

# **FACTORS ASSOCIATED WITH THE IMPLEMENTATION OF TELEHEALTH**

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**July 30, 2017**

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# **Faculty Disclosure**

There are no relevant financial relationships to report.

# Objectives

- Describe Diffusion of Innovation theory and its relation to adoption
- Identify the factors that influence adoption of telehealth
- Identify barriers and facilitators of telehealth innovations
- Identify the clinical implications of research to your healthcare setting

# Background and Problem: current healthcare system

- Episodic face to face care = little contact
- Poor coordination over time
- Baby boomers: by 2030 = 20% US population will be seniors
- Problem: communication is the critical aspect of effectively managing illness (Estes et al.,2013)

# Review of the Literature

## **Barriers:**

- Apprehension
- Cost
- Knowledge Deficits
- Intrusive Equipment
- Lack Of Company Support

## **Facilitators:**

- Cost Savings
- Patient Self – Efficacy
- Reduced Disease Process/ Health Burden
- Increased Rural Access
- Organizational Support

(Rogers et al.,2011)

# Research Question

“What are the variables that support adoption of telehealth in a retail health clinic?”

# Definitions

- Retail Health Clinic
- Nurse Practitioner
- Licensed Vocational Nurse
- Telehealth

# Old Communication



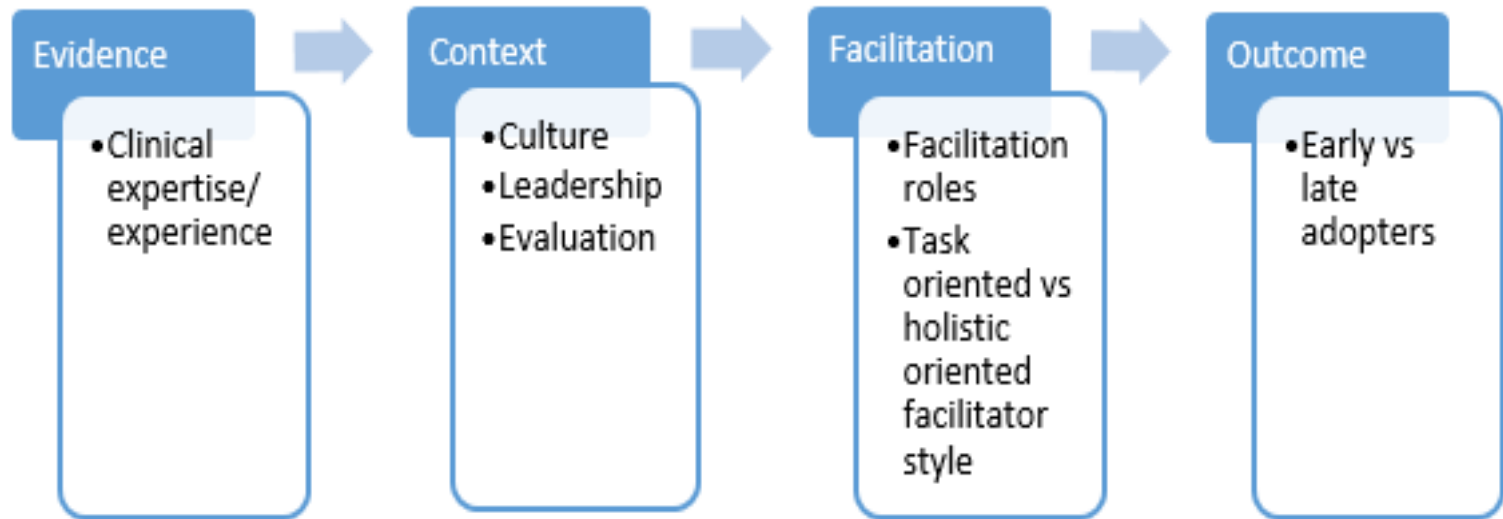
# New Communication



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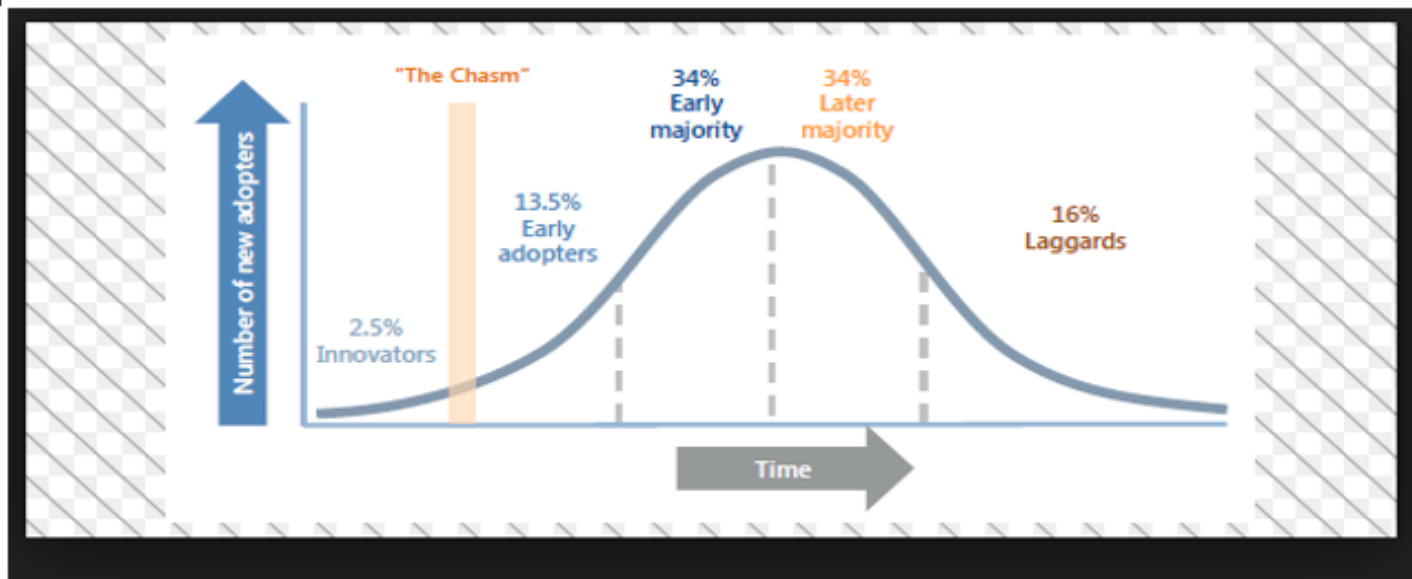


# PARiHS Model: Promoting Action on Research Implementation in Health Services



*Figure 1. PARiHS framework conceptualization. Adapted from (Helfrich et al., 2010)*

# Rogers Diffusion of Innovations Theory



*Figure 2. Rogers Diffusion of Innovations Conceptualization. Adapted from (Berwick, 2003).*

# Methods

## Design

- Descriptive cross-sectional design

## Setting

- Retail health clinics inside pharmacies within 3 regions of California

## Sample

- Convenience sample of all NPs & LVNs

**Measures:** “Instrument to Measure Perceptions of Adopting an Information Technology Innovation”  
– adapted for telehealth (Benbast & Moore, 2014).

- **Relative advantage**
- **Compatibility**
- **Trialability**
- **Result Demonstrability**
- **Complexity**
- **Image**
- **Observability**
- **Voluntariness**

# Results

- 63 respondents = 68% response rate
- 77%=NP's / 23%=LVN's
- 43% of respondents - high adoption region
- Average years in practice = 10.5
- Average months on telehealth = 10.6

Table 2: Bivariate analysis of Telehealth Questionnaire and Demographic Characteristics (n=63)

