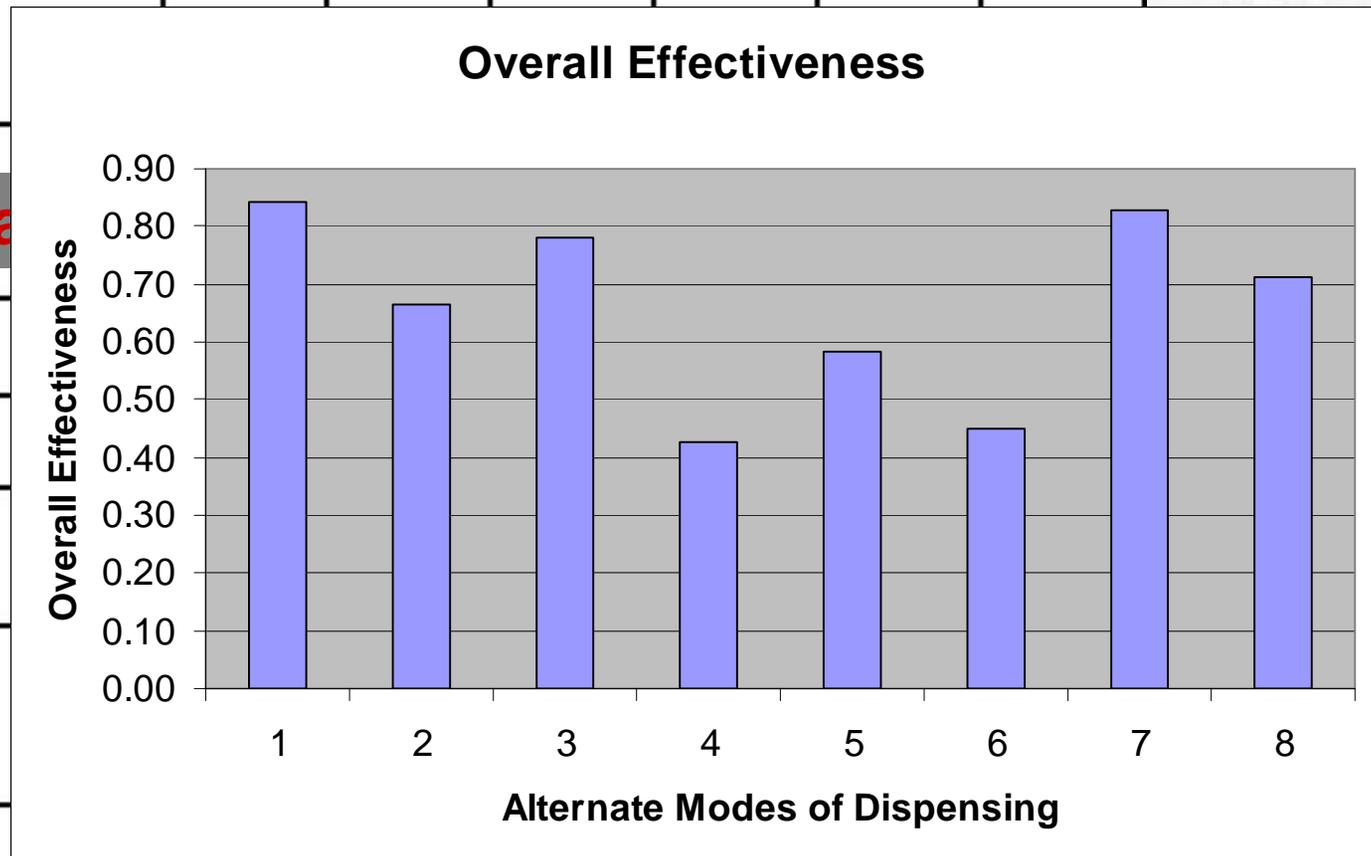
DISPENSING OPTIONS	Maximum #	% STAFF REDUCTION		SECURITY		TOTAL
		CLINICAL	NON-CLINICAL	TRANSPORTATION	SITE	
Civil Service Option	0.35	0.19	0.12	0.05	0.08	0.79
Hospital POD	0.04	0.19	0.12	0.06	0.08	0.49
Business POD	0.24	0.17	0.10	0.03	0.06	0.60
SIPr Option	0.05	0.13	0.00	0.03	0.10	0.20
University POD	0.09	0.16	0.03	0.03	0.08	0.38



