The 3rd International conference hosted by the Centre for Management of Health Services (CMHS) in the Indian Institute of Management Ahmedabad is dedicated to advances in healthcare management services. This conference aims to bring together leading academic scientists, researchers, practitioners, healthcare administrators, care providers and policy makers from around the world to share cutting-edge research experiences, bring new ideas, debate issues and address latest developments in the domain of healthcare management.

The conference’s focus is on -

- Developing insights into the techniques, opportunities, novel strategies and analytical methods for dealing with different challenges in the healthcare system.

- Sharing of research based knowledge related to healthcare management, healthcare services, healthcare quality, healthcare analytics and informatics.

- Case studies and innovative applications on the related fields.

It has encouraged quite a large number of paper submissions from various eminent institutes across India. The papers have been selected for regular presentation or short presentation based on the recommendation of the reviewers following a double blind peer-review process.

Conference Team of ICAHMS-2017:

Prof. Arnab Kumar Laha (Conference Convener)
Indian Institute of Management, Ahmedabad

Uma Baskaran (In-Charge, CMHS)
Indian Institute of Management, Ahmedabad

VidhyaLakshmi Baskaran
Indian Institute of Management, Ahmedabad

Harshad Zala
Indian Institute of Management, Ahmedabad
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ABSTRACTS

CMHS/IC-17/KN-01

Ecosystem for Development of Bio therapeutics in India

Surinder Singh
National Institute of Biologicals, New Delhi

Bio-therapeutics addresses several unmet medical needs, especially in the treatment of cancer, metabolic diseases, blood disorders, and immunological conditions. These drugs are not only expensive, but have a long and arduous process of development and manufacture due to their complexity in characterization, technically challenging bioassays, clinical development and lack of adequate skilled human resource. Innovator companies tend to sell bio-therapeutics at very high prices, making them largely unaffordable to patients in India. The emergence of biosimilars which are almost identical to biopharmaceuticals, has made these drugs considerably affordable. There are already 60 Biosimilars approved in India and in coming years another 15 to 20 biosimilars are expected to be launched. This will entail large number of indigenously manufactured biosimilars in the country to be evaluated and tested to ensure their quality. At present some of the activities that are outsourced out of India for product characterization by indigenous Bio-therapeutics manufacturers, are valued to be Rs. 62 to 65 lakhs per batch per product. It is not only cost intensive exercise but also a time consuming process. Therefore, it is need of the hour to promote “Make in India” to have a “National Centre of Excellence for Biologics”, for in-process product characterization by establishing Industry-Academia Linkage. Being an apex institute in management, IIM Ahmedabad may play a key role in this regards by providing the expert inputs & guidance on realizing the in-depth challenges of Industry-Academia Linkages and also pave the effective and productive way forward for the public health benefits. This will not only help to curtail the cost and time put in by indigenous manufacturers in the development of Bio-therapeutic products but will also increase substantially the access to affordable quality Bio-therapeutics to a large Indian patient population.
In new millennium technology advancement is making a significant socioeconomic changes at
global level. As a byproduct, injury problems are on the increase specially among developing
countries. The UN declared in ‘04 ‘Injury as global epidemic’ and WHO has predicted that
among all deaths, injury death will reach 2nd highest position. Majority of injury problems are
preventable and road traffic accidents among all injuries contribute maximum problems.

India with 7.5% GDP growth is prone to face problems in future. The National Health Policy
of ‘15 has identified issues of prevention of injury programme among seven environmental
health programmes. India having a massive health care infrastructure the injury management
needs to be harnessed in future. The National Trauma Care ‘15 has laid significant emphasis
on infrastructure development programmes. The lecture will highlight problems and possible
solutions.

