Human Factors Influencing Population Health Management: What is the Proof?

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CONTENTS

• Overview on Faculty Health Research at UCF College of Health and Public Affairs

• Care Management Research on Chronic Conditions: Integrated Care via HIT Use and Exchange

• Predictive Analytics: Systematic Review and Meta-Analysis Results, and Population Health Management for Heart Failure

• Solutions to PHM: Decision Support Systems for Reducing the Risk for Readmissions for Chronic Care Patients
I. Overview on COHPA Health Care Research: $8.2 million in 2017

- Behavioral Health Research: School of Social Work
- Human Factors Influencing Health and Healthcare Disparities: Department of Health Management & Informatics, Department of Health Professions, etc.
- Population Health Management & HIT Research: Health Services Research, Ecology of Health and Health Care: Department of Health Management & Informatics, School of Public Administration, etc.
- Mayo-UCF COHPA collaborative project: AHRQ-R21, “HIT & Hospital Performance”. Spaulding, Zhao & Wan
Contributing Factors to Population Health in US

Health Factors

Health Outcomes

Length of Life 50%
Quality of Life 50%

Health Behaviors (30%)
- Tobacco Use
- Diet & Exercise
- Alcohol & Drug Use
- Sexual Activity

Clinical Care (20%)
- Access to Care
- Quality of Care

Social and Economic Factors (40%)
- Education
- Employment
- Income
- Family & Social Support
- Community Safety

Physical Environment (10%)
- Air & Water Quality
- Housing & Transit

Policies and Programs

County Health Rankings model © 2014 UWFHI

Robert Wood Johnson & University of Wisconsin Public Health Institute

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II. Care Management Research on Chronic Conditions

• Care effectiveness and efficiency research

• Aging and chronic conditions

• Shifts of morbidity and mortality, resulting from compression

• Population health management research as one of the solutions
Aging and Chronic Conditions

Aging is a global phenomenon

Compression of mortality

Prevalence of chronic conditions

More than 70 million of Americans, ages 50 and older (4/5)

Poly-Chronic Conditions

Ages 50-64 (48%)
Ages 65-74 (66%)
Ages 75-84 (75%)
Ages 85+ (78%)
III. Evidence-Based Chronic Disease Management: Heart Failure Rehospitalization

Predictive Analytics
- Exploratory
- Confirmatory

Simulation

Decision Support

Improved Outcomes
Reduced Admissions/Readmissions

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Heart Failure Readmissions: Hospital Payment Penalties

Hospitals face Medicare payment penalties for high readmission rates

You again?!

I don't feel well.
IV. Effective and Efficient Solutions to Population Health Management
Parameters that Affect Patient Readmissions for Cardiac Diseases

Model: Single

1) CHOICE is the first step toward improved health because people who believe they are in control over their own lives are healthier and live longer.
2) REST is good sleep and also taking time to relax. Relaxation in turn lowers blood pressure and reduces stress.
3) ENVIRONMENT is our external world but it also affects what happens within us for the better or worst.
4) ACTIVITY includes physical and mental conditioning. Our goal is to be active in mind, body and spirit.
5) TRUST in God speaks to the relationship between spirituality and healing. A link exists between faith and wellness.
6) INTERPERSONAL RELATIONSHIPS strengthen our well-being. Social connection fortifies our resolve and improves our health.
7) OUTLOOK creates our reality. Our mind influences our body and our attitude impacts our health.
8) NUTRITION is the fuel that drives the whole system. The small improvements & strategic substitutions produce profound results.
9) HOME VISITS involve either a doctor or nurse visiting a patient in his or her own home.
10) TECH is the inclusion of tele-health management in an intervention’s and implementation through telephone use, remote monitoring systems, or other types of information technology.

Please click on any of the following modifier buttons to view the respective Significance, Beta and Odds Ratio values and Comments.

Choice

Trust

Rest

Outlook

Environment

Nutrition

Activity

Home Visit

Tech

Interpersonal Relationships

Back

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Reduction in Readmission Rate When Choice, Interpersonal Relationships and Nutrition is Used Together

Model: Additive

Please click on any of the following combination of modifiers to view the respective Significance, Beta and Odds Ratio values and Comments.

Choice, Nutrition
Choice, Interpersonal Relationships
Choice, Interpersonal Relationships, Nutrition
Choice, Interpersonal Relationships, Outlook
Choice, Nutrition, Outlook
Choice, Activity, Interpersonal Relationships, Nutrition
Choice, Rest, Activity, Interpersonal Relationship, Outlook, Nutrition
Choice, Activity, Nutrition, HomeVisit
Choice, Outlook, Nutrition, HomeVisit
Choice, Activity, Interpersonal Relationships, Nutrition, HomeVisit
Choice, Activity, Interpersonal Relationships, Outlook, Nutrition, HomeVisit
Choice, Rest, Activity, Nutrition

Significance: 1
Beta: 0.4489
Odds Ratio: 1.566587991
Comment: The odds of avoiding HF readmission for patients with C&MN intervention is 1.6 times than that for patients without the intervention at significant level.

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