Overall Effectiveness



DISPENSING OPTIONS	Maximum # Reached	% STAFF REDUCTION		SECURITY		TOTAL
		CLINICAL	NON-CLIN	TRANSP	SITE	
1. Pre-positioning of Medications for Government Employees and their Families						
2. Pre-positioning of Medication Patients, = Sum of a the Staff						
3. Dispensing of Medications at Private Businesses						
4. Dispensing of Medications to Sheltered in Populations						
5. Dispensing of Medications to Students at Colleges and Universities						
6. Dispensing of Medications to Hotel Chains for their Residents, Employees and Families of Employees						
7. Dispensing of Medications to Members of Kaiser Permanente	1.00	1.00	1.00	0.28	0.52	0.83
8. Door to Door Dispensing	1.00	1.00	1.00	0.00	0.02	0.71



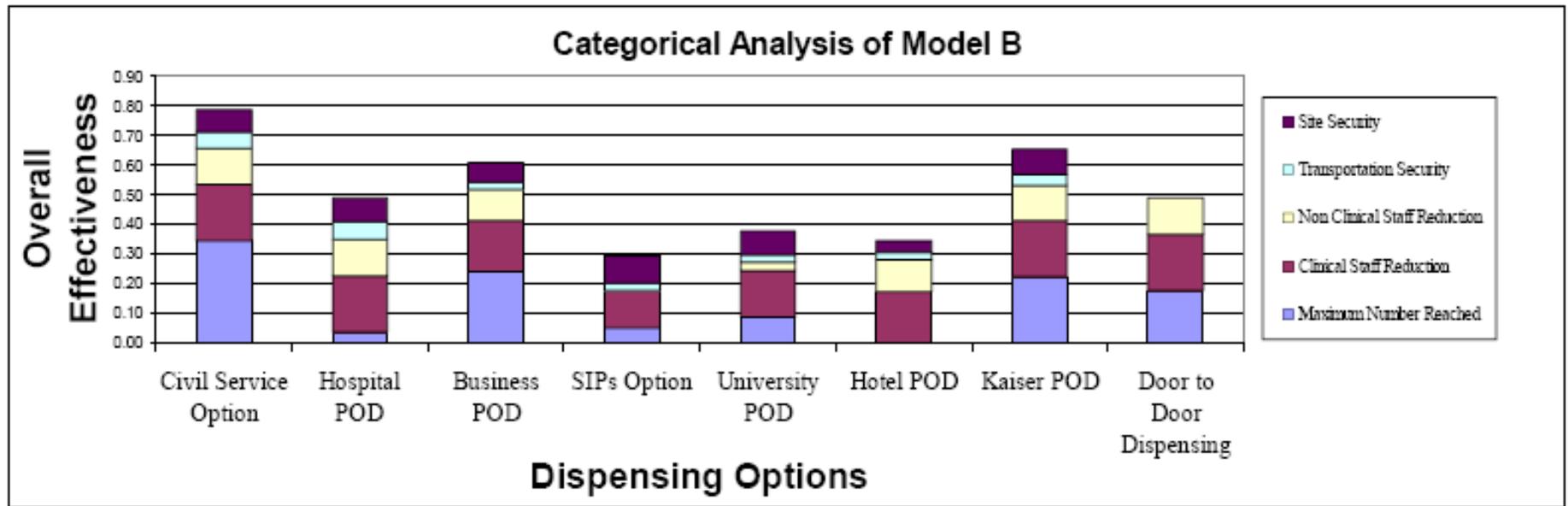
Categorical Analysis

DISPENSING OPTIONS	Maximum # Reached	% STAFF REDUCTION		SECURITY		TOTAL
		CLINICAL	NON-CLIN	TRANSPC	SITE	
1. Pre-positioning of Medications for Government Employees and their Families	0.40	0.19	0.12	0.05	0.08	0.84
2. Pre-positioning of Medications for Hospi						0.67
3. Dispensing of Medications at Private Businesses	0.40	0.17	0.12	0.03	0.06	0.78
4. Dispensing of Medications to Sheltered in Populations	0.24	0.06	0.00	0.03	0.10	0.43
5. Dispensing of Medications to Students at Colleges and Universities	0.36	0.00	0.12	0.03	0.08	0.58
6. Dispensing of Medications to Hotel Chains for their Residents, Employees and Families of Employees	0.09	0.17	0.12	0.03	0.04	0.45
7. Dispensing of Medications to Members of Kaiser	0.40	0.19	0.12	0.03	0.09	0.83
8. Door to Door Dispensing	0.40	0.19	0.12	0.00	0.00	0.71

