Internship Training at Deloitte Consulting

By

Dr.Tripti Dahiya

PGDHM

2012-2014

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH

NEW DELHI

Internship Training

At

Deloitte Consulting
(FEB 10 – MAY 2, 2014)

Implication of stage two objectives of Meaningful Use in a leading EHR in USA compared with Vista EHR

By

Dr.Tripti Dahiya

Under The Guidance

Dr. Anandhi Ramachandran

Post Graduate Diploma in Hospital and Health Management

2012-2014

Deloitte.

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May 02, 2014

To Whom It May Concern

This is to certify that Ms. **Tripti Dahiya** was on a fixed term Internship from **February 10, 2014** to **May 02, 2014**. She has successfully completed her Internship in **Application Management Services**.

We wish you the very best in your future endeavors.

Yours truly,

For Deloitte Consulting India Pvt. Ltd.

GUNJAN MITTAL

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TO WHOMSOEVER MAY CONCERN

This is to certify that Dr.Tripti Dahiya student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at Deloitte US India Consulting Pvt. Ltd. from Feb 10, 2014 to May 2,2014.The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical. The Internship is in fulfillment of the course requirements. I wish him all success in all his future endeavors

05/05/2014

Dean, Academics and Student Affairs Professor
IIHMR, New Delhi

Supervisor
Dr.Anandhi Ramachandran
IIHMR, New Delhi

Certificate of Approval

The following dissertation titled **"Implication of stage two objectives of Meaningful Use in a leading EHR in USA compared with Vista EHR at Deloitte US-India Consulting Pvt. Ltd., Bangalore"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a pre-requisite for the award of **Post-Graduate Diploma in Hospital and Health Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name	Signature
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ABHIJIT CHAKRABORTY	[signature] 05/05/2014

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH,

NEW DELHI

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This is to certify that Surbhi Shokeen student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at Deloitte US-India Consulting Pvt. Ltd., Bangalore from 10th Febraury'2014 to 02nd May'2014.

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I wish her all success in all his future endeavors.

05/05/2014

Dean, Academic and Student Affairs

IIHMR, New Delhi

5/5/2014

Dr. Anandhi Ramachandran

Supervisor, IIHMR, New Delhi

FEEDBACK FORM

Name of the Student: Tripti DAHIYA

Dissertation Organisation: DELOITTE

Area of Dissertation: Implication of stage two objectives of Meaningful Use in a leading EHR in USA compared with Vista EHR.

Attendance: 99%.

Objectives achieved: Tripti has met all the set Objectives

Deliverables: shadowed the Clin Doc team of Incident and change management

Strengths:
- Good analytical skills
- She is quick learner and hard working
- good team player and focused

Suggestions for Improvement: She needs to be a little more confident and articulate

[signature]

Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

Date: 30th April 14

Place: Bangalore

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Tripti Dahiya

IIHMR, New Delhi

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LIST OF ABBREVIATIONS

HIT	Health Information Technology
ARRA	American Recovery and Reimbursement Act
EHR	Electronic Health Record
EMR	Electronic Medical Record
MU	Meaningful Use
CAH	Critical Access Hospital
HITECH	Health Information Technology Economic and Clinical Act
CMS	Centre of Medicare and Medicaid services
HIPAA	Health Insurance Portability & Accountability Act
HITSC	Health Information Technology Standards Committee
EP	Eligible Professional
EH	Eligible Hospital
CEHRT	Certified Electronic Health Record Technology
ONC	Office of National Coordinator for Health Information Technology
HITPC	Health Information Technology Policy Committee
CPRS	Computerized Patient Record System
CPOE	Computerized Physician Order Entry
PACS	Picture Archiving and Communication Systems
VA	Veteran Affairs
CCD	Continuity of Care Document

1. INTERNSHIP REPORT

1.1.ORGANISATION PROFILE

“Deloitte” is the brand under which tens of thousands of dedicated professionals in independent firms throughout the world collaborate to provide audit, consulting, financial advisory, risk management and tax services to select clients. These firms are members of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL").

Within a decade of its inception, Deloitte U.S. India (USI) Consulting has evolved to become a fully integrated and critical component of Deloitte U.S. Consulting, and a global delivery hub for the Deloitte member firms. It operates out of four offices located at Hyderabad, Mumbai, Bengaluru and Delhi.

Mission

As client presence grows across geography, and business challenges become more intricate, USI Consulting continues to be a game changer. Built around three core capabilities — advisory, implementation, and managed services, the practice works together with our clients to identify and understand their most complex issues, and using the full power of the firm creates real and lasting impact on their business.

Service offerings

USI Consulting has a pool of high-caliber, industry-focused professionals, engaged on a number of global engagements, across three service areas: Human Capital(HC), Strategy & Operations (S&O) and Technology.

Technology, the largest service area, helps drive transformation and productivity for clients by designing and implementing complex technology solutions. The India professionals possess depth and breadth of skills and capabilities, are well-integrated with industry, and have unique expertise to deliver smart and scalable business solutions. Service lines under the Technology include:

- Information Management
- SAP Package Technologies
- Oracle Package Technologies
- Emerging Solutions
- Systems Integration
- Deloitte Digital

Human Capital professionals specialize in providing broad-based business consulting services designed to help organizations in their efforts to integrate people with their business strategy. The practice strives to enhance an organization's performance, productivity, and profitability through its people. The four comprehensive service lines comprise:

- Actuarial, Risk & Analytics
- HR Transformation
- Organization & Talent
- Total Rewards

Strategy & Operations professionals are aligned by industry and service lines and have gained experience and competency through numerous client engagements, proposals and eminence contributions. The U.S. India team's capabilities span:

- Strategy
- Manufacturing Operations & Supply Chain
- Service Operations
- Integration, Divestures & Restructuring
- Infrastructure Operations
- Finance
- General Management

1.2.LEARNINGS AT DELOITTE

- Mandatory trainings on Organizational ethics and culture
- E-learning's on US Healthcare Industry
- Revenue Cycle Management overview
- Intensive training of the Inpatient module of a leading electronic health record in the USA
- Overview of all the modules of the electronic health record
- Shadowed under Team Lead on the process of break-fixes arising out of complications for the end user
- Analyzed and documented the nature of tickets raised by the Client who went Go-live with the electronic health record recently
- Trained on the different workflows associated within the Inpatient module
- Hands-on training on the text side of the electronic health record system
- Understanding of the database structure of the electronic health record

2. DISSERTATION REPORT

2.1.ABSTRACT

Meaningful Use is using electronic health record in a meaningful manner. To receive an EHR incentive payment, providers have to show that they are “meaningfully using” their certified EHR technology by meeting certain measurement thresholds that range from recording patient information as structured data to exchanging summary care records. Hence, not only installation of the electronic health record but also the usage of it is becoming more catered towards patient safety and healthcare delivery efficiency.

This descriptive study takes the task of applying meaningful use criteria to two different yet popular electronic health record systems in the market – one is open source Vista and the other is a proprietary vendor, name of which is undisclosed for confidentiality purposes. While the latter being a leading player in the electronic health record world, manages to be compliant in all of the objectives set by Meaningful Use, Vista lags behind on a few of those. The study includes the workflows associated with the leading EHR that can be taken as a guide for Vista to replicate or have as a reference material. Training companions of both the EHRs were referred for detailed understanding and analysis of the features and functionalities that helped them achieve Meaningful Use criteria.

It was being observed that if interoperability and interface issues were fixed, Vista would be up and running in alignment with all of the objectives set by Meaningful Use. This would help many military hospitals receive incentives on time which would in turn encourage their morale to use the system in a meaningful way.

2.2. INTRODUCTION

Healthcare has long lagged behind all other major industries in the adoption of information technology, but it is beginning to catch up. Meaningful use, in a health information technology context, defines the use of electronic health records and related technology within a healthcare organization [1]. It sets specific objectives that eligible professionals and hospitals must achieve to qualify for Centers for Medicare & Medicaid Services Incentive Programs.

Meaningful use is using certified electronic health record technology to:

- Improve quality, safety, efficiency, and reduce health disparities
- Engage patients and family
- Improve care coordination, and population and public health
- Maintain privacy and security of patient health information [2]

The Medicare and Medicaid EHR Incentive Programs consist of three stages with increasing requirements for participation. In this study, we will focus on the second stage, its different criteria and how it's being applied to a leading EHR vendor used in the US compared with the open source EHR Vista. The study aims to elaborate on specific functionalities in the system that helps achieve Meaningful Use objectives.

2.2.1. Meaningful Use – A Brief History

The idea of Meaningful Use developed as the brain-child of the National Quality Forum (NQF) in its efforts to determine a set of national priorities that would help health care performance-improvement efforts. In 2008, NQF released a report in which it identified the areas needing immediate attention such as improved population health, coordination of care, improved safety, increased efficiency, reduction of racial disparities, patient engagement and more importantly, privacy and security.

Then, in 2009, the American Recovery and Reinvestment Act (ARRA) added to the Meaningful Use by focusing on preserving and improving the affordability of health care and provisions such as modernizing the nation's infrastructure, enhancing energy independence, providing tax relief, and expanding educational opportunities. The Health Information Technology Economic and Clinical Act (HITECH) addressed the ARRA's focus on affordable healthcare, and specifically outline the promotion of Health Information Technology (HIT), HIT testing, grants and loans funding and demonstration programs, privacy, and provisions for monetary incentives through Medicaid and Medicare.

The grants and loans funding portion of the act provides incentives to use HITs, research monies to strengthen HIT infrastructure, and assistance in HIT application, including Regional Extension Centers. Lastly, the act provided eligible health care professionals and hospitals economic incentives when they adopt certified EHR technology and use it "meaningfully" through socialized medicine providers—Medicaid and Medicare.

The HITECH Act allocates $19 billion in funding for health information technology incentives. The majority of this funding is intended to reward hospitals and eligible professionals who are "meaningful users" of certified electronic health records with increased Medicare and Medicaid payments.

2.2.2. Meaningful Use Formulation

- The requirements of the Meaningful Use program are defined by two Health and Human Services (HHS) agencies, with input from federal advisory committees.
- The Center for Medicare and Medicaid Services (CMS) is responsible for defining which providers and hospitals are eligible, and what an eligible provider or hospital must do to participate. One of the primary requirements of the program is that eligible providers and eligible hospitals (EPs and EHs) use certified software.
- The Office of the National Coordinator of Health Information Technology (ONC) is responsible for defining what certified electronic health record technology (CEHRT) must do.
- CMS and ONC receive input from the Health Information Technology Policy Committee (HITPC) and Health Information Technology Standards Committee (HITSC). Informed by this input, they have been defining Meaningful Use in stages of progressive difficulty using proposed rules, public feedback, final rulemakings, and sub-regulatory guidance.
- The criteria for meeting Meaningful Use are divided into the following five initiatives:
    - Improve quality, safety, efficiency, and reduce health disparities
    - Engage patients and families
    - Improve care coordination
    - Improve population and public health
    - Ensure adequate privacy and security protections for personal health information

2.2.3. Basic Structure of Meaningful Use

a) Eligible Professionals and Eligible Hospitals progress through stages of increasing difficulty, starting in Stage 1 and progressing to Stage 2, 3, 4 and beyond.
b) Meaningful users must meet a set of objectives specific to each stage. Many objectives are similar for both Eligible Professionals and Hospitals, but some objectives apply to only one of them.
c) To meet most objective measures, the EP or EH must report data on their performance, which must exceed a specified threshold. A smaller subset of objectives requires the EP or EH to simply attest that they are using a specific feature. The regulations define whether an objective is attestation-only or performance-based.
d) Some objectives allow an EP or EH to claim an exclusion if the objective is not in their scope of practice or there is another relevant reason for not reporting on the objective.

e) EPs and EHs do not need to meet all objectives:
    - Every EP and EH must achieve a set of core objectives. The set varies depending on which stage the EP or EH is participating in.
    - Then, EPs and EHs must select a certain number of menu objectives from a set. The choices and number of menu objectives the EP or EH must select depends on the stage.

f) EPs and EHs must also select a set of quality measures to report. Quality measures are grouped into different domains (six for EP, five for EH), and EPs and EHs must select measures from at least three of the domains.

2.2.4. Meaningful Use Stages

Meaningful Use requirements are divided into stages of increasing complexity. As per CMS, the planned progression through the stages is as follows:

First year of Meaningful Use	**Payment Year (EP/Hospital)**						
	2011	2012	2013	2014	2015	2016	2017
2011	Stage 1	Stage 1	Stage 1	Stage 2	Stage 2	Stage 2	Stage 3
2012		Stage 1	Stage 1	Stage 2	Stage 2	Stage 2	Stage 3
2013			Stage 1	Stage 1	Stage 2	Stage 2	Stage 3
2014				Stage 1	Stage 1	Stage 2	Stage 2
2015					Stage 1	Stage 1	Stage 2
2016						Stage 1	Stage 1

Meaningful Use Stage 1 was defined in 2010 and further refined in 2012 with the issuance of another Final Rule defining Stage 2. Future rulings defining Stage 3 and beyond is anticipated.