Question	Telehealth Adopters		$\chi^2$ <sup>a</sup>	p <sup>a,b</sup>
	High (n = 26; 41.3%)	Low (n = 37; 58.7%)		
Q2_1 (Voluntariness - My boss requires me to use Telehealth)				
Agree <sup>1</sup>	11 (42.3)	3 (8.1)	10.3332	0.0020 <sup>a</sup>
Disagree <sup>2</sup>	15 (57.7)	34 (91.9)		
Q2_2 (Voluntariness - Although it might be helpful, using Telehealth is compulsory in my job)				
Agree <sup>1</sup>	14 (53.8)	2 (5.4)	18.9112	<.0001 <sup>a</sup>
Disagree <sup>2</sup>	12 (46.2)	35 (94.6)		
Q4_2 (Compatibility - I think that using Telehealth fits well with the way I like to work)				
Agree <sup>1</sup>	23 (88.5)	23 (62.2)	5.3604	0.0239 <sup>b</sup>
Disagree <sup>2</sup>	3 (11.5)	14 (37.8)		
Q4_3 (Compatibility - Using Telehealth fits into my work style)				
Agree <sup>1</sup>	23 (88.5)	22 (59.5)	6.2935	0.0219 <sup>b</sup>
Disagree <sup>2</sup>	3 (11.5)	15 (40.5)		
Education <sup>3</sup>				
Bachelors/Masters/Doctorate	21 (80.8)	27 (75.0)	0.2874	0.5919 <sup>a</sup>
LVN/LPN/Associate/Other	5 (19.2)	9 (25.0)		
Time (min.) it took Respondents to answer Survey				
$\bar{x} \pm s$	9.9 $\pm$ 8.2	16.4 $\pm$ 20.7	1.13 <sup>c</sup>	0.3295 <sup>c</sup>
95% CI	6.6-13.3	9.3-23.3		
Range, SE	3-34; 1.6	3-71; 3.4		
Years in practice				
$\bar{x} \pm s$	11.9 $\pm$ 11.8	9.2 $\pm$ 8.5	3.08 <sup>c</sup>	0.0544
95% CI	6.9-16.9	6.1-12.2		
Range, SE	1-40; 2.4	1-36; 1.0		
Months used Telehealth				
$\bar{x} \pm s$	12.9 $\pm$ 2.9	12.5 $\pm$ 9.4	0.09 <sup>c</sup>	0.9131 <sup>c</sup>
95% CI	11.7-14.1	9.2-15.8		
Range, SE	1-18; 0.6	1-60; 1.6		

High Telehealth Adopters (Regions A &amp; B); Low Telehealth Adopters (Regions C &amp; D)

<sup>a</sup>Chi-Square Test; <sup>b</sup>Pearson's Exact Chi-Square Test; <sup>c</sup>ANOVA (One-Way) F test<sup>1</sup>Agree = Agree/Strongly Agree categories were collapsed<sup>2</sup>Disagree = Neutral/Disagree/Strongly Disagree were collapsed $\bar{x}$  = sample mean; s = sample standard deviation

3n=36

# Voluntariness

*“My boss requires me to use Telehealth”*

- 42.3% high adopters vs 8.1% low adopters  
AGREE  
( $p = 0.002$ )

*“Although it might be helpful, using Telehealth is compulsory in my job”*

- 53.8% of high vs 5.4% of low adopters AGREE  
( $p < .0001$ )

# Compatibility

*“I think that using Telehealth fits well with the way I like to work”*

- 11.5% of high adopters vs 37.8% of low adopters  
DISAGREE ( $p = 0.024$ )

*“Using Telehealth fits into my work style”*

- 11.5% of high adopters vs 40.5% of low adopters  
DISAGREE ( $p = 0.022$ )

# The Big Picture

- Perceptions of voluntariness and compatibility were the major factors influencing telehealth adoption
- Focus on individual level to achieve success

# Adoption needs buy in to work!



# **Significance & Implications**

- Leadership
- Champions
- Peer Review
- Role Play

# Acknowledgments

- I wish to thank my Chair Dr. Goebel, Dr. Van Otterloo, Dr. Boutary and Marlane Skaggs, MSN.
- I also want to extend thanks to all of the NP's and LVN's who gave their input and participated in the survey.

# Questions?

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