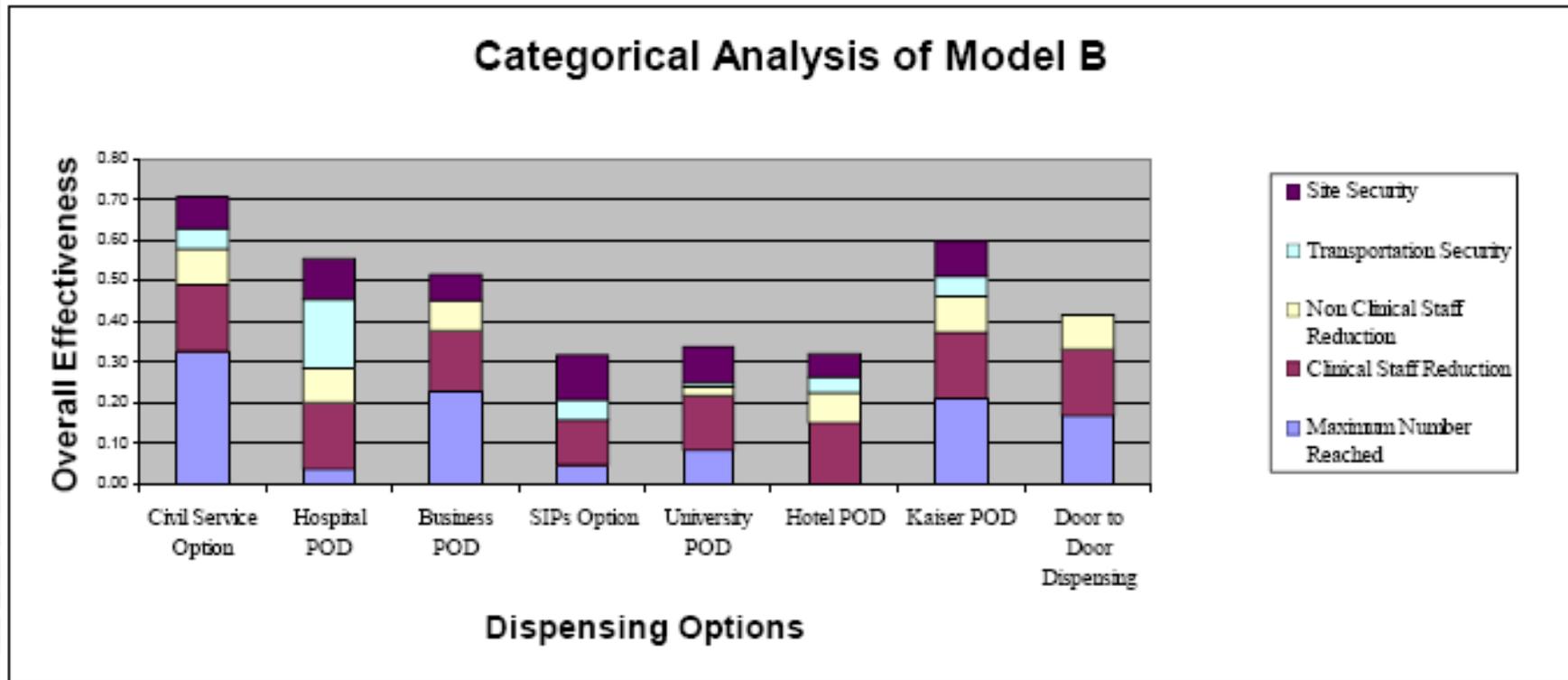
= Calculated Value * Weight



Results



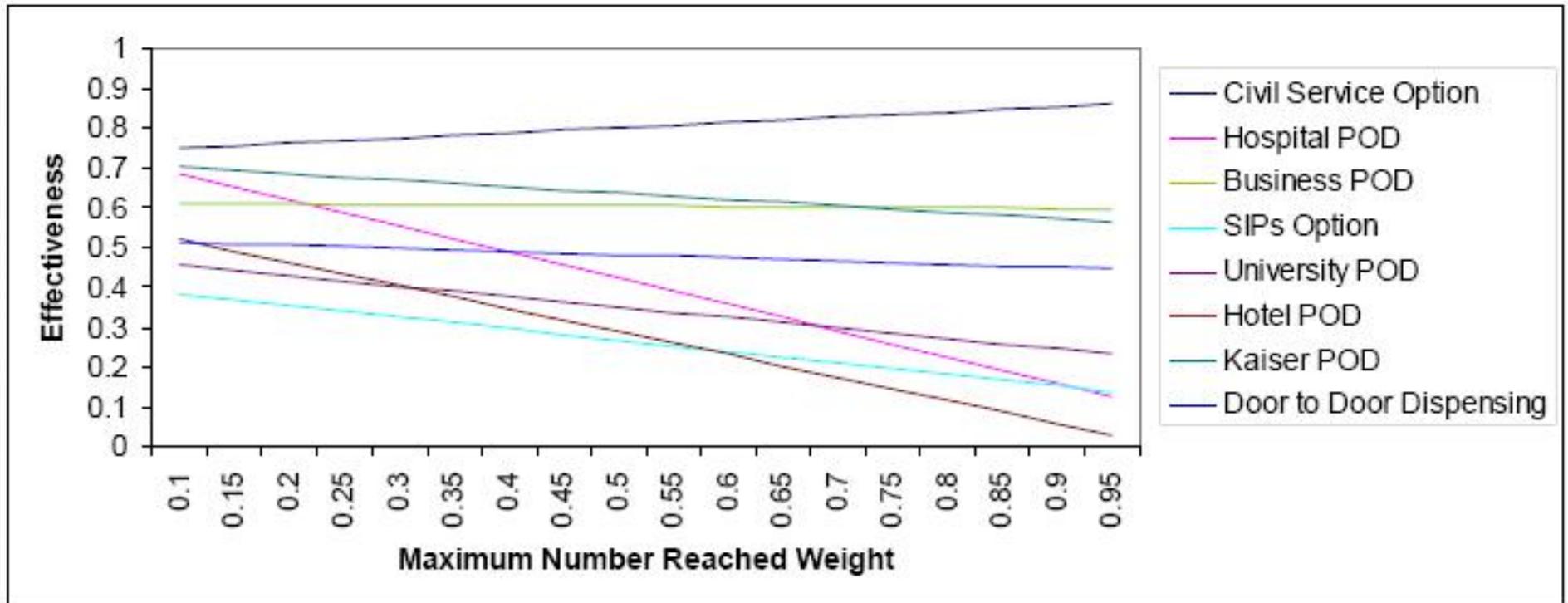
Sensitivity Analysis (Law Enforcement)



