

"Quick! Where should we go!?": The effects of an educational refrigerator magnet on healthcare knowledge, decisionmaking, and time to decision.

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"Quick! Where should we go!?": The effects of an educational refrigerator magnet on healthcare knowledge, decisionmaking, and time to decision.

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Introduction

Healthcare and Emergency Department (ED) misuse tends to cause both mistreatment and over congestion of the department. Lack of medical knowledge and emergency training can lead to a consequential delay in care. Family members can 'freeze-up' in a true emergency, leading to valuable time being lost and increases in patient morbidity and mortality. In addition, incorrect entry into the medical system of patients leads to economic and treatment inefficiencies at the systemic level.

Problem Statement

This research investigates whether a healthcare decision-making fridge magnet and educational materials can affect efficacy in different health care services.

Methods

In order to gauge both how knowledgeable the community felt about healthcare, as well as their openness to using such a tool, a link to a before survey was sent along with the magnet in the original mailing. In addition, a patient education sheet was included which provided various pros and cons to the different types of healthcare destination as well as an explanation of how BLS and ALS differs in the State of New Jersey. Under this chart was an additional chart which provided the closest hospital based on different criteria.

A second survey link was sent out six months after. This survey was similar to the before survey in terms of measuring self-reported knowledge about different types of healthcare. However, instead of gauging openness to using the magnet, we now asked more concrete answers:

- Did you use the magnet?
- Why or why not?
- Did you find it helpful?

Results Gathered

The improvements in the primary care and urgent care groups were not statistically significant as their p values rose above 0.05. The efficacy of service improvement in emergent care and EMS was statistically significant, with increases in average efficacy and a decreased standard deviation. Some of the improvements in the statistically insignificant groups may be due to underpowering of the study. Despite sending the magnet out to ~5,000 households, the response rates were approximately 1.34% before the intervention and 0.64% after the intervention. Much of this difficulty is due to budgetary constraints, that disallowed follow up marketing of the survey after the initial mailing.

When asked how much time elapses (in minutes) from “observing symptoms to deciding where to go”, the average time among those who responded was 22.01 minutes with a standard deviation of 22.10 minutes. This is observed by a standard deviation which is almost the identical to the average itself and reflects a binomial distribution; at one end, many responses were between 5 and 10 minutes, and at the other end, responses varied between 60 and 90 minutes. The open format of the answer led to limitations in the ability to interpret and apply the data gathered. Future inquiries should expand on this question by better defining the nature of the illness or injury, as 15 respondents used a version of “depends” in their answer. Respondents in the post survey showed a similar binomial distribution, with an average of 20.48 minutes and a standard deviation of 26.21 minutes.

Table 1. Demographic Data and Insurance Method

Ethnicity		Insurance Status	
Caucasian	61/67 (91.0%)	Private / Employer	76/93 (81.7%)
Latino	4/67 (06.0%)	Public / Medicare / VA	23/93 (24.7)
Asian	2/67 (03.0%)	ACA Exchange	2/93 (2.2%)

1. Not all Self Reported Ethnicity. 2. Insurance will be > 100 % as some reported multiple ways.

Table 2. Resources used to make health care decision.

Resource	
Calling Provider	55/84 (65.5%)
Google	15/84 (17.9%)
Provider in Family	13/84 (15.5%)
Friends / Family	11/84 (13.1%)
WebMD	10/84 (11.9%)
Insurance Agent	02/84 (02.4%)
AARP	02/84 (02.4%)

1. Will be > 100 % as some reported multiple ways.

Table 3. Efficacy of healthcare services before & after intervention, based on a Likert scale from 1 to 10, with 10 being the most.

Type of Care	Primary Care	Urgent Care	Emergent Care	EMS	Type of Care
n			67/32		n
Average	7.97/8.33	7.58/7.90	7.35/8.12	7.27/7.96	Average
Standard Deviation	2.29/1.63	2.28/1.78	2.33/1.78	2.39/1.81	Standard Deviation
p value	0.119	0.152	0.023	0.033	p value

Discussion and Conclusion

The data provided a view into how patients think and make healthcare decisions. One item that was not predicted was that the newest type of care (urgent care) would be the second highest in knowledgeableness behind only primary care. This could be explained by a response bias, where citizens motivated enough to fill out the online survey are more likely to have an intricate knowledge of the healthcare field itself, and/or work in it. It could also reflect vigorous marketing efforts by urgent cares. Showing the smallest confidence and the largest variation, EMS seems to be a possible source of confusion for many. Future inquiries would likely delve into this further by possibly having focus groups which tackle the distinctions between emergent injuries and maladies which do and do not require EMS intervention.

The study results suggest that the magnet and educational materials may have had a positive effect on healthcare services efficacy, though additional studies with greater power and surveying a wider swath of population and geography will be needed before any definitive conclusions can be drawn. Caution must also be taken to consider the availability heuristic as a possible bias considering the EMS nature of the study. Additional strategies for improving external validity include additional standardization and validation of the survey questions themselves, as well as the establishment of focus groups.

The Magnet



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