2.2.5. Incentive Eligibility

Both Medicare and Medicaid provide incentive payments based on Meaningful Use of an EHR. These incentive payments apply to both Eligible Professionals and Hospitals.

Eligible Professionals

Eligible Professionals are defined by CMS as

a) Medicare Eligible Professional

A physician as defined in section 1861(r) of the Social Security Act, which includes all of the following types of professionals:

- A doctor of medicine or osteopathy

- A doctor of dental surgery or medicine
- A doctor of podiatric medicine
- A doctor of optometry
- A chiropractor

b) Medicaid Eligible Professional

Five types of Medicaid professionals are identified: physicians, dentists, certified nurse-midwives, nurse practitioners, and physician assistants. Medicaid Eligible Professionals must meet the criteria for Medicaid incentive payment eligibility, such as the patient volume thresholds or practicing predominantly in a Federally Qualified Health Center.

Eligible Hospitals

Eligible hospitals are defined by CMS as

a) Medicare Eligible Hospital

Hospitals located in one of the fifty states or in the District of Columbia are eligible. Psychiatric, rehabilitation, long term care, children's and cancer hospitals are excluded. Hospitals will be counted based on the CMS certification number of the main provider.

b) Medicaid eligible hospital

Acute care and Children's Hospitals are listed as the only two types of institutional providers potentially eligible for Medicaid incentive payments.

c) Critical access hospital (CAH)

Critical access hospitals are rural community hospitals that receive cost-based reimbursement. To be designated a CAH, a rural hospital must meet defined criteria that are outlined in the Conditions of Participation and subsequent legislative refinements.

Payment Years And Timing

Payment years for EPs will be calendar years. Payment years for hospitals will be the Federal fiscal year beginning on October 1 of the prior year.CMS requires both EPs and EHs to achieve and report on Meaningful Use during a continuous 90-day period during the first payment year. Subsequent years require achievement and reporting on Meaningful Use for the entire year. There's a variation to the usual full year reporting period in CY 2014/FY 2014, where CMS allows any EP or EH beyond Stage 1, Year 1 to report on only one quarter of the year. This 2014 variation is intended to facilitate upgrades from 2011-certified software to 2014-certified software.

Reporting is specific to individual EPs and EHs, so different providers and hospitals within the same organization can and will likely be on different schedules.

2.2.6. Vista EHR

WorldVista was incorporated on March 18, 2002, as a non-profit corporation in the state of California, in the United States of America. Vista EHR, more formally known as the Vista Computerized Patient Record System (CPRS), is an open source electronic health record (EHR) system developed by the United States Department of Veterans Affairs (VA). This system was designed and developed to support a high-quality medical care environment for the military veterans in the United States. The Vista system is in production today at hundreds of VA medical centers and outpatient clinics across the United States.

Vista has a proven track record of supporting a large variety of clinical settings and medical care delivery systems. Facilities range from small clinics that provide solely outpatient care to large medical centers with significant inpatient populations and their associated specialties, such as surgical care or dermatology. These systems focus on clinically relevant record keeping that improves patient care by improving clinical and administrative decision-making. Versions of this system are in active use in the U.S. Department of Defense Military Health System, the U.S. Department of Health and Human Services Indian Health Service, and internationally as well. Over the years, the Vista systems has been adopted by many healthcare organizations and tailored to meet their particular needs.

The costs associated with the acquisition and support of an EHR can be a barrier to improving the quality of health care provided by limiting the availability of timely and accurate access to electronic patient information. Part of the solution is to lower the cost of acquiring an EHR by using a software stack consisting of open-source, free software such as Vista. Vista is public domain and freely available through the US Freedom of Information Act (FOIA).

WorldVistA EHR is a robust Health Management System of over 100 modules, including:

• Patient Registration and Management

• Patient Care

• Order entry and reporting

• Clinical services management

• Supplies and assets management

• Clinical Audit

• Management reporting

• Training materials

• A vast documentation library

All built following IT standards, with support mechanisms and system management tools for the world's largest and most sophisticated electronic health record (EHR) systems and network management.

2.2.7. A Leading EHR in USA (XYZ)

This EHR makes software for mid-size and large medical groups, hospitals and integrated healthcare organizations – working with customers that include community hospitals, academic facilities, children's organizations, safety net providers and multi-hospital systems. For purposes of maintaining confidentiality, the name of the electronic health record is not disclosed. For convenience sake, 'XYZ' terminology is used to refer the EHR in this study.

It's onetime, on-budget track record is one of the best in healthcare, as rated by independent reviewers. It is quick to implement, easy to use and highly interoperable through industry standards. Information is shared securely. It is private and employee-owned. It develops, install and support all applications in-house. The leadership team includes clinicians, developers and process experts – people deeply experienced in patient care and healthcare technology.

2.3.REVIEW OF LITERATURE

David Blumenthol and Marilyn Tavenner conducted a study on 'The Meaningful Use regulation for Electronic Health Records' to analyze the impact of Meaningful Use in the usage of electronic health records. A set of core objectives that constitute an essential starting point for meaningful use of electronic health records and a separate menu of additional important activities from which providers will choose several to implement in the first 2 years were selected and analyzed. The study concluded that the Meaningful Use rule strikes a balance between acknowledging the urgency of adopting electronic health records to improve our health care system and recognizing the challenges that adoption will pose to health care providers. The regulation must be both ambitious and achievable. Like an escalator, Health Information Technology Economic and Clinical Act attempts to move the health system upward toward improved quality and effectiveness in health care. But the speed of ascent must be calibrated to reflect both the capacities of providers who face a multitude of real-world challenges and the maturity of the technology itself.

Richard Hillestad and James Bigelow, in their study on "Can Electronic Medical Record Systems transform Healthcare? Potential Health Benefits, Savings, and Costs", broadly examine the health care with the use of IT in other industries with regards to potential health and financial benefits. They concluded that effective electronic health records implementation and networking could eventually save more than $81 billion annually - by improving health care efficiency and safety - and that health information technology -enabled prevention and management of chronic disease could eventually double those savings while increasing health and other social benefits. The adoption of interoperable EMR systems could produce efficiency and safety savings of 142-371 billion dollars. The primary data source was the Healthcare Information and Management Systems Society - Dorenfest survey, which represents a broad canvassing of acute care hospitals, chronic care facilities, and ambulatory practices on their adoption and plans to adopt various HIT component.

Julia Adler-Milstein and David W. Bates conducted a survey on "Health Information Exchange Organizations in the United States: Implications for Meaningful Use". The objective was to assess the state of Health Information Exchange in the United States through regional health information organizations. 179 organizations that facilitated Health Information Exchange as of December 2009 participated. Of these, 75 RHIOs were operational, covering approximately 14% of U.S. hospitals and 3% of ambulatory practices. Thirteen health information organizations supported stage one meaningful use and none met an expert-derived definition of a comprehensive regional health information organization. Overall, 50 of 75 organizations (67%) did not meet the criteria for financial viability. These findings call into question whether regional health information organizations in their current form can be self-sustaining and effective in helping U.S. physicians and hospitals engage in robust health information exchange to improve the quality and efficiency of care.

Felicia Bowens and Patricia Frye conducted a study on “Health Information Technology: Integration of Clinical Workflow into Meaningful Use of Electronic Health Records” to examine the role that clinical workflow plays in successful implementation and meaningful use of electronic health record technology in ambulatory care.The study concluded that the road to adoption remains slow, as clinicians continue to work toward successfully integrating significant and meaningful use of electronic health records into the clinical workflow. Successful integration of electronic health record technology into clinical workflow will require synergy between multiple approaches.

Goetz Goldberg and Kuzel AJ, in their study on “Electronic health records in primary care practices: benefits, challenges and successful strategies” to understand the current use of electronic health records (EHRs) in small primary care practices and to explore experiences and perceptions of physicians and staff toward the benefits, challenges, and successful strategies for implementation and meaningful use of advanced electronic health record functions.Qualitative case study of 6 primary care practices in Virginia was the study design. Physicians and staff report increased efficiency in retrieving medical records, storing patient information, coordination of care, and office operations. Costs, lack of knowledge of electronic records functions, and problems transforming office operations were barriers reported for meaningful use. Major disruption to patient care during upgrades and difficulty utilizing performance tracking and quality functions were also reported. Small practices experience difficulty with implementation and utilization of advanced electronic health record functions. Federal and state policies should continue to support practices by providing technical assistance and financial incentives, grants and loans.

2.4.OBJECTIVES

General Objective

To analyze the implication of Meaningful Use standards in a leading Electronic Health Record system in the US as compared to the open-source Vista EHR

Specific Objectives

- To study the core and menu objectives of Meaningful Use for Eligible Hospitals
- To analyze the workflows associated with the specific functionalities with regards to Meaningful Use objectives of the EHR.
- To analyze where Vista lags behind its competitor in attaining Meaningful Use requirements.

2.5.METHODOLOGY

Study Design

Exploratory and Descriptive study

Data Collection

Secondary data from

- Training companion of XYZ
- User-web portal of XYZ
- Vista training material
- Vista library

2.6.MENU OBJECTIVES

S.No.	Menu Objective	Vista	Module Compliance (Vista)	XYZ EHR	Module Compliance (XYZ)
1.	Record whether a patient 65 years old or older has an advance directive	Yes	Clinical module	Yes	Ambulatory &Inpatient Module
2.	Record electronic notes in patient records	Yes	Clinical module	Yes	Ambulatory &Inpatient Module
3.	Imaging results consisting of the image itself and any explanation or other accompanying information are accessible through Certified EHR Technology	No	Clinical capture – Imaging system	Yes	Ambulatory module with imaging interface and a PACS system
4.	Record patient family health history as structured data.	Yes	Clinical module	Yes	Ambulatory &Inpatient Module
5.	Generate and transmit permissible discharge prescriptions electronically (eRx).	No	Not Applicable	Yes	Inpatient Module, E-Prescribing Interfaces bundle
6.	Provide structured electronic lab results to ambulatory providers.	Yes	Laboratory Module	Yes	Laboratory module & Results interface for outgoing Lab results

2.7.CORE OBJECTIVES

S No.	Core Objective	Vista	Module Compliance (Vista)	XYZ EHR	Module Compliance (XYZ)
1	Use computerized provider order entry (CPOE) for medication, laboratory, and radiology orders directly entered by any licensed healthcare professional who can enter orders into the medical record per state, local, and professional guidelines.	Yes	Clinical Module	Yes	Ambulatory, Inpatient module & Radiology imaging
2	Record all of the following demographics: preferred language, sex, race, and ethnicity, date of birth, date and preliminary cause of death in the event of mortality in the eligible hospital or CAH.	Yes	PIMS	Yes	Ambulatory, Inpatient and admission discharge module
3	Record and chart changes in the following vital signs: height/length and weight (no age limit); blood pressure (ages 3 and over); calculate and display body mass index (BMI); and plot and display growth charts for patients 0-20 years, including BMI.	Yes	Clinical Module	Yes	Ambulatory &Inpatient Module
4	Record smoking status for patients 13 years old or older.	Yes	Clinical Module	Yes	Ambulatory &Inpatient Module