The presentation plans to cover the three major players of the healthcare value chain: producers
(product manufacturers), purchasers (group purchasing organizations and wholesalers/
distributors), and healthcare providers (for example, hospitals). Manufacturers make the
products (Finished Dosages (FD) | Active Pharmaceutical Ingredients (API) | intermediates,
etc), GPOs purchase them in bulk on behalf of hospitals, distributors take title to them and
deliver them, and healthcare providers consume them in the course of rendering patient
care. The discussion will be more strategic than operational, seeking to understand the bases
of cooperation and competition along the value chain, the efficiency in contracting between
suppliers and providers and the emerging strategic alliances along the value chain. The overall
aim is to discuss whether “extended enterprise” models of supply chain collaboration found in
other industries can develop in healthcare.
Hospital & Healthcare Administration/Management Education in India: Rising Horizons

Anoop Daga
AIIMS, Delhi

Evolution of Hospital Management discipline can be traced back from USA. The first degree-granting programme in hospital administration was established at Marquette University in Wisconsin in year 1927. The professional status of the field was furthered in 1934 when the University of Chicago established the first graduate programme in hospital administration.

In India, in the year 1961, Dr. J. R. McGibony, consultant to the World Health Organization for the field of Hospital Administration, recommended the introduction of Hospital Administration as a separate specialty, which led to foundation of first programme in India, at AIIMS, New Delhi. Since then over the years, no. of institutions are established in India in medical as well as management field, offering Degrees/Diplomas/Certificates awarded by various nomenclature e.g. Hospital Administration, Hospital & Healthcare administration/management, Health &/Hospitals Systems Management, Healthcare Services Administration etc.

In U.S.A. there is an accrediting body known as Commission on the Accreditation of Healthcare Management Education (CAHME). In India, affiliation these programmes is done by respective academic regulatory bodies eg. Medical Council of India, University Grants Commission & All India Council of technical Education (AICTE).

A snap shot on Future of Pathology labs in India

Ravi Gaur
Onquest Laboratory Ltd, New Delhi.

Rapid change has become a defining feature of pathology!

It will come as no surprise to those in the clinical laboratory and pathology field that the market is undergoing rapid change. In recent decades health expectations have risen globally, a lot being done to make diagnostics more affordable, accessible and accurate. The proper scaling of pathology services is key to this growth, as pathology is involved in 70% of all healthcare diagnoses. Aging population and the rising prevalence of chronic conditions like obesity,
diabetes, the rise of universal healthcare and many other factors are driving change in the pathology market. We are also seeing an upsurge of new testing methods to support initiatives such as personalised medicine, also known as genomic medicine, point-of-care testing, Digital pathology, Nano sensors, Pharmacogenomics and much more. The upside is the abundance of valuable information that flows from the life cycle of medical testing, real-time feedback to improve process and overall management. Just as demand for laboratory services is rising, there is downward pressure to use fewer resources. Industry consolidation is as prevalent in laboratories as in other areas of healthcare, with increased economies of scale expected to deliver more test results at a lower cost. Pathology services must adapt to new emerging challenges in climate where the pace of change is likely to accelerate.

CMHS/IC-17/KN-06

Digital: The next frontier for Clinician Engagement

Rohan Desai
Plexusmd, Ahmedabad

Given the tight regulations around Direct to Consumer marketing, healthcare and pharmaceutical companies employ large teams of medical representatives who cold-call practicing doctors and ‘detail’ their product offerings at a defined frequency. While effectiveness is unproven and the cost to company is humongous, most multi-national as well as domestic companies rely heavily on this channel given the lack of better options.

With the advent of the smart-phone, mushrooming of new mobile technologies and sharp drop in data usage charges, a new avenue has opened up for Lifescience companies to get their message across to the doctor – through the smart-phone right into her mindspace. Companies are increasingly adopting ‘Digital’ as a critical component of their marketing plans and trying different approaches: knowledge-based apps, professional networking apps, tablet-based detailing etc. The success of Digital clinician engagement strategies are crucial to maintaining and improving market share and profit margins in industries coming under increasing regulatory and competitive pressures.
CMHS/IC-17/KN-07