- Using the weights from the law enforcement members
- Civil Service and Kaiser remain top two
- Hospital better than Business



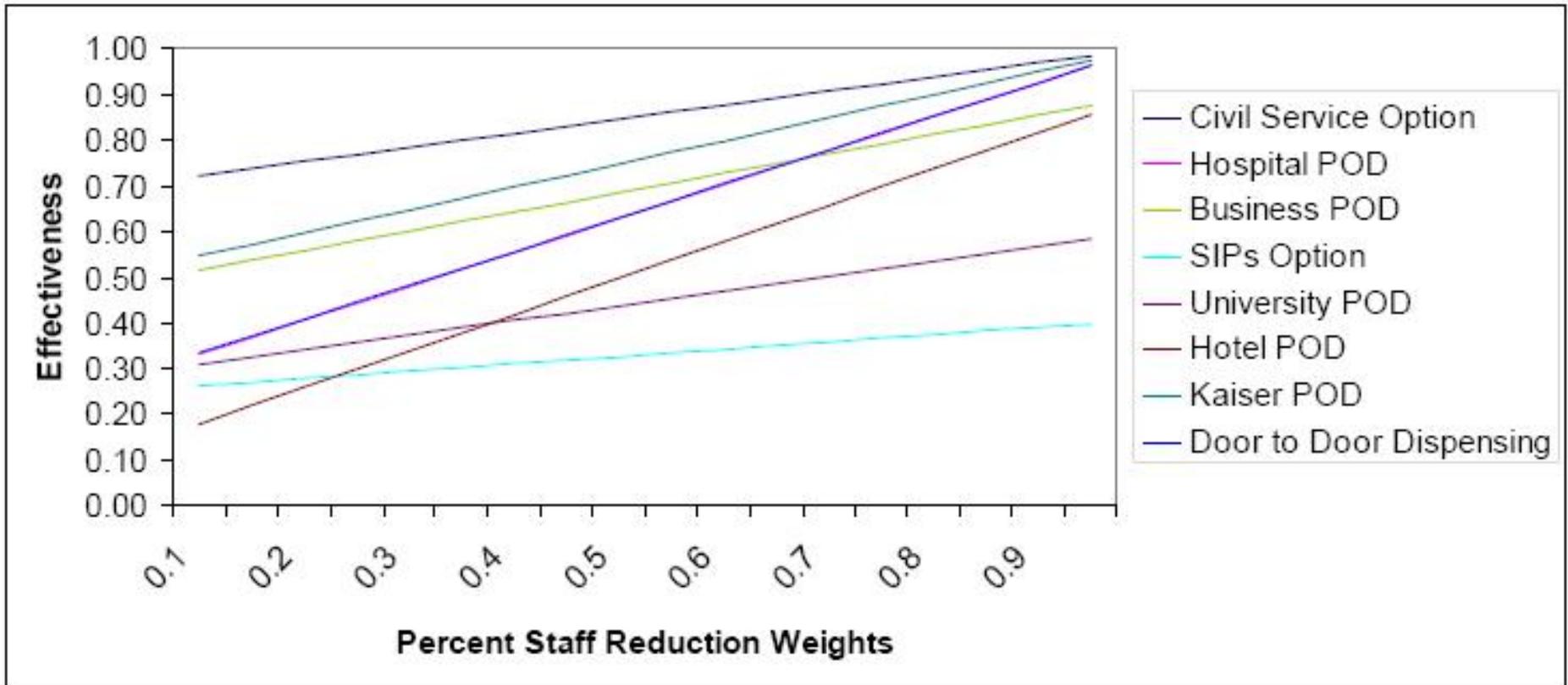
Sensitivity Analysis (One Way)