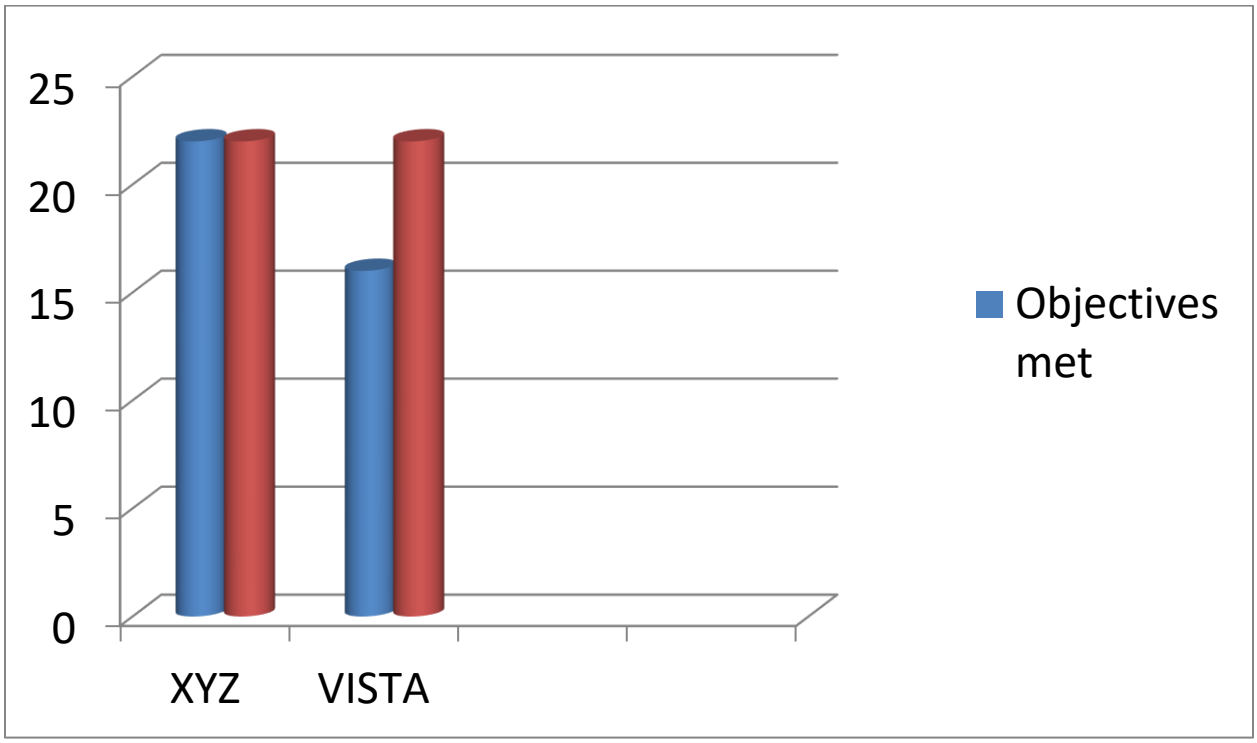
5	Use clinical decision support to improve performance on high-priority health conditions.	Yes	Clinical Module-Clinical Reminders	Yes	Ambulatory &Inpatient Module
6	Provide patients the ability to view online, download, and transmit information about a hospital admission.	No	Not met	Yes	Inpatient Module, MyChart, Care Everywhere
7	Protect electronic health information created or maintained by the Certified EHR Technology through the implementation of appropriate technical capabilities.	Yes	Technical Infrastructure	Yes	Logs for system access, Disaster recovery
8	Incorporate clinical lab test results into Certified EHR Technology as structured data.	Yes	Laboratory module	Yes	Inpatient module, Laboratory module
9	Generate lists of patients by specific conditions to use for quality improvement, reduction of disparities, research, or outreach	No	Not met	Yes	Inpatient Module, Reports
10	Use clinically relevant information from Certified EHR Technology to identify patient specific education resources and provide those resources to the patient.	Yes	Clinical module-Patient education	Yes	Inpatient Module

11	The eligible hospital or CAH who receives a patient from another setting of care or provider of care or believes an encounter is relevant should perform medication reconciliation	Yes	Medical Reconciliation under Outpatient Pharmacy	Yes	Ambulatory &Inpatient Module
12	The eligible hospital or CAH who transitions their patient to another setting of care or provider of care or refers their patient to another provider of care provides a summary care record for each transition of care or referral.	No	Not met	Yes	Inpatient module & care everywhere module
13	Capability to submit electronic data to immunization registries or immunization information systems except where prohibited, and in accordance with applicable law and practice	No	Not met	Yes	Ambulatory module and vaccination interface
14	Capability to submit electronic reportable laboratory results to public health agencies, where except where prohibited, and in accordance with applicable law and practice	No	Not met	Yes	Inpatient & laboratory module with an interface

15	Capability to submit electronic syndromic surveillance data to public health agencies, except where prohibited, and in accordance with applicable law and practice.	No	Not met	Yes	Inpatient & Surveillance interface
16	Automatically track medications from order to administration using assistive technologies in conjunction with an electronic medication administration record (eMAR).	Yes	BCMA	Yes	Inpatient Module

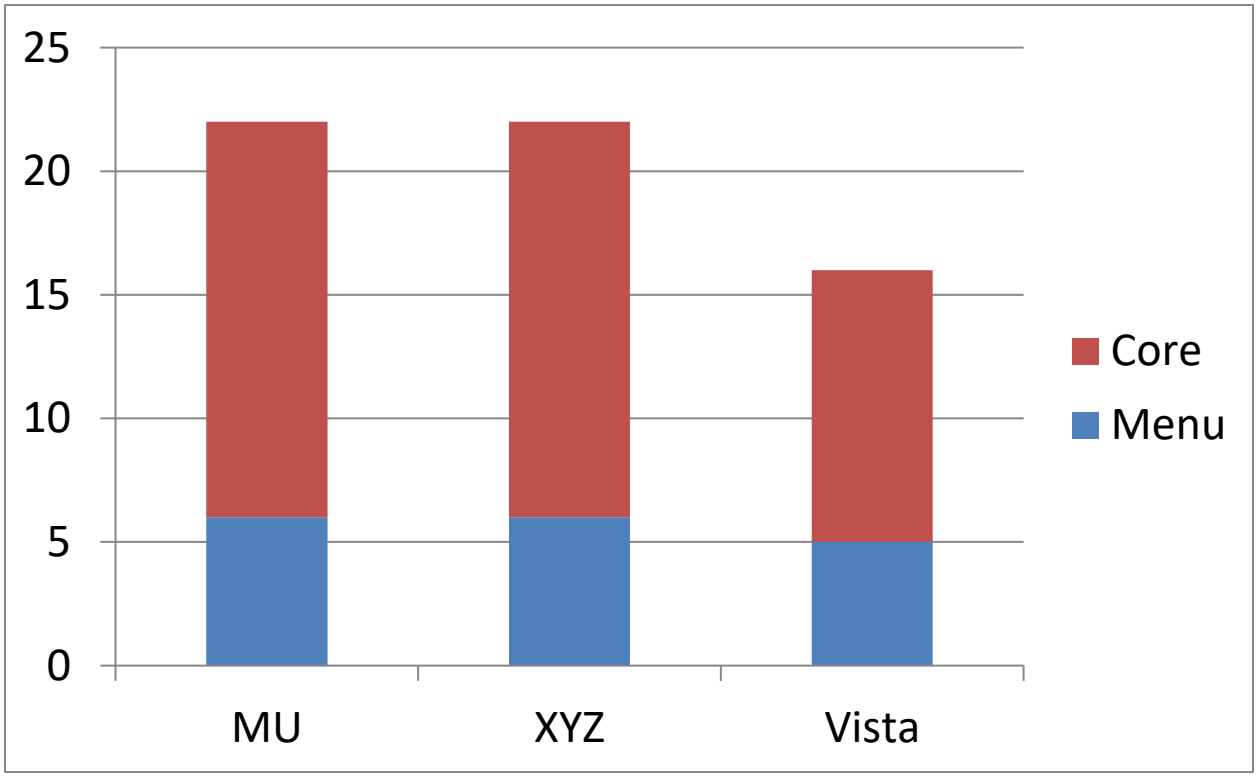
2.8.ANALYSIS

A] Number of Objectives met by XYZ and Vista



- XYZ is compliant with all the 22 objectives set by Meaningful Use
- Vista EHR meets 15 of those objectives
- Most of the missing objectives in Vista impact data sharing and interoperability
- Stage 2 Meaningful Use compliance is not attained if data sharing takes a hit.

B] Core and Menu set compliance



- Vista EHR fails to meet a Menu objective and Six Core objectives
- XYZ is complaint with all the Menu and Core objectives
- Core objectives are not optional for Eligible Hospitals – This may make Vista installed Hospitals' life harder in getting Meaningful Use incentives.

MENU OBJECTIVE 1

OBJECTIVE	XYZ	VISTA
Record whether a patient 65 years old or older has an advance directive	Ambulatory and Inpatient module	Clinical module

Measure

More than 50 percent of all unique patients 65 years old or older admitted to the eligible hospital's or CAH's inpatient department during the EHR reporting period have an indication of an advance directive status recorded as structured data.

Denominator

The number of unique patients age 65 or older admitted to an eligible hospital's or CAH's inpatient department during the EHR reporting period.

Numerator

The number of patients in the denominator who have an indication of an advance directive status entered using structured data.

Threshold

The resulting percentage must be more than 50 percent in order for an eligible hospital or CAH to meet this measure.

Exclusion

Any eligible hospital or CAH that admits no patients age 65 years old or older during the EHR reporting period.

GAP ANALYSIS

- Objective is met by both the electronic health record systems.
- Inpatient module in XYZ meets this objective
- Clinical module in Vista is compliant with this objective
- In XYZ, Physician discusses the advance directives and code status with the patient. He captures the same in the demographics field and signs it.
- Information about a patient's living will, advance directive, and power of attorney documents are captured

MENU OBJECTIVE 2

OBJECTIVE	XYZ	VISTA
Record electronic notes in patient records.	Ambulatory and Inpatient module	Clinical module

Measure

Enter at least one electronic progress note created, edited and signed by an authorized provider of the eligible hospital's or CAH's inpatient or emergency department for more than 30 percent of unique patients admitted to the eligible hospital or CAH's inpatient or emergency department during the EHR reporting period. The text of the electronic note must be text searchable and may contain drawings and other content.

Denominator

Number of unique patients admitted to an eligible hospital or CAH's inpatient or emergency department during the EHR reporting period.

Numerator

The number of unique patients in the denominator who have at least one electronic progress note from an authorized provider of the eligible hospital's or CAH's inpatient or emergency department recorded as text searchable data.

Threshold

The resulting percentage must be more than 30 percent in order for the eligible hospital or CAH to meet this measure.

GAP ANALYSIS

- Objective is met by both XYZ and Vista
- Inpatient module in XYZ and Clinical module in Vista is compliant with this objective
- Smart-forms and Note-writer form an integral function in meeting this objective

Workflow Associated

Clinicians can quickly compose electronic notes by clicking buttons instead of typing. As clinicians click to record patient information about topic such as symptoms, patient history, and plans for future care, the notewriter generates corresponding text. Clinicians can then review the text and add information as needed before signing the note.

MENU OBJECTIVE 3

OBJECTIVE	XYZ	VISTA
Imaging results consisting of the image itself and any explanation or other accompanying information are accessible through Certified EHR Technology	Ambulatory module with imaging interface and a PACS system.	Clinical capture – Imaging system

Measure

More than 10 percent of all tests whose result is one or more images ordered by an authorized provider of the eligible hospital or CAH for patients admitted to its inpatient or emergency department during the EHR reporting period are accessible through Certified EHR Technology.

Denominator

Number of tests whose result is one or more images ordered by an authorized provider on behalf of the eligible hospital or CAH for patients admitted to its inpatient or emergency department during the EHR reporting period

Numerator

The number of results in the denominator that are accessible through Certified EHR Technology

Threshold

The resulting percentage must be more than 10 percent in order to meet this measure.

GAP ANALYSIS

- XYZ meets the objective, provided a proper interface is in place along with a PACS system
- Clinicians place imaging orders in XYZ and a third-party PACS receives the order information from it to associate the appropriate images or results with the correct patient identifier and accession number.
- XYZ communicates this information to the PACS using an HL7 message sent through the Outgoing Imaging Orders and Results interface
- When the order is resulted, XYZ uses the Incoming Imaging Results Interface to receive status updates, results, and image links from either a radiology information system or a PACS.
- Vista meets this objective through Clinical capture – Imaging system.

- It covers
  - Selecting a capture configuration
  - Attaching documents to notes or reports
  - Adding annotations

MENU OBJECTIVE 4

OBJECTIVE	XYZ	VISTA
Record patient family health history as structured data.	Ambulatory and Inpatient modules	Clinical module

Measure

More than 20 percent of all unique patients admitted to the eligible hospital or CAH's inpatient or emergency department during the EHR reporting period have a structured data entry for one or more first-degree relatives.

Denominator

Number of unique patients admitted to the eligible hospitals or CAH's inpatient or emergency departments during the EHR reporting period.

Numerator

The number of patients in the denominator with a structured data entry for one or more first-degree relatives

Threshold

The resulting percentage must be more than 20 percent in order to meet this measure

GAP ANALYSIS

- Both the electronic health record systems meet this objective – Clinical module in Vista and Ambulatory and Inpatient modules in XYZ
- Family history feature in the history activity helps in meeting the objective in XYZ
- Documenting a family member's name and family history for a relationship not otherwise defined is integral in XYZ
- In Vista, family history is recorded in Clinical findings

MENU OBJECTIVE 5

OBJECTIVE	XYZ	VISTA
Generate and transmit permissible discharge prescriptions electronically	Inpatient and e-prescribing interface	Not met

Measure

More than 10 percent of hospital discharge medication orders for permissible prescriptions are queried for a drug formulary and transmitted electronically using certified EHR technology.

Denominator

Number of new, changed, or refill prescriptions written for drugs requiring a prescription in order to be dispensed other than controlled substances for patients discharged during the EHR reporting period.

Numerator

The number of prescriptions in the denominator generated, queried for a drug formulary and transmitted electronically.

Threshold

The resulting percentage must be more than 10 percent in order for an eligible hospital or CAH to meet this measure.

