

# Systems Thinking for Healthcare Delivery Hospital

Ala Elayyan

Department of Medicine, Michigan State University East Lansing, Michigan, USA  
Department of Medicine, Michigan State University East Lansing, Michigan, USA

## Abstract

The health care system can be defined as a complex system that involves patient, clinicians, manufacture and other, all of that developed in the organization of people, institutions, and resources that deliver health care services to meet the health needs of the target population, its true that the delivery of care to the target population is often very complex and unstandardized which leads to reducing health care delivery safety. In 2005 the joint report from the National Academy of Engineering and Institute to Medicine advocated the application of system thinking to improve the delivery of health care. (Proctor, 2005) Systems thinking can be defined by providing a strong language to communicate and investigate complex issues, some looked at its a way to an enterprise aimed at seeing how things are connected to each other within some notion of a whole entity.

**Keywords:** Health care; People; Child care; Child obesity

## Corresponding author:

Ala Elayyan

✉ alaa\_aqel@hotmail.com

Department of Medicine, Michigan State University East Lansing, Michigan, USA.

**Citation:** Elayyan A. Systems Thinking for Healthcare Delivery Hospital. Insights Chest Dis. 2020, 5:5.

**Received:** October 04, 2020; **Accepted:** October 26, 2020; **Published:** November 06, 2020

## Introduction

The system thinking originated and developed from different and varied fields, as system thinking involved bringing together scientists from many disciplinary traditions. solid)[1,2]. Systems thinking can involve a wide range of theories, those framework and models are very variable from being very general to other times being very specific and applicable to phenomena.

The theories and methods in systems thinking are designed to address complex problems. As in any complex system, the health care system has many difficulties in solving problems than often do not occur in isolation, but rather in relation to each other as the evidence showed. But unfortunately, those problems often are studied in isolation [3-5]. System thinking tools have a wide variety of applications, first, it usually tries to have a common understanding of the problem to prompt further inquiry and action. One of the tools is the Causal Loop Diagram (CLD), which can help to describe the relationship between elements of the health care system to explain phenomena [6].

Another tool can be the use of the flow chart which is one of the more common tools used to draw a process or a system. Agent-based modeling helps to build computer models that simulate the interaction of agents to see hoe real phenomena grow and affect the system. The common thing that connects all these theories, methods, and tools is the idea that the behavior of systems is governed by common principles that can be accurate discovered

and expressed. In public health, we can use the research to prove the efficacy of interventions and to inform decision- makers with a precision expectation about their future effect [7-9].

## Methodology

Joshua Epstein used the “Why Models” that help to explain how things work, and particularly useful to explain how complex systems work. Simplifying the complexities within a healthcare organization helps a lot too and evaluate interventions that maximize system performance and patient safety. Without this, a systematic framework that thinks about all the possible intended and unintended effects, the small effects of an intervention can be missed at the design stage. So that’s system thinking requires a comprehensive assessment of the factors that can inform whether an intervention was successful. That why in the Healthcare organizations must understand what does work, and for whom, and under what circumstances. Systems thinking centers on the dynamic interaction, synchronization, and integration of people, processes, and technology [3]. that consists of looking at the whole instead of the parts [4]. The health care organization should be managed by people who involve other people in the task of challenging the current situation and always ask the Why question, for example, “Why do we continue to do what we do the way we do it?”, this kind of approach will protect the future of the healthcare organization and health care system all by ensuring that processes will be always in continues improving status [10].

## Results

Systems thinking adds to the theories methods and tools that are available and are used in global health, and It provides new opportunities to not only understand but test and revise our understanding of the nature of things all the time, including how to intervene to improve people's health. On of the tools that can be used is the Cause and Effect tool, which is a graphical tool for displaying a list of causes associated with a specific effect. It is also known as a fishbone diagram. Obesity is a serious problem and is associated with serious health risks, Childhood obesity is a serious problem worldwide and in the United States. The fact that obesity prevalence especially [11]

Among children and adolescents is high is very scary. Recent statistics on childhood obesity shows that 17%, or 12.5 million of American children aged 2-19 years are obese CDC in 2014. that mean one for each 5 children have obesity. This is a major public health among American children, as we are now more aware about this emerging problem among children, particularly among ethnic and racial minorities. Children with high Body Mass Index (BMI) especially greater than the 95th percentile are sufficient cause for developing many health complications including cardiovascular disease, hypertension, diabetes, sleep apnea, gastrointestinal disorders, and musculoskeletal problems [7]. Due to the complexity of the problem, we believe that System thinking is able to solve the problem completely, and from the first time, rather than addressing part of it and having the problem run on and on.