- More than 0.23 top three are the Civil Service, Kaiser and Business options
- Less than 0.23 top three are the Civil Service, Kaiser and Hospital options



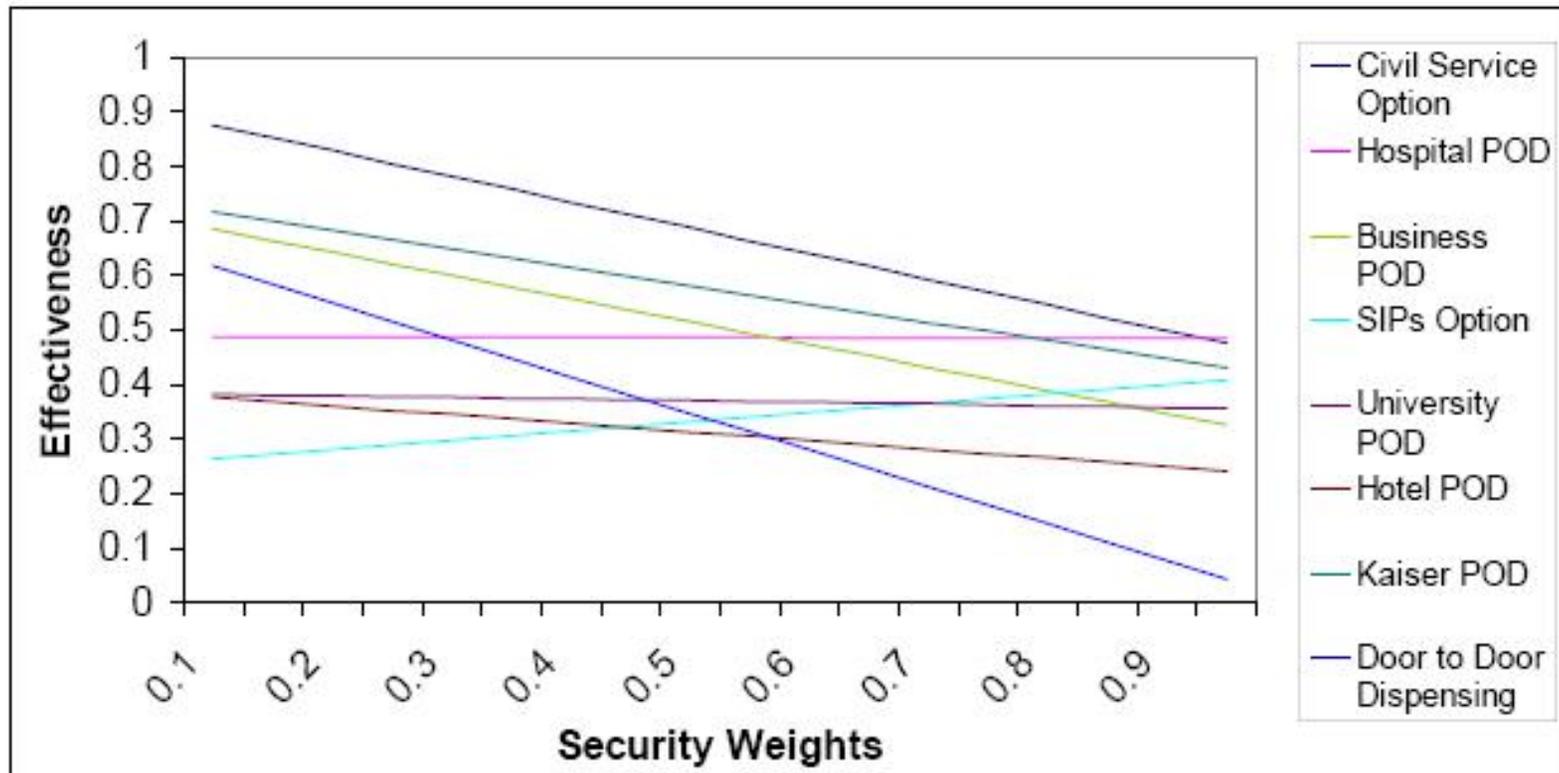
Sensitivity Analysis (One Way)