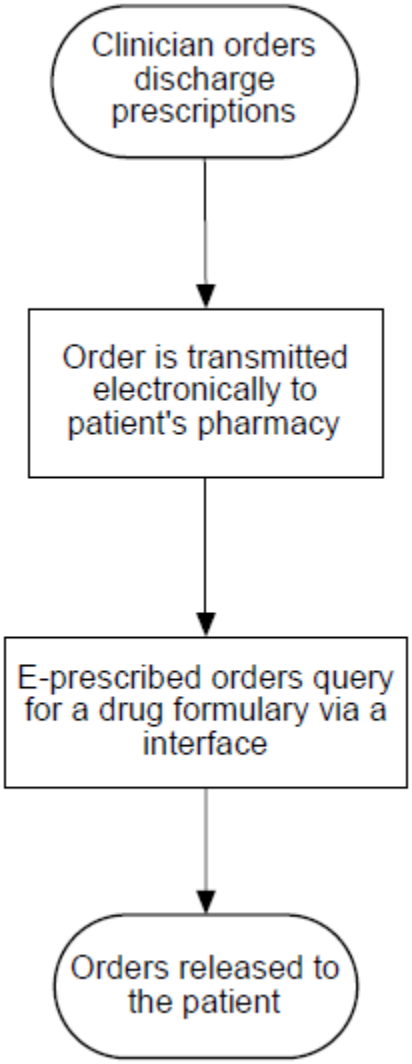
Exclusion

Any eligible hospital or CAH that does not have an internal pharmacy that can accept electronic prescriptions and is not located within 10 miles of any pharmacy that accepts electronic prescriptions at the start of their EHR reporting period.

GAP ANALYSIS

- Objective is not met by Vista whereas Inpatient bundled with an interface helps XYZ meet the objective
- In XYZ, Clinician's orders are transmitted electronically to pharmacy and the interface aids in drug formulary

WORKFLOW ASSOCIATED IN XYZ



MENU OBJECTIVE 6

OBJECTIVE	XYZ	VISTA
Provide structured electronic lab results to ambulatory providers.	Laboratory module and an outgoing results interface	Laboratory module

Measure

Hospital labs send structured electronic clinical lab results to the ordering provider for more than 20 percent of electronic lab orders received.

Denominator

The number of electronic lab orders received.

Numerator

The number of structured clinical lab results sent to the ordering provider.

Threshold

The resulting percentage must be greater than 20 percent.

GAP ANALYSIS

- Laboratory module meet the objective in both XYZ and Vista
- In XYZ, a lab interface is used. Results are interfaced from an analyzer
- Rules created to send structured results to specific providers in XYZ

CORE OBJECTIVE 1

OBJECTIVE	XYZ	VISTA
Use computerized provider order entry (CPOE) for medication, laboratory, and radiology orders directly entered by any licensed healthcare professional who can enter orders into the medical record per state, local, and professional guidelines.	Ambulatory and Inpatient module	Clinical module

Measure

More than 60 percent of medication orders created by the EP during the EHR reporting period are recorded using CPOE.

Denominator

Number of medication orders created by the EP or authorized providers in the eligible hospital's or CAH's inpatient or emergency department during the EHR reporting period.

Numerator

The number of medication orders in the denominator recorded using CPOE.

Threshold

The resulting percentage must be more than 60 percent in order for an EP, eligible hospital or CAH to meet this measure.

Exclusion

Any EP who writes fewer than 100 medication orders during the EHR reporting period

GAP ANALYSIS

- Both Vista EHR & XYZ EHR are meeting the objective
- XYZ is meeting this objective by using Ambulatory and Inpatient modules & Vista by using Clinical module.

Thus, in both the EHRs' CPOE is used for medication, laboratory, and radiology orders by any licensed healthcare professional that are eligible to enter orders into the medical record per state, local, and professional guidelines.

In XYZ EHR this functionality can be met using different order groups, order entry & ordering features.

CORE OBJECTIVE 2

OBJECTIVE	XYZ	VISTA
Record all of the following demographics: preferred language, sex, race, and ethnicity, date of birth, date and preliminary cause of death in the event of mortality in the eligible hospital or CAH	Ambulatory, Inpatient and admission discharge module	PIMS

Measure

More than 80 percent of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department during the EHR reporting period have demographics recorded as structured data.

Denominator

Number of unique patients seen by the EP or admitted to an eligible hospital or CAH inpatient or emergency department during the EHR reporting period

Numerator

The number of patients in the denominator who have all the elements of demographics recorded as structured data.

Threshold

The resulting percentage must be more than 80 percent in order for an EP, eligible hospital or CAH to meet this measure.

GAP ANALYSIS

- Vista& XYZ EHR are meeting this core objective of meaningful use.
- It is being recommended in XYZ EHR to document all required demographics during initial patient creation and registration in Inpatient module & admission discharge module.
- It also recommends to document preliminary cause of death in the Cause of Death section or a discharge order in order to meet this criterion.
- In Vista, this objective is met by using Patient information management system, where all the Demographic details are entered while registering the patient in the hospital.

CORE OBJECTIVE 3

OBJECTIVE	XYZ	VISTA
Record and chart changes in the following vital signs: height/length and weight; blood pressure; calculate and display body mass index; and plot and display growth charts for patients 0-20 years, including BM	Ambulatory and Inpatient module	Clinical module

Measure

More than 80 percent of all unique patients admitted to the eligible hospitals or CAH's inpatient or emergency department during the EHR reporting period have blood pressure and/or height/length and weight recorded as structured data.

Denominator

Number of unique patients seen by the eligible professional or admitted to an eligible hospital's or CAH's inpatient or emergency department during the EHR reporting period

Numerator

Number of patients in the denominator who have at least one entry of their height/length and weight and/or blood pressure recorded as structured data.

Threshold

The resulting percentage must be more than 80 percent in order for an eligible professional, eligible hospital, or CAH to meet this measure.

GAP ANALYSIS

- This objective is met by both the electronic health record systems.
- In Vista vital signs are recorded using Vitals measurement application of clinical module associated with a patient's hospital stay or outpatient clinic visit & Data can be accessed by several Vista applications (e.g., CPRS, Health Summary) that interface with the Vitals/Measurements application.
- In XYZ, the vital signs documentation is used in order to record patient’s vital signs. This is done by using Inpatient module of the application.
- Clinicians can review growth charts in the GrowthCharts activity.

CORE OBJECTIVE 4

OBJECTIVE	XYZ	VISTA
Record smoking status for patients 13 years old or older.	Ambulatory and Inpatient module	Clinical module

Measure

More than 80 percent of all unique patients 13 years old or older admitted to the eligible hospital's or emergency departments during the EHR reporting period have smoking status recorded as structured data.

Denominator

Number of unique patients aged 13 or older seen by the eligible professional or admitted to an eligible hospital's or emergency departments during the EHR reporting period.

Numerator

The number of patients in the denominator with smoking status recorded as structured data.

Threshold

The resulting percentage must be more than 80 percent in order for an eligible professional, eligible hospital, or CAH to meet this measure.

Exclusion

Any eligible hospital or CAH that neither sees nor admits any patients 13 years old or older

GAP ANALYSIS

- In XYZ EHR, smoking status is recorded in the history activity section. Clinicians can record information about both the patient's smoking and smokeless tobacco use including the patient's current use status, types used, and a quit date for each
- In Vista, smoking status is recorded in reminder. Patients who have a history of smoking are recorded in patient's record where mapping of all local health factors for current or prior smoking history is needed. The term VA – Smoking history is included for this. The user has an option in the dialog to indicate that the patient smoked <100 total lifetime cigarettes.

CORE OBJECTIVE 5

OBJECTIVE	XYZ	VISTA
Use clinical decision support to improve performance on high-priority health conditions	Ambulatory and Inpatient module	Clinical module – Clinical reminders

Measure

1. Implement five clinical decision support interventions related to four or more clinical quality measures at a relevant point in patient care for the entire EHR reporting period.

2. The eligible hospital or CAH has enabled the functionality for drug-drug and drug-allergy interaction checks for the entire EHR reporting period.

Attestation Requirements - Yes/No

Eligible hospitals and Critical access centers must attest 'yes' to implementing five clinical decision support interventions related to four or more clinical quality measures at a relevant point in patient care for the entire EHR reporting period.

Eligible hospitals and Critical access centers must attest 'yes' to enabling and implementing the functionality for drug-drug and drug-allergy interaction checks for the entire electronic health record reporting period.

GAP ANALYSIS

- This core objective is met by both the EHRs.
- In XYZ, this objective is being met by the best practice advisories which populate on the basis of patient's presenting complaints thus helping the physician to take the best decisions in order to treat the patient.
- XYZ decision support is configured in such a way where it reminds clinicians of needed actions in numerous situations, such as when they sign orders, chart information, or document diagnoses.
- In Vista, clinical reminders assist clinical decision-making and also improve documentation and follow-up, by allowing providers to easily view dates when certain tests or evaluations were performed and to track and document when care has been delivered. The clinicians can respond to the reminders by placing relevant orders or recording clinical activities on patients' progress notes. The Clinical Reminders in Vista offers tools to help clinicians comply with their performance measures and guidelines on a patient-by-patient basis. The use of these tools leads to improved patient care.

CORE OBJECTIVE 6

OBJECTIVE	XYZ	VISTA
Provide patients the ability to view online, download, and transmit information about a hospital admission	Patient portal	Not met

Measure

More than 50 percent of all unique patients discharged from the inpatient or emergency departments of the eligible hospital or CAH during the EHR reporting period have their information available online within 36 hours of discharge.

Exclusion

Any eligible hospital that is located in a county that does not have 50 percent or more of its housing units with 3Mbps broadband availability is excluded from the second measure.

Denominator

Number of unique patients discharged from an eligible hospital's inpatient or emergency department during the EHR reporting period.

Numerator

The number of patients in the denominator whose information is available online within 36 hours of discharge

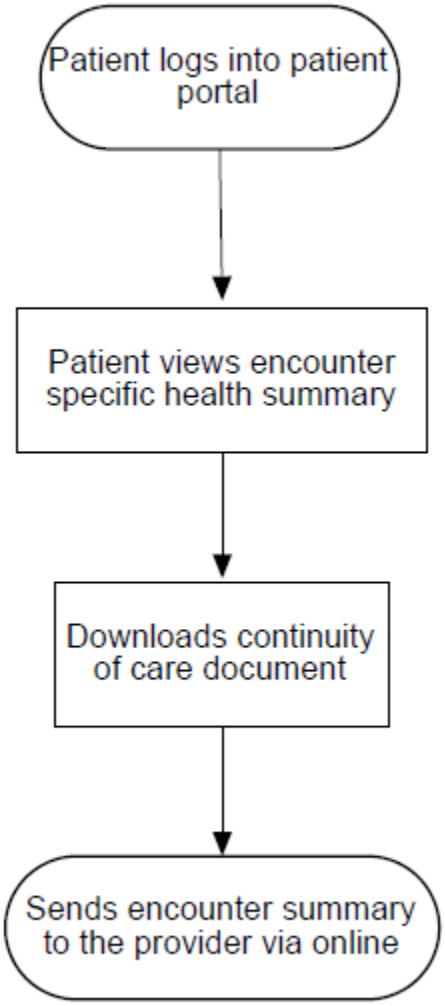
Threshold

The resulting percentage must be more than 50 percent in order for an eligible hospital to meet this measure.

GAP ANALYSIS

- This objective is not met in Vista EHR.
- In XYZ EHR the patient is allowed to view online, download, and transmit information about a hospital admission after 36 hours of discharge from the hospital. Here, patient is allowed to view his chart using Chart review functionality.
- Patients view their encounter-specific health summary by accessing past appointments. They can download their Continuity of Care Document (CCD) by clicking Download Summary.

WORKFLOW ASSOCIATED IN XYZ



CORE OBJECTIVE 7

OBJECTIVE	XYZ	VISTA
Protect electronic health information created or maintained by the Certified EHR Technology through the implementation of appropriate technical capabilities.	Logs for system access, Disaster recovery	Technical Infrastructure

Measure

Conduct or review a security risk analysis including addressing the encryption/security of data stored in CEHRT, and implement security updates as necessary and correct identified security deficiencies as part of the provider's risk management process for eligible hospitals.

Attestation Requirements - Yes/No

Eligible hospitals and must attest YES to having conducted or reviewed a security risk analysis and implemented security updates as necessary and corrected identified security deficiencies prior to or during the EHR reporting period to meet this measure.

GAP ANALYSIS

- This core objective is met in both the EHR's.
- In Vista, it is done by using Kernel Authentication and Authorization for Java (2) Enterprise Edition (KAAJEE) software which was developed by Common Services Security Program. Kernel is the designated custodial software application for KAAJEE. KAAJEE addresses the Authentication and Authorization needs of HealtheVet-VistA Web-based applications in the J2EE environment..
- XYZ EHR also takes care of this core objective & the settings are done outside the application as needed based on the results of the risk analysis.
- Features include
    - Logs for system access and patient record audit
    - Disaster recovery and data backup plan
    - Data encryption
    - Segregation of patient records and ability to ensure appropriate access

CORE OBJECTIVE 8

OBJECTIVE	XYZ	VISTA
Incorporate clinical lab test results into Certified EHR Technology as structured data	Inpatient and laboratory module - Beaker	Laboratory module

Measure

More than 55 percent of all clinical lab tests results ordered by authorized providers of the eligible hospital for patients admitted to its inpatient or emergency department during the EHR reporting period whose results are either in a positive/negative affirmation or numerical format are incorporated in Certified EHR Technology as structured data.