Customer Centric Business Model for Healthcare Access

Piyush Kumar Sinha
Indian Institute of Management, Ahmedabad

Healthcare is an issue in developing countries due to various reasons. Availability of medicines in public sector is about 52% while that in the private sector is about 69%. This clearly implies the fact that access to essential medicines is very low. Also there is an inadequate access to treatment. Lack of availability of diagnostic tools and absence of trained healthcare workers contribute significantly to inadequacy of healthcare access globally. Effective access to healthcare includes the ability for an individual to be able to easily receive optimal preventive and curative care without undesirable financial burden. Physical reach, availability of Health Care Practitioners (HCP) and medicines, quality of care and affordability of treatment are some of the key factors which govern the overall accessibility of healthcare in any country. Issues or problems in any of the aspects contribute towards inaccessibility of healthcare.

A study of more than 80 initiative of healthcare access from across the world brought out a need for developing a business model which is consumer centric and deliver quality at a lower transaction cost. In this presentation, the business model and its implementation plan is described

CMHS/IC-17/KN-08

Patient Safety in Hospitals- Nurses at the Helm with strategies to succeed

Phalakshi Manjrekar
Hinduja Hospital, Mumbai

Quality is defined as doing it right when no one is looking and patient safety today is an excellent indicator of this. Nurses today are competent to take this responsibility.

Goals to create a successful strategy include

1. Study the existing patient safety strategies in the healthcare set up

2. List the implications using Environment of the patient, Nurse patient Ratio and Common errors notified and create a policy.
3. Monitor the expected care outcomes and continuously modify benchmarks.

4. Study the relation between the selected quality control indicators with selected variables such as qualification and experience of nurses.

Patient safety measures as Errors, Incidents, Near Misses, Adverse Events and Preventable Adverse Events are identified as Patient Safety benchmarks; nurses contribute by taking action to meet the benchmark. Being the largest professional group who are physically present at all times in a hospital, they outnumber all to be the pillar of the healthcare set up.

Keywords – nurses, hospital, protocols, policies

CMHS/IC-17/001

Hospital Efficiency and its Relationship with Indicators of Financial Performance

Prathibha Patel M, V K Ranjith
School of Management, Manipal University, Manipal

A dynamic healthcare sector coupled with technological changes, changing customer expectations and a constant need to expand and explore untapped segments, puts tremendous pressure on the private hospitals to compete and sustain acceptable performance levels so as to negate any risk of inefficiency and distress. The need of the hour, therefore, is to examine and study the performance of private hospitals in India to capture early signs of inefficiency and distress. Therefore, the purpose of this study is twofold. First, this study groups conventional and operational ratios, through exploratory factor analysis (EFA), to accurately and parsimoniously classify it into dimensions of hospital performance. Second, this study examines the strength with which the identified ratios belonging to what dimension of financial performance predict hospital efficiency using binary logistic regression. It is found that only two out of the 19 ratios significantly predict the efficiency status of the hospital with 71.4% accuracy. The results are discussed to offer an understanding that is important to the hospital managers for sustenance and efficient management of the hospitals. Also, the scope for future research is discussed and proposed in the last section of the research paper.

Keywords: Financial ratios, operational ratios, efficiency, hospital financial performance, India
3rd IIMA International Conference on Advances in Healthcare Management Services

360 Degree Performance Appraisal in Healthcare Organizations: Conceptual Framework

Santosh Kumar Sharma
Indian Institute of Management, Jammu

The healthcare sector is an emerging area which needs to be comprehended through a wide array of angles which is possible by collaborative and multidisciplinary research paradigm. Moreover, the recent surge of article and books indicate that there is a growing recognition of Human Resource Management (HRM) in healthcare organizations which implicitly motivates the scholars to become frontiers in scanning, designing, explaining, and finding relevance of HRM within the purview of healthcare management. In addition to this, the recent launch of National Health Policy (2017) by Government of India also signifies the value of human resources in healthcare context. Intertwining these backdrops in a single fabric, the present study has been undertaken to examine the relevance of 360 degree performance appraisal in relation to healthcare organizations and accordingly a conceptual framework has been developed. Data has been collected in various phases through qualitative approach which may be validated empirically by future researchers. It is strongly believed that the proposed framework will contribute in the area of Human Resource Management within specific discourse of healthcare and benefit associated stakeholders (academicians, researchers, healthcare executives, policy makers, etc.).