- Less than 0.67 top three are the Civil Service, Kaiser and Business options
- More than 0.67 top three are Civil Service, Kaiser and Door to Door options



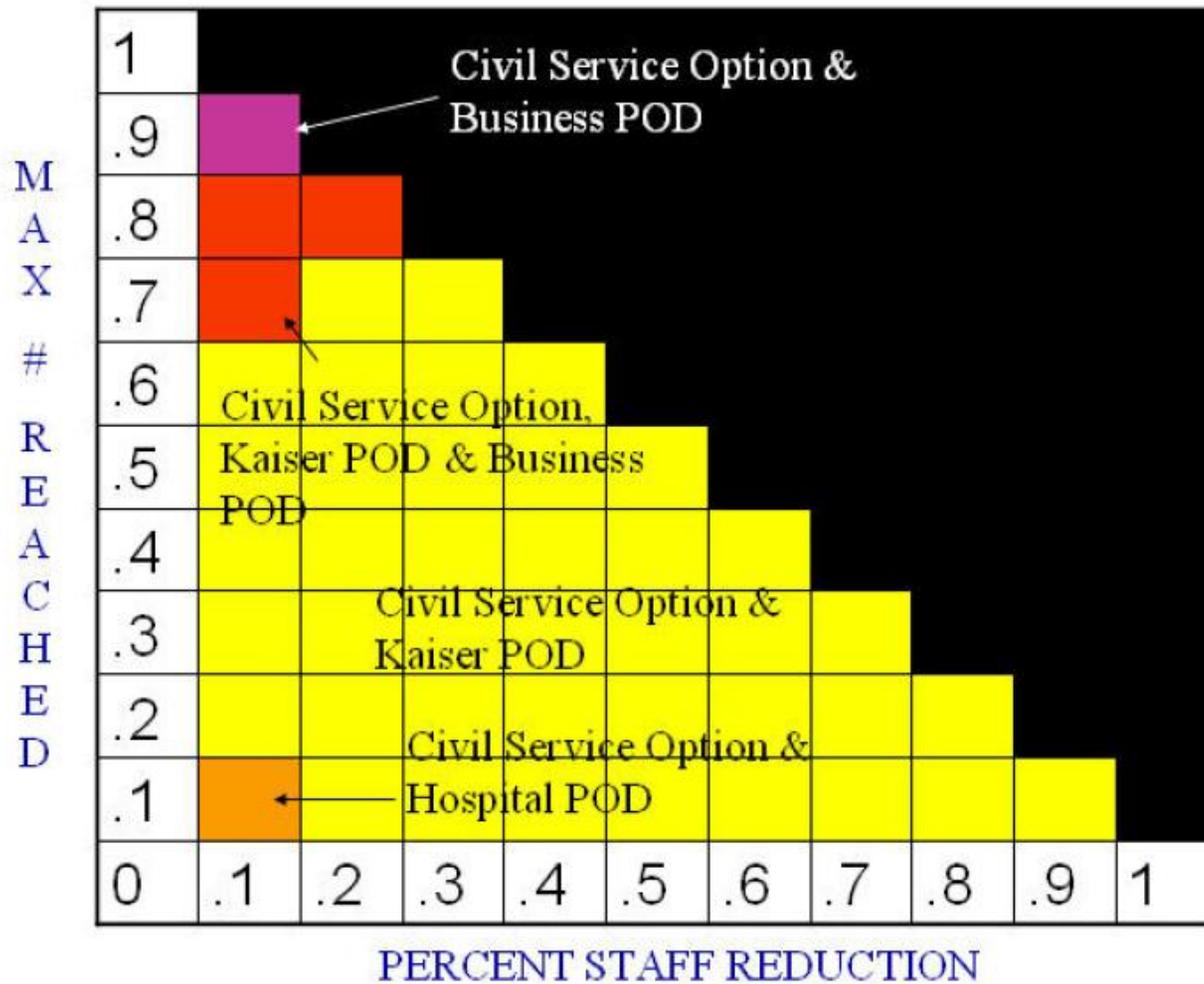
Sensitivity Analysis (One Way)