Denominator

Number of lab tests ordered during the EHR reporting period by the eligible professional or by authorized providers of the eligible hospital for patients admitted to its inpatient or emergency department whose results are expressed in a positive or negative affirmation or as a number.

Numerator

Number of lab test results which are expressed in a positive or negative affirmation or as a numeric result as structured data.

Threshold

The resulting percentage must be more than 55 percent in order for an eligible professional or eligible hospital to meet this measure.

GAP ANALYSIS

- This core objective is met in Vista where different modules are available in order to incorporate clinical lab test results like Laboratory, Anatomic Pathology, Blood Bank etc.
- In XYZ EHR this objective is achieved using an interface to document all lab results. Enter/Edit Results activity is used for looking at the results where care was provided.
- A clinician orders a lab test in XYZ, and the order is sent through the interface to the lab system. After the technician enters the result in the lab system, a result message is sent back to XYZ through the interface. The result is filed as structured data to result components that are linked to the original order.

CORE OBJECTIVE 9

OBJECTIVE	XYZ	VISTA
Generate lists of patients by specific conditions to use for quality improvement, reduction of disparities, research, or outreach	Inpatient module – reports	Not met

Measure

Generate at least one report listing patients of the eligible hospital or CAH with a specific condition.

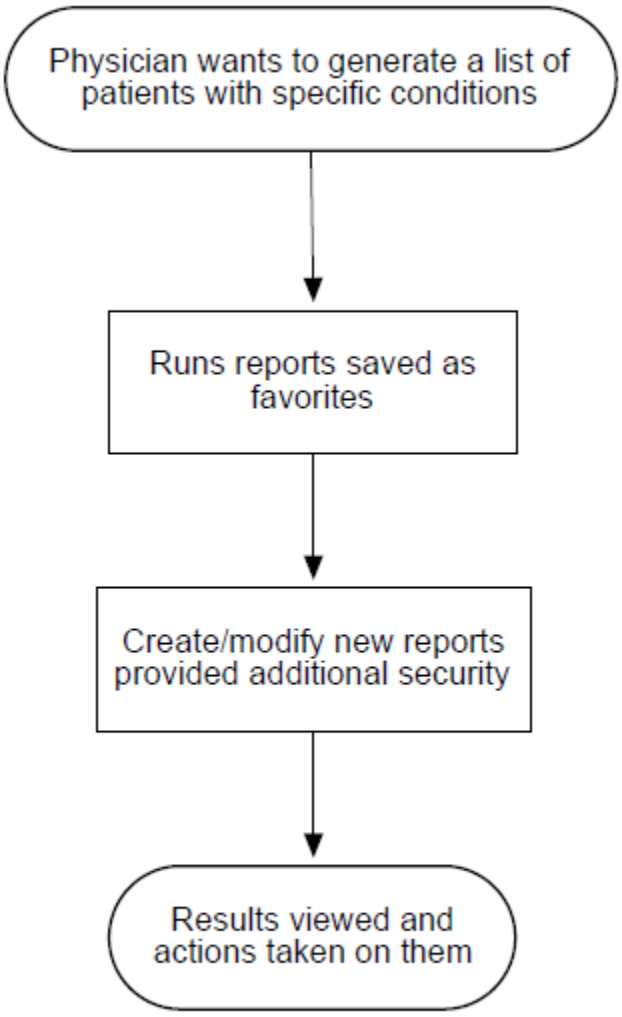
Attestation Requirements - Yes/No

The Eligible Hospital must attest YES to generating at least one report listing patients of the eligible hospital with a specific condition.

GAP ANALYSIS

- This core objective is not met by Vista EHR
- In XYZ EHR, In Reporting Workbench, clinicians run reports that they have saved as their Favorites and view the results of recently run reports. Clinicians can also choose to run additional reports, modify reports, or create new reports if they have the appropriate security. Once a report has run, clinicians view the results and take action on them as needed

WORKFLOW ASSOCIATED IN XYZ



CORE OBJECTIVE 10

OBJECTIVE	XYZ	VISTA
Use clinically relevant information from Certified EHR Technology to identify patient-specific education resources and provide those resources to the patient	Inpatient module	Clinical module – Patient education

Measure

More than 10 percent of all unique patients admitted to the eligible hospital's inpatient or emergency departments are provided patient-specific education resources identified by Certified EHR Technology.

Denominator

Number of unique patients admitted to the eligible hospitals inpatient or emergency departments during the EHR reporting period.

Numerator

Number of patients in the denominator who are subsequently provided patient-specific education resources identified by CEHRT.

Threshold

The resulting percentage must be more than 10 percent in order for an eligible hospital to meet this measure.

GAP ANALYSIS

- This core objective is achieved by both the EHR.
- In Vista, this is done based on patient complaints which results into patient education plan.
- In XYZ EHR this objective is met using Clinical References and other options for suggesting patient education materials. Nurse can add more education plan based on patient's diagnosis or chief complaints.
- Within the Patient Education activity, the system suggests an education topic based on information in the patient's chart. Within the topic are several specific education points that the system adds based on the patient's information, in all of the ways described above. The clinician uses the education points to teach the patient and document what the patient has learnt.

CORE OBJECTIVE 11

OBJECTIVE	XYZ	VISTA
The eligible hospital or CAH who receives a patient from another setting of care or provider of care or believes an encounter is relevant should perform medication reconciliation	Ambulatory and Inpatient module	Medical reconciliation under outpatient pharmacy

Measure

The eligible hospital performs medication reconciliation for more than 50 percent of transitions of care in which the patient is transitioned into the care of the eligible professional or admitted to the eligible hospital's inpatient or emergency department.

Denominator

Number of transitions of care during the EHR reporting period for which the eligible hospital's or CAH's inpatient or emergency department was the receiving party of the transition

Numerator

The number of transitions of care in the denominator where medication reconciliation was performed

Threshold

The resulting percentage must be more than 50 percent in order for eligible hospital or CAH to meet this measure.

GAP ANALYSIS

- This core objective is met by both the EHRs
- In Vista, this is done using clinical modules - outpatient pharmacy module and specially is provided for outpatients only.
- In XYZ, Clinicians review prior to medications to reconcile the patient’s list of prior to admission medications. If the patient previously was seen at a clinic or hospital within the organization that uses the same XYZ database, the clinician confirms each medication with the patient. If the patient is being seen for the first time, the nurse enters the list of medications the patient reports taking.

CORE OBJECTIVE 12

OBJECTIVE	XYZ	VISTA
The eligible hospital or CAH who transitions their patient to another setting of care or provider of care or refers their patient to another provider of care provides a summary care record for each transition of care or referral	Inpatient and patient portal	Not met

Measure

The eligible hospital that transitions or refers a patient to another setting of care or provider of care provides a summary of care record for more than 50 percent of transitions of care and referrals.

Denominator

Number of transitions of care and referrals during the EHR reporting period for which the eligible hospital's inpatient or emergency department was the transferring or referring provider

Numerator

The number of transitions of care and referrals in the denominator where a summary of care record was provided

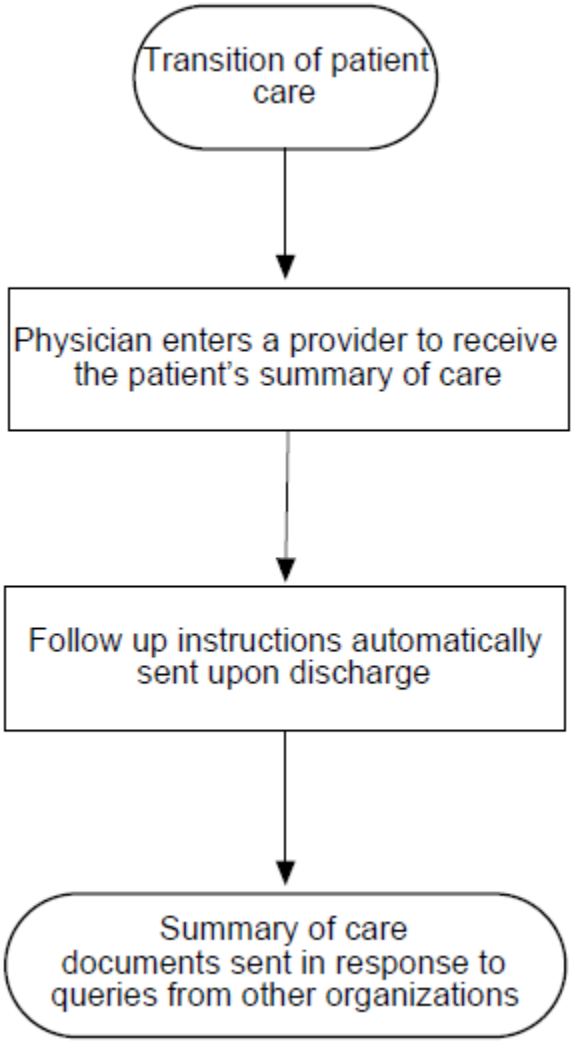
Threshold

The percentage must be more than 50 percent in order for the eligible hospital to meet this measure.

GAP ANALYSIS

- Vista doesn’t meet this objective
- In XYZ, when a clinician transitions a patient’s care, he can enter a provider to receive the patient’s summary of care, which is automatically sent through Care Everywhere when the patient is discharged.
- Summary of care documents can also be sent in response to queries from other organizations.

WORKFLOW ASSOCIATED IN XYZ



CORE OBJECTIVE 13

OBJECTIVE	XYZ	VISTA
Capability to submit electronic data to immunization registries or immunization information systems except where prohibited, and in accordance with applicable law and practice.	Ambulatory module and vaccination interface	Not met

Measure

Successful ongoing submission of electronic immunization data from Certified EHR Technology to an immunization registry or immunization information system for the entire EHR reporting period

Attestation Requirements - Yes/No

The eligible hospital must attest YES to meeting one of the following criteria under the umbrella of ongoing submission.

- Registration with the PHA or other body to whom the information is being submitted of intent to initiate ongoing submission was made by the deadline and ongoing submission was achieved.
- Registration of intent to initiate ongoing submission was made by the deadline and the EP or hospital is still engaged in testing and validation of ongoing electronic submission.
- Registration of intent to initiate ongoing submission was made by the deadline and the EP or hospital is awaiting invitation to begin testing and validation

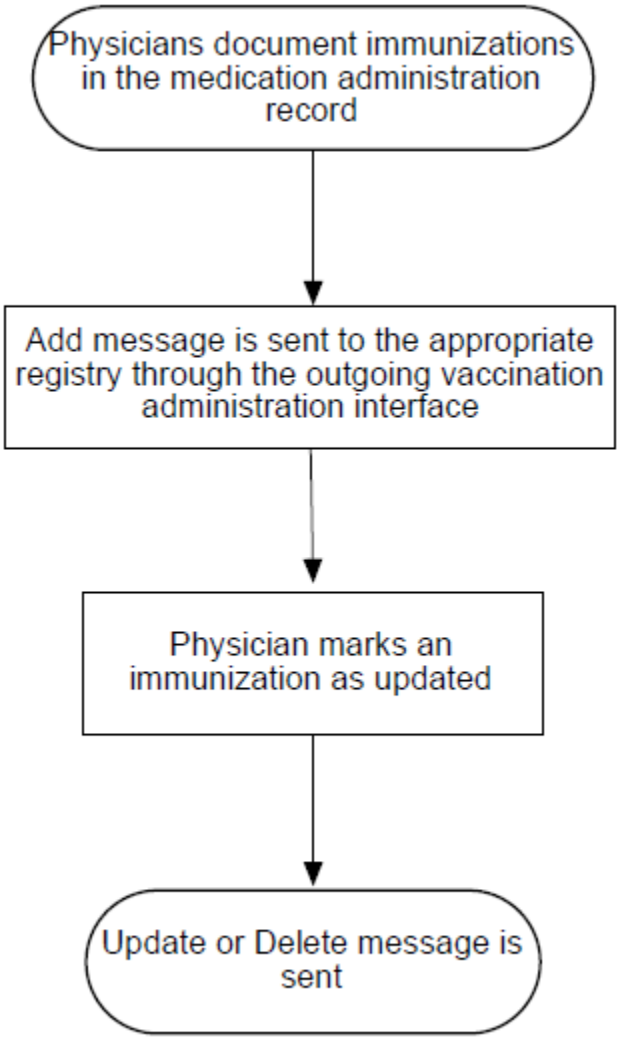
EXCLUSIONS

Does not administer any of the immunizations to any of the populations for which data is collected by their jurisdiction's immunization registry.