Keywords: Healthcare, Human Resource Management, 360 Degree Performance Appraisal

Analysis of Manhandling Cases of Medical Devices in the ICU of a Tertiary Care Hospital

Sameer Muthal, Kasturi Shukla
Symbiosis Institute of Health Sciences, Symbiosis International University, Pune

Introduction:

Medical devices in hospital ICUs constitute a major investment center. Repair/replacement costs due to Manhandling causes revenue drains which are largely avoidable. This study identifies the causes, cost incurred, lag time due to breakdown of medical devices in ICUs due to Manhandling and training needs of ICU staff.
Methods:

This observational study was conducted in a 550-bed hospital in Pune from Jan’2015- May’2016. Records of machine breakdown reports maintained by biomedical department were analyzed for cost incurred due to repair or replacement of devices/accessories/parts. Reasons for Manhandling were enquired through questionnaire and short interviews of ICU nurses and biomedical staff. Machine breakdown due to unavoidable incidents were excluded. Further, we prepared Instrument handling guidelines; proposed an ergonomically sound patient bed area; and conducted training of ICU nurses. Subsequently a post training assessment was done.

Results:

More than INR 4, 63, 000/- worth of accessories/parts/devices were replaced due to device Manhandling. Monitors and syringe pumps were most prone to breakdowns due to Manhandling. The average time lag for solving a breakdown problem was 24 hours (minimum=5 minutes, max=11 days, 3 hours). The leading causes for Manhandling were ignorance, carelessness, lack of training, improper ergonomics and improper placement of devices, stress and fatigue. Post training assessment showed that Manhandling incidents reduced to less than 50%.

Discussion & Conclusion:

Regular training of ICU staff, and incorporating ‘Instrument handling guidelines’ as a part of induction program for new staff will reduce device Manhandling. Unplanned expansions should be avoided and patient bed area should be properly planned.

A Comparative Study of Pricing and Other Policies in Selected Hospitals in Delhi and NCR.

Kasturi Shukla, Nidhi Gagneja
Symbiosis Institute of Health Sciences, Symbiosis International University, Pune

Study rationale and coverage:

Un-regulation in hospital industry is a well-known fact as every organization defines their own market driven Schedule of Charges (SOC) and other organizational policies. Impact of regulation in hospitals needs to be studied as the cost is loaded ultimately on patients. This is contradictory to the concept of right to health and no longer leaves health care as affordable and accessible.
Objectives:
This study comparatively analyzes tertiary hospitals in Delhi and NCR region across various parameters to evaluate the heterogeneity in pricing and policy framework of hospitals.

Methodology:
The comparative analysis of hospitals in the specified catchment area of Delhi and NCR region was done from May’ 2016 to August ‘2016. Data on parameters like type of hospital, number of beds, accreditation and distance from catchment area was collected and compared. Subsequently in second round some hospitals were screened out and remaining was compared for tariff and SOC. In third round, further screening of hospitals was done and further comparison was done on HR & leave policy, reimbursement policy and employee matrix.

Result:
The bed strength varied from 45 to 1250. 56.25% hospitals had no accreditation, 18.75% had NABL accreditation, 37.5% had NABH accreditation and only 6.25% had JCI accreditation. OPD consultation varied from Rs. 350/- to Rs. 1500/, bed charges varied from Rs. 3360 to Rs. 5500 per day. Variation of almost 100% existed for prominent procedures like Total Knee Replacement (TKR), Total Hip Replacement (THR), MRI-Brain, Delivery C-Section, Endoscopy, and Angiography. Annual leaves varied from 30 to 52 and no accommodation was provided to staff by any hospitals included in the study.

Significance:
This analysis helps in understanding the existing un-regulation in hospital market scenario. All these factors have strong and direct impact on service quality and in turn