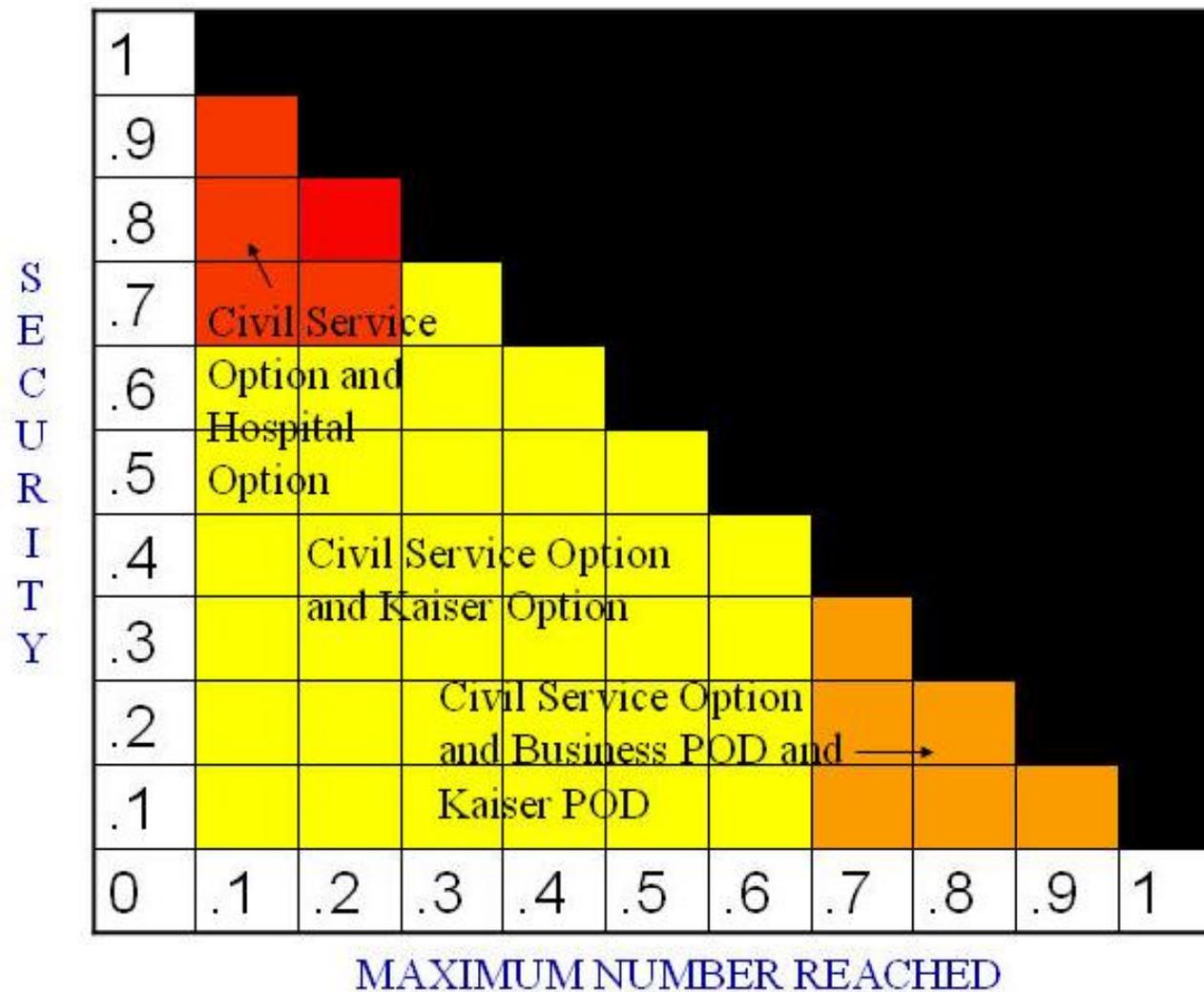
- More than 0.55 top three are the Civil Service, Kaiser and Hospital options
- Less than 0.55 top three are the Civil Service, Kaiser and Business options