## Discussion

I think that one of the main causes and largest determinate of obesity at childhood is the poor diet especially eating high calorie and low nutrition foods and beverages, which has been known to cause direct problem and caused the child to gain weight, eating this kind of food a regular basis especially the one that's available on the vending machine snacks in my opinion is really problem for children at school [12]. The second cause of children having obesity is the lack of exercise especially that children do not exercise now a days comparing with the past, families feel that children spend most of the time watching TV or playing video games which will increase the problems. There is also the family factor problem which Through inductive thought and observation we realize that family of obese members is more likely to have children having the same problems not only due to a gene problem but also due to of poor social and environmental conditions of eating high calorie diet and where physical activity is not encouraged, as the environment and the physical activity is among the modifying factors for children obesity [13]. There are also psychological factors where stress from family, parent, and as well as personal can increase the child risk of obesity, which was reported in multiple case studies. Although stress and anxiety are not a Necessary cause for obesity in children, but can be a factor especially for some children as can they overeat to cope with a problem or deal with motion like stress or exams and more research need to be done using scientific method to investigate the effect on stress and other psychological aspects on children obesity. Social chronic factor is also playing a major part especially that family with limited resources to access supermarkets, so they depend on frozen meals,

cracks and cookies, through logical deductive reasoning has more chance to be have obese children as low-income neighborhood is having list accessible to groceries.

## Conclusion

Healthcare problems including children obesity need to be addressed in a holistic approach that covers all the issues surrounding the delivery of care and avoid fragmenting and dividing the solutions that do not address the problem as intended can introduce new which sometimes as they say the cure is worse than the disease.

## Acknowledgement

The author would also like to thank the participants who took part in this research for sharing their experiences with us

## Conflict of Interest

Author declares no conflict of Interest

## References

1. Proctor P, Compton WD, Grossman J, Fanjiang G (2005). Building a Better Delivery System: a New Engineering/Health Care Partnership. Washington, DC: National Academy Press.
2. Hughes RG, Blegen M (2008). Medication Administration in Evidence-Based Handbook for Nurses. Rockville Agency for Healthcare Research and Quality.
3. Savigny D, Adam T (2009). Systems Thinking for Health Systems Strengthening. Geneva: World Health Organization.
4. Ackoff RL. Ackoff's (1999) Best: His Classic Writings on Management. New York: John Wiley & Sons.
5. Trbovich P (2014). Five ways to incorporate systems thinking into healthcare organizations. Biomedical Instrumentation and Technology, 48(Horizons).2:31-36.
6. Centers for Disease Control. (2013). Vital signs: obesity among low-income, preschool-aged children-United States, 2008-2011.
7. Kliegman, R, Behrman, R, St. Geme J, Schor, N, Stanton B(2011). Nelson Textbook of Pediatrics (19th edition) 2:2-6.
8. Sundblom E, Petzold M, Rasmussen F, Callmer E, Lissner L. (2008). Childhood overweight and obesity prevalences levelling off in Stockholm but socioeconomic differences persist. Int J Obes (Lond).32: 1525-1530.
9. Cole TJ, Bellizzi MC, Flegal KM, Dietz WH(2000).Establishing a standard definition for child overweight and obesity worldwide: international survey. BMJ. 320: 1240-124.
10. Roiano RP, Flegal KM, Kuczmarski RJ, Campbell SM, Johnson CL(1995). Overweight prevalence and trends for children and adolescents. The national health and nutrition examination surveys, 1963 to 1991. Arch PediatrAdolesc Med. 149: 1085-1091.
11. Neovius MG, Linne YM, Barkeling BS, Rossner SO (2004).Sensitivity and specificity of classification systems for fatness in adolescents. Am J ClinNutr. 80:597-603.
12. Bassett DR(2008). Physical activity of Canadian and American children: a focus on youth in Amish, Mennonite, and modern cultures. ApplPhysiolNutrMetab. 33: 831-835.
13. Farooqi S, O'RahillyS(2006). Genetics of obesity in humans. Endocr Rev.27: 710-718.