GAP ANALYSIS

- Vista fails to meet this objective
- In XYZ, Clinicians document immunizations in the medication administration record. When a clinician documents an immunization as given, anAdd message is sent to the appropriate registry through the outgoing vaccination administration interface. Ifthe clinician marks an immunization as updated or deleted, an Update or Delete message is sent.

WORKFLOW ASSOCIATED IN XYZ



CORE OBJECTIVE 14

OBJECTIVE	XYZ	VISTA
Capability to submit electronic reportable laboratory results to public health agencies, where except where prohibited, and in accordance with applicable law and practice.	Laboratory module and an interface	Not met

Measure

Successful ongoing submission of electronic reportable laboratory results from Certified EHR Technology to a public health agency for the entire EHR reporting period.

Exclusion

Any eligible hospital that operates in a jurisdiction for which no public health agency is capable of receiving electronic reportable laboratory results in the specific standards required for Certified EHR Technology at the start of their EHR reporting period.

Attestation Requirements - Yes/No

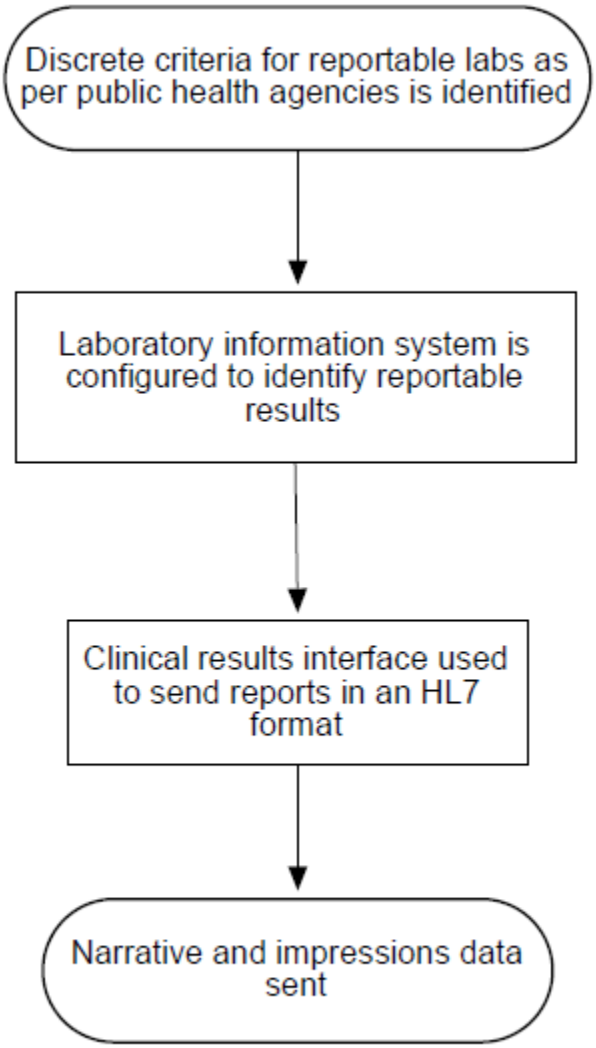
Eligible hospitals must attest YES to meeting one of the following criteria under the umbrella of ongoing submission:

- Ongoing submission was already achieved for an EHR reporting period in a prior year and continues throughout the current EHR reporting period.
- Registration with the public health agency or other body to whom the information is being submitted of intent to initiate ongoing submission was made by the deadline and ongoing submission was achieved.

GAP ANALYSIS

- Objective is not met by Vista
- In XYZ, laboratory information system can be configured to identify reportable results. Outgoing clinical results interface is used to send reportable labs in an HL7 format. It can:
    - Send only the results that are marked as reportable, instead of all results.
    - Include narrative data with the reportable result.
    - Include impressions data with the reportable result.
    - Send automatic messages for in-process results.

WORKFLOW ASSOCIATED IN XYZ



CORE OBJECTIVE 15

OBJECTIVE	XYZ	VISTA
Capability to submit electronic syndromic surveillance data to public health agencies, except where prohibited, and in accordance with applicable law and practice.	Inpatient module and syndromic data interface	Not met

Measure

Successful ongoing submission of electronic syndromic surveillance data from Certified EHR Technology to a public health agency for the entire EHR reporting period

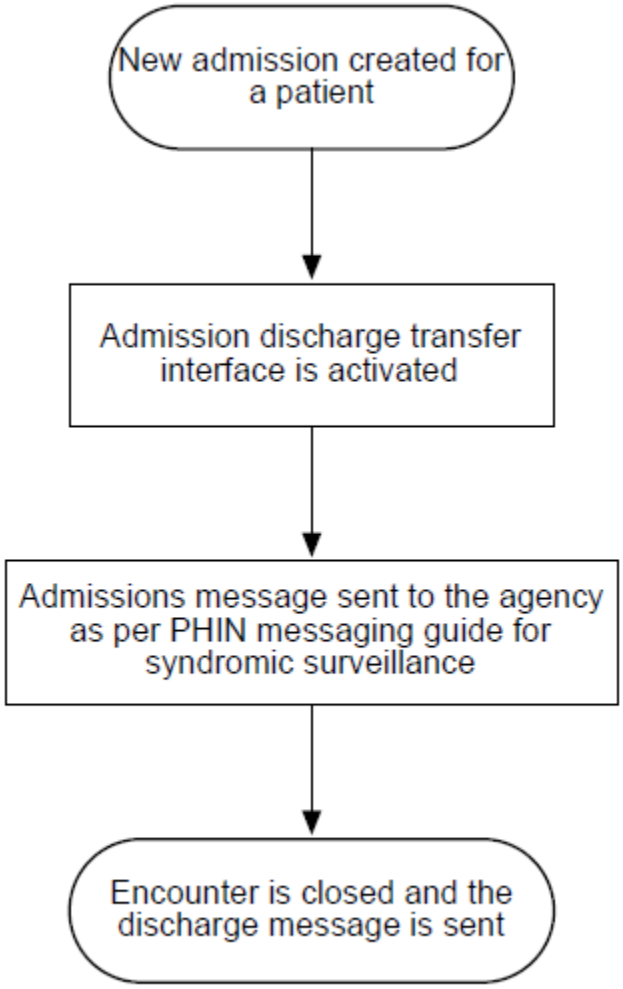
Attestation Requirements - Yes/No

Eligible hospitals must attest YES to meet the criteria

GAP ANALYSIS

- Vista is not compliant with this core objective
- XYZ can automatically submit syndromic surveillance data through an interface in the following ways
    - When a new admission is created for a patient, an Admissions message is sent.
    - For hospital outpatient encounter, a Registration message is sent.
    - If the encounter or patient information is update, an Update message is sent.
    - When the encounter is closed or the patient is discharged, a Discharge message is sent.
    - If the admission, hospital outpatient visit, or discharge is canceled, the appropriate Cancel message is sent.

WORKFLOW ASSOCIATED IN XYZ



CORE OBJECTIVE 16

OBJECTIVE	XYZ	VISTA
Automatically track medications from order to administration using assistive technologies in conjunction with an electronic medication administration record (eMAR).	Inpatient module	BCMA

Measure

More than 10 percent of medication orders created by authorized providers of the eligible hospital's emergency department during the EHR reporting period for which all doses are tracked using eMAR

Exclusion

Any eligible hospital or CAH with an average daily inpatient census of fewer than 10 patients

Denominator

Number of medication orders created by authorized providers in the eligible hospital's inpatient or emergency department during the EHR reporting period.

Numerator

The number of orders in the denominator for which all doses are tracked using eMAR

Threshold

The resulting percentage must be more than 10 percent in order for an eligible hospital to meet this measure.

GAP ANALYSIS

- Barcode Medication Administration workflow in Vista meets this objective
- In XYZ, Nurses and other clinicians can use the electronic Medication Administration Record to see what medications they need to administer to a patient and to record information about the administration of those medications.
- Nurses can also:
    - Order medications on the fly.
    - Easily identify medications that are overdue.
    - Group, sort, and filter medications for easy management.
    - Communicate with the pharmacy through messaging.

2.9.CONCLUSION

In this descriptive study, it is concluded that the leading EHR vendor in the US, not named in the study for confidentiality purposes, serves as a perfect example of compliance with regards to Meaningful Use and its standards and Objectives. Vista, although compliant with five menu objectives and ten core objectives, misses out on significant standard measures that cater to data sharing which is the essence of stage two Meaningful Use.

Interoperability is easy and efficient in XYZ, which enables this electronic health record to transmit critical patient information and population health to government agencies on a timely basis. The use of an effective interface technology in Hospitals where XYZ is installed helps them to send reports to outside providers or settings. One of the issues Vista has faced over the years is its inability to effectively interface with a third party system.

XYZ has various modules and individual applications exclusively assigned for different workflows, and is normally installed in medium-sized to big-sized hospitals. Different applications help this popular electronic health record to run efficiently and to capture all the information that is needed within an encounter inside the purview of meaningful use requirements.

Ambulatory, Inpatient, Laboratory and Patient portal are some of the applications that satisfy most of the meaningful objectives within their workflow scope. For clients to be compliant with Meaningful Use, they must have these applications installed mandatorily. However, just the mere installation doesn't mean that the organization would be Meaningful Use compliant. Steps should be taken in careful reporting on the performance on a timely basis using the features of the system.

Automatic updating of information within a patient's chart using smart tools and clinical decision support play an integral role in the efficient functioning of XYZ. Vista, in this regard can take a leaf out of it to become more robust and expand its legacy across other military hospitals.

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3. CASE STUDY

Impact of Social Network Analysis on Health Seeking Behavior of Employees of Multinational Companies

Introduction

India has been in the forefront in cyber world with IT industry developing into a major service provider. It was estimated in the 1990's that 40-80 million Visual Display Terminals (VDTs) were there in the workplace. There are approximately six-computers/1000 population with an installation of 18 million Personal Computers (PCs) and their number increasing all the time. This has also ushered in a new genre of occupational health problem i.e. of computer related health problems. India being the forerunner in the cyber world, there is an urgent need to understand the dynamics of these problems and prevent it from assuming epidemic proportions. A study done by Giri et al reported one or more computer related health problem in 93.3% of the study subjects, the commonest complaint being musculoskeletal (73.3%) followed by ocular (65.3%) and psychosocial (46.0%).Sivaraman G. et al in their study observed musculo-skeletal discomfort in 75.5% respondents and computer vision syndrome in 59.4% subjects.

The objective of this study is to evaluate the impact of social network analysis on health seeking behavior of employees of multinational companies. Social network analysis [SNA] is the mapping and measuring of relationships and flows between people, groups, organizations, computers, URLs, and other connected information/knowledge entities. The nodes in the network are the people and groups while the links show relationships or flows between the nodes. A network-based analysis is suited to visualizing, describing, and analyzing public health systems.

SNA is approach that assesses interactions among people in the community to support analysis of the structure of public health systems. Focus of SNA is on characteristics of an individual, organization or community, or system, SNA examines the relationship among these units. The analysis of networks allows the whole system to be examined in its entirety, which may reveal useful information about network position, properties of different groups or people in community, or characteristics of the complete network.

The focus of this study is to find out that which members of their social networks do people interact with the most when seeking health information & how close their relationship is with the person from whom they seek health information. Also, from this study we want to evaluate that which age & sex group is more likely to seek health information & do people look for health information for himself or herself or someone else.

Methodology

To assess the impact of social network analysis on health seeking behavior of people, a research tool was developed to find the level of interaction of people in the community & to find out with which people interact with most & from whose behavior in the community people are influenced by most. Also, to find out from where people seek help the most when they are not well.

Sampling method - Convenience sampling method.

Sample size: 250 questionnaires distributed. Final received only 100.

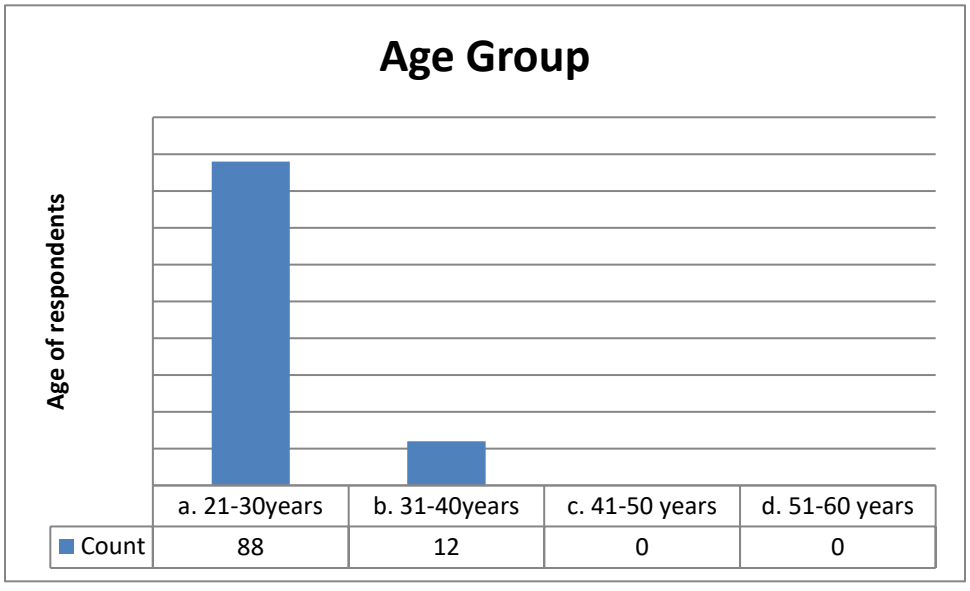
Sample Target: IT Professionals

Data Analysis Tool: Microsoft Excel

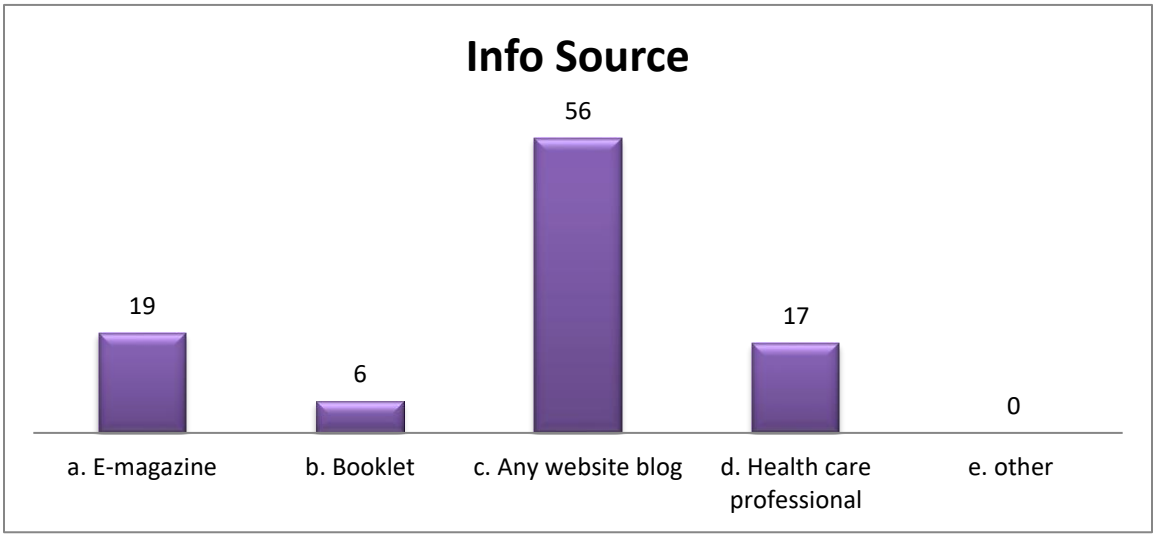
Analysis

The study was conducted on 100 responses obtained out of which there were 54 males & 46 females.

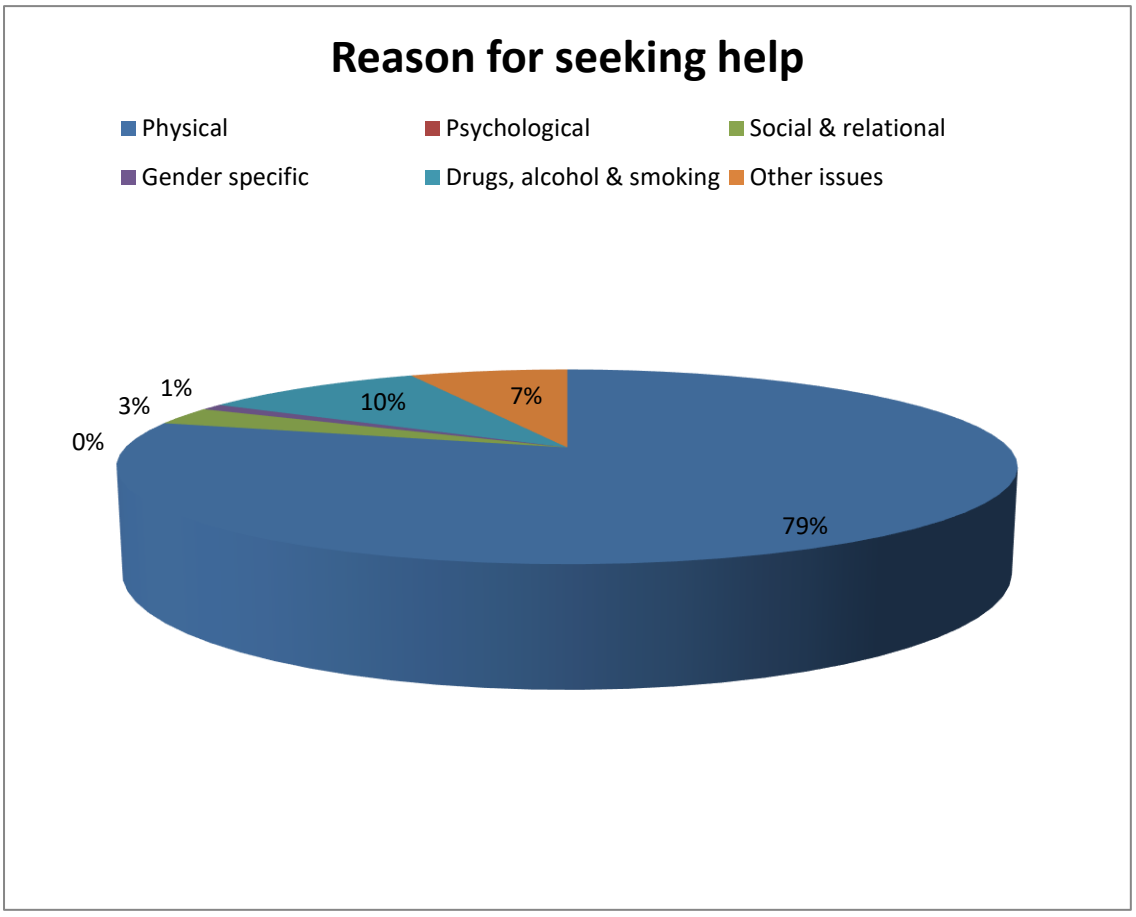
Maximum number of respondents was from 21-30 age groups. Respondents above age of 40 did not participate in the survey.



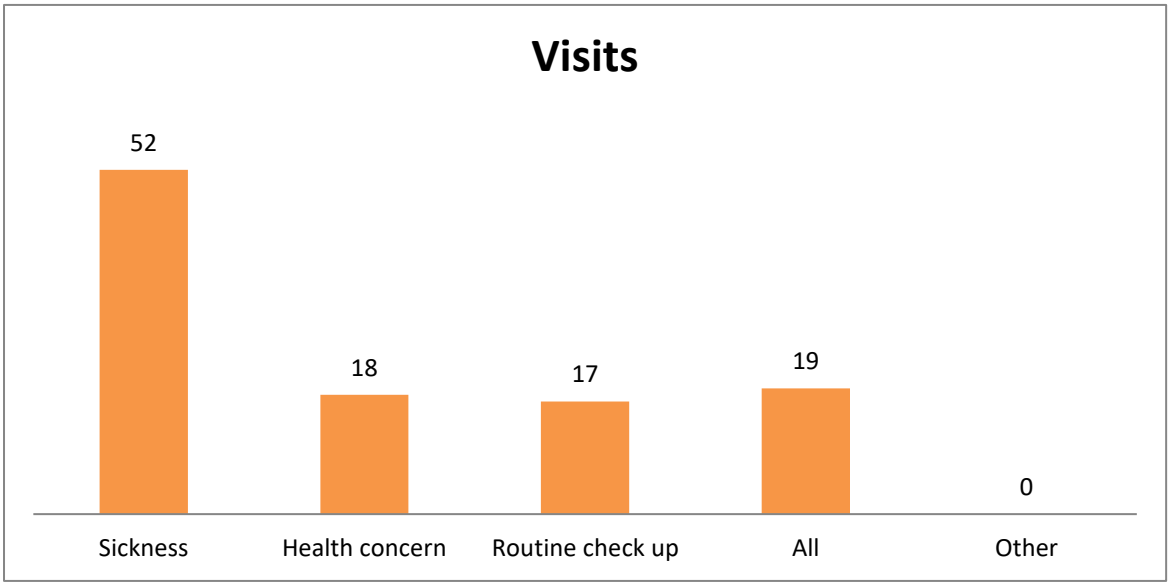
Regarding the source of health and wellness related information within last 6 months, most of the respondents indicated that they looked for the health information in website blogs.



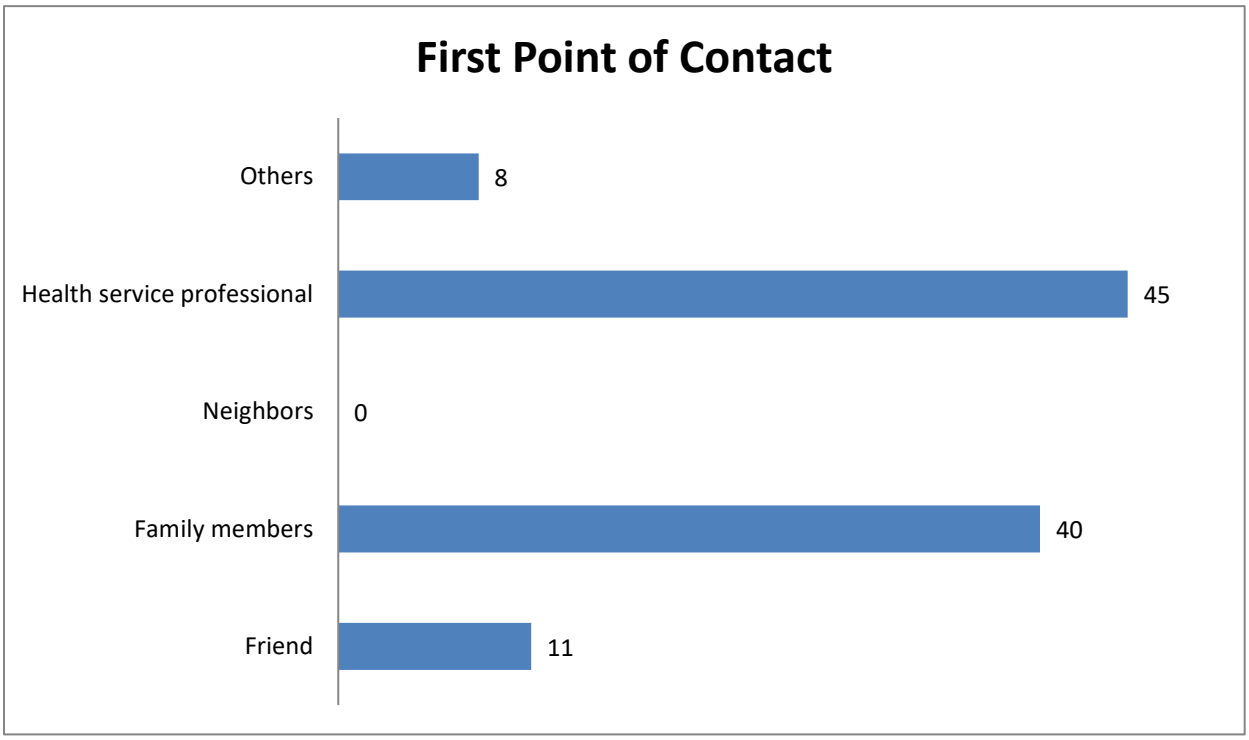
It could also be seen that 79% of respondents seek health information when they experience physical signs & symptoms of the disease.



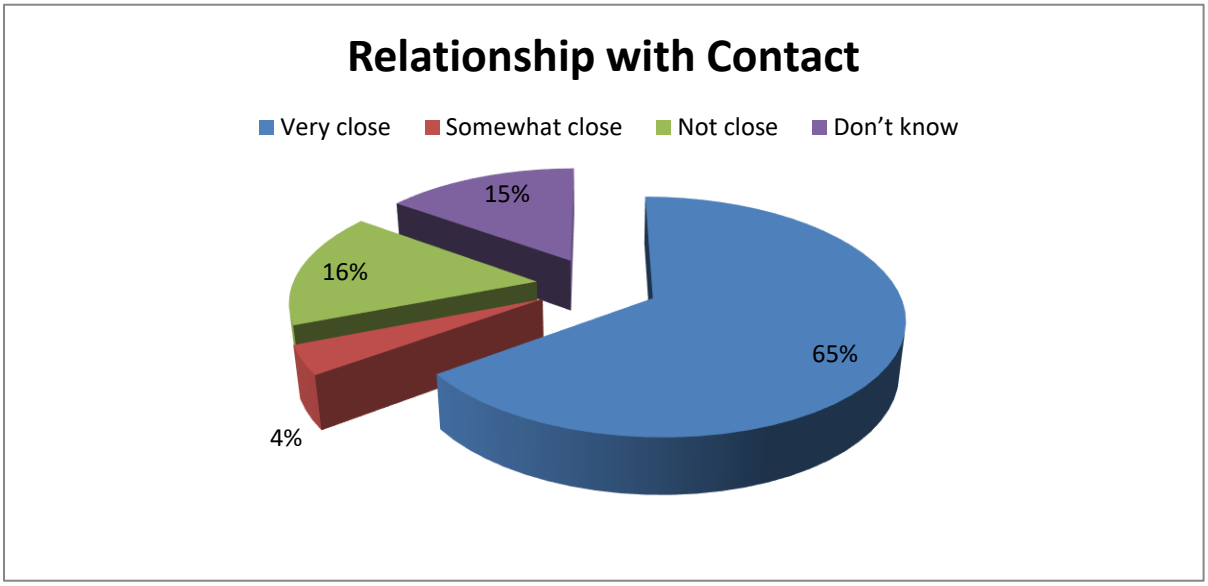
52% of respondents go for health checkups when they are sick, only 18% of visits are determined by genuine preemptive health concerns.



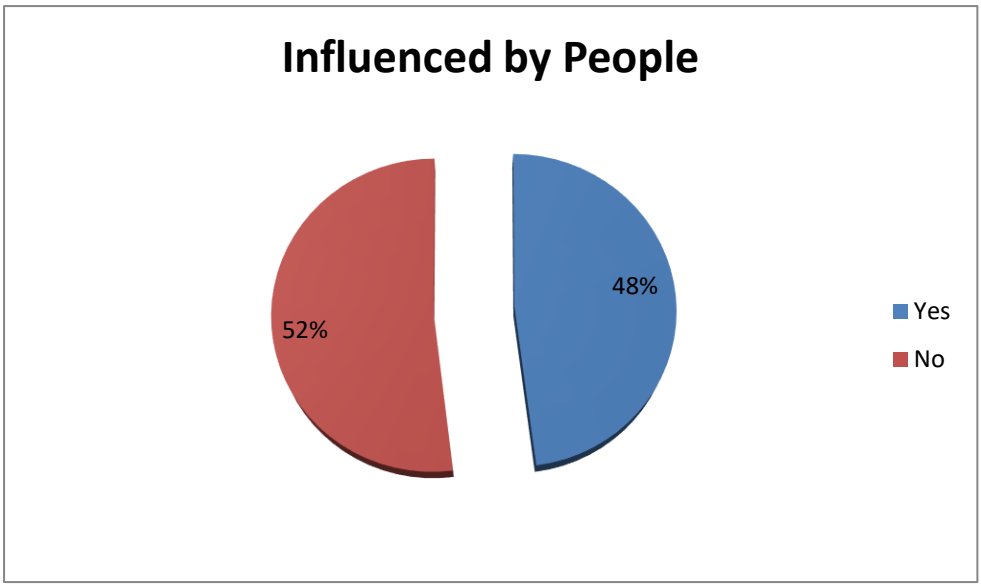
Out of all the respondents, 45% consulted health care professionals for their health related problems, while 40% sought advice from their family members when they face any health problems.



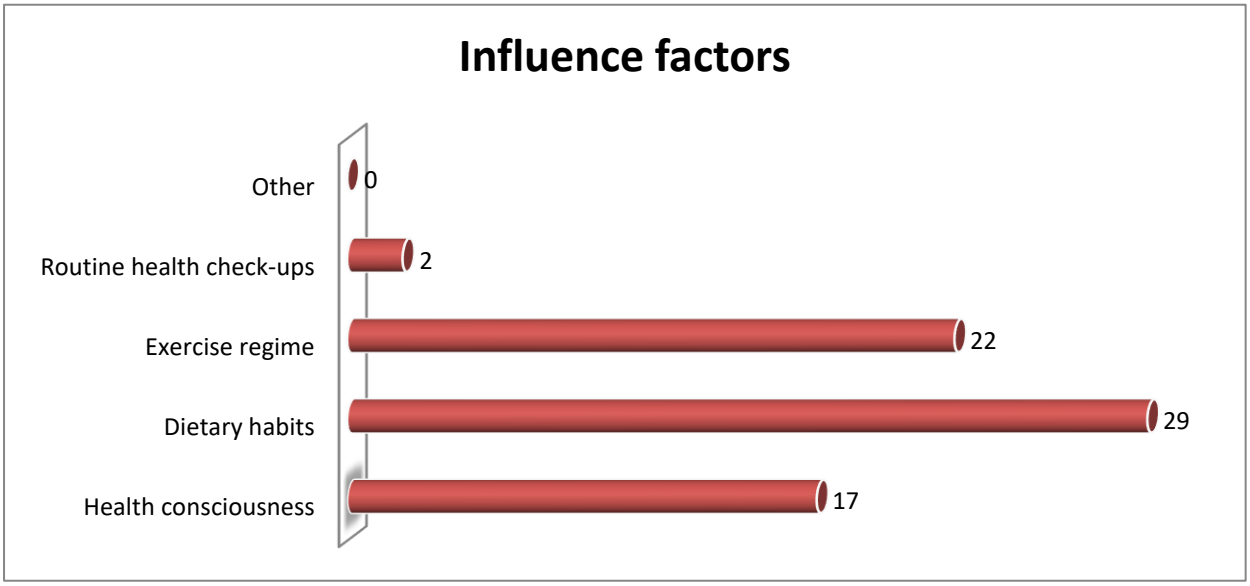
It was also brought to notice that IT professionals were eager to contact mostly those members in the society with whom they describe their relationship as very close with those they feel they can discuss all their concerns without any hesitation.



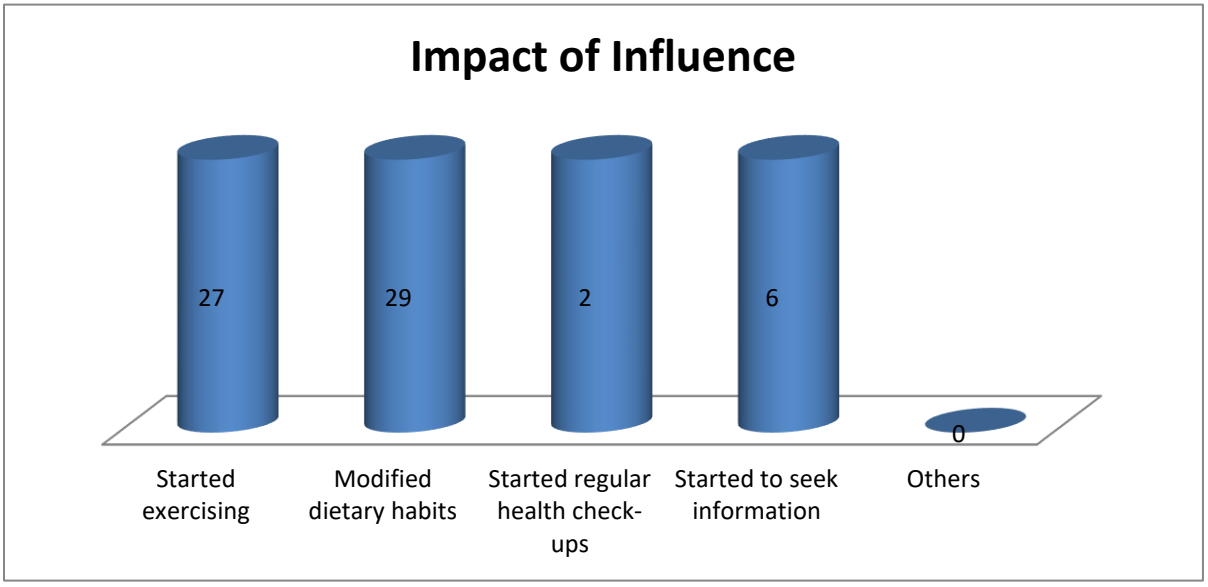
After analysis of data collected, it was found that 52% of professionals from our study are influenced by the health seeking behavior of the people around them & changed their lifestyle & dietary habits in order to improve their health condition.



30 % of the respondents did not report any appreciable or detectable change in their health seeking habit. Dietary habits were found to be the most influenced behavior of the respondents that was affected by their interaction with others.



In response to whether their social contact with friends, family or other influencers had any impact on their health seeking behavior, it was identified that the 70% of the respondents had a change in their health seeking behavior. Some had started modifying their dietary habits & also started exercising in order to improve their health condition.



Discussion

This study reveals that most of the people used web blog as source to look for the health elated information, thus availability of health related information on internet can help people to improve their health related knowledge they are suffering from. Most of the respondent were from 21-30 age groups & are young & stays in urban areas. Study also revealed that 79% of people seek health related help when they experience any physical symptoms of disease, it was also found that 52 % of respondents prefer to visit doctors when they experience sickness which tells that very few number of times people visit doctors for regular health checkups. It was also found that if people are not well, then there first point of contact are health professionals in 45% of cases whereas family members also play an important role as 40% of people contact their family members to consult for their health problems before visiting & seeking help from health professional and most of the people define their relationship as very close with the person whom they contacted first when they suffered from health issues, this means that we can find the person from people network & can train them (specifically for problems in which people feel shy discussing about their symptoms) for steps to be taken when anyone suffers from some health related problems. Study reveal that people's health seeking behavior is influenced by the health seeking behavior of people living in their society. Thus, finding out those people in the society & training them can help in preventing public health diseases as other people will get influenced from his behavior. Training & educating the influential people of the family & community can help preventing the various public health problems in the society. Also it was found that most of the people were influenced by other person's health dietary habits & in response to that, they modified their dietary habits.

Very few respondents faced barrier to access healthcare in last 1 year, thus it reveals that people are aware of the available resources to find our health related information ,also they are aware of the available health services near them & they know how to contact them (health professionals) when they experience any health issues.

Conclusion

This study brings out the sources in the social network like family members, health professionals & other people in the society which can influence the health seeking behavior of various people in the society. As people get influenced from behavior of these sources in the society, they can be used in order to prevent & improve some public health problems.

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ANNEXURE 1

Impact of Social Network Analysis on Health Seeking Behavior of Employees of Multinational Companies

1. Age
    a. 21-30years
    b. 31-40years
    c. 41-50 years
    d. 51-60 years
2. Gender
    a. Male
    b. Female
3. Qualification
    a. Graduate
    b. Post-graduate
    c. Doctorate
    d. Diploma
    e. Others-_____
4. Since how long are you working?
    a. Less than 5 years
    b. 5- 10 years
    c. 10- 15 years
    d. 15-20 Years
5. Did you look for any health information in last six months (for you)?
    a. Yes
    b. No

If YES, then Answer Question 6

6. If you looked for the information, then from where?
    a. E-magazine
    b. Booklet
    c. Any website blog
    d. Health care professional
    e. Any other ,please specify _____

If NO, then Answer question 7 & 8

7. If **NO,** then when was the last time you looked for health information?
    a. 6 months ago but less than 1 year
    b. More than a year ago
    c. I don't remember
    d. Never looked for health information

8. Where did you find health information the last time you went looking for that?
    a. Newspaper/General books or magazine
    b. Medical books
    c. Any website/ blog
    d. Health care professional
    e. Any other, please specify _____
9. Residence
    a. Urban
    b. Suburban
    c. Rural
10. Living condition
    a. Own house
    b. With family
    c. Alone
    d. Guest house
    e. With friends

11. How often you go for health check-ups?
    a. Every 3 months
    b. Every 6 months
    c. Once in a year
    d. As & when required
12. Is your visit determined by :-
    a. Sickness
    b. Health concern
    c. Routine check up
    d. All
    e. Any other, Please specify_____

13. Reasons for seeking help (health related):-
    a. Physical
    b. Psychological
    c. Social & relational

d. Gender specific
e. Drugs, alcohol & smoking
f. Other issues

14. What is the frequency of health issue since last 12 months?
    a. Every month
    b. Every 3 months
    c. Every 6 months
    d. Yearly
15. If you face any health problem, what is your first point of contact?
    a. Friend
    b. Family members
    c. Neighbors
    d. Health service professional
    e. Others, specify_____
16. Thinking about the person you just mention, would you describe your relationship with this person as :-
    a. Very close
    b. Somewhat close
    c. Not close
    d. Don't know
17. Are you influenced by any person in your community because of their health related habits:-
    a. Yes
    b. No
18. If **YES**, what is the behavior you are influenced by?
    a. Health consciousness
    b. Dietary habits
    c. Exercise regime
    d. Routine health check-ups
    e. Other, specify_____
19. What impact that behavior had on your health related habits?
    a. Started exercising
    b. Modified dietary habits
    c. Started going for regular health check-ups
    d. Started to seek information
    e. Others, specify_____

20. Did you face any barrier to access healthcare in last 1 year?
    a. Yes
    b. No

21. If **YES**, then please mention the kind of barriers you faced?

a. Knowledge of available health service
b. Inadequate transportation
c. Difficulties to contact