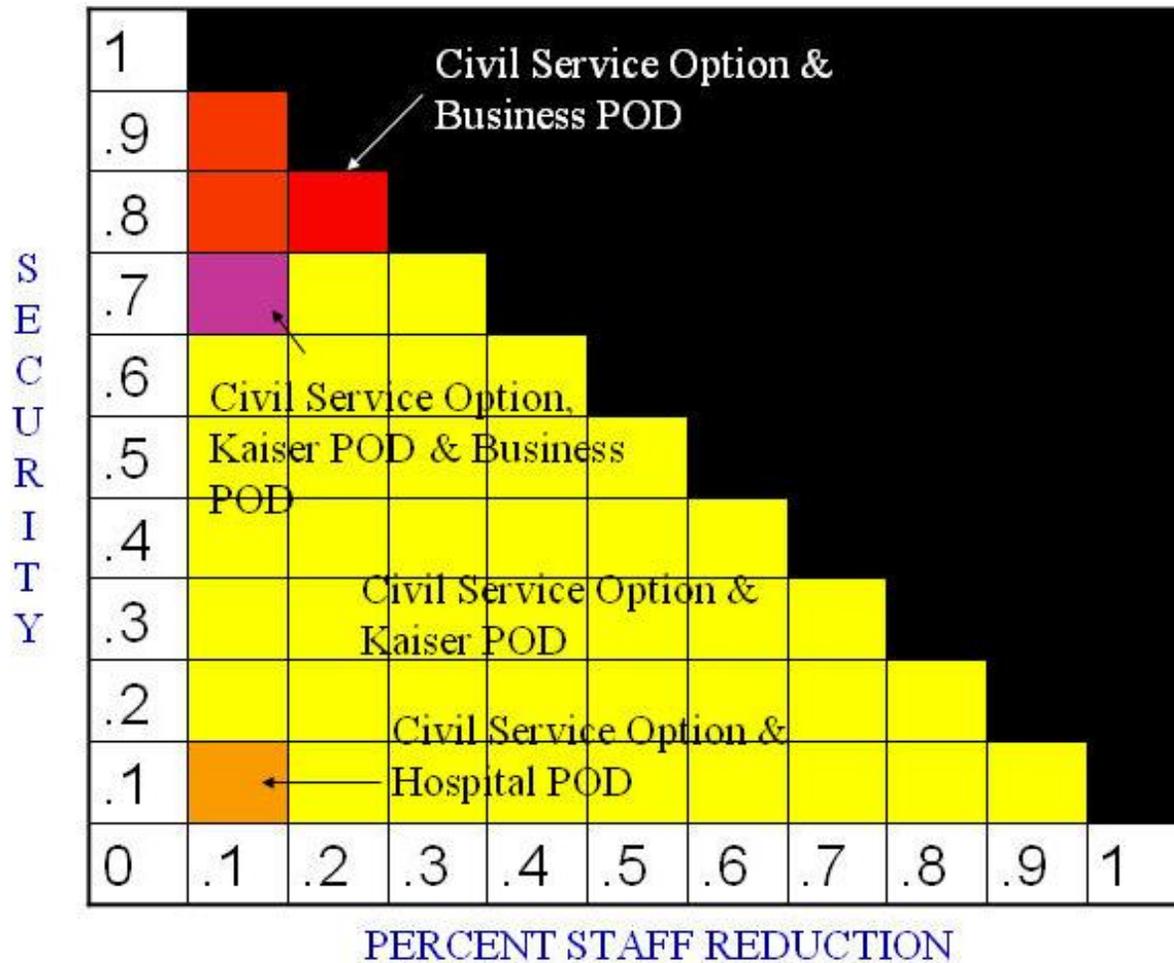
Two Way Sensitivity Analysis



Two Way Sensitivity Analysis



Two Way Sensitivity Analysis



Sensitivity Analysis

- Results are insensitive to numbers reached with the baseline POD
- In all two way sensitivity analyses the Civil Service option was always one of the top two alternatives
- In no sensitivity analyses were the University, Door to Door, SIPs, or Hotel options in the top two alternatives



Discussion

- Buy-in of law enforcement
 - Two officers at committee meeting refused to participate
 - Political realities of LAC
- “Cost”
 - Amount of time needed to establish memoranda of understanding
 - Amount of risk assumed by department of health (insurance, liability)
 - Actual costs for hiring private security firms
 - Reimbursement costs to third parties



Discussion

- Portfolio analysis
 - Many civil service employees have health insurance through Kaiser
 - Many businesses choose to provide health insurance through Kaiser
 - Kaiser owns a number of hospitals
 - Kaiser is one of the 25 largest employers
 - If more than one option is chosen, it is important not to double count the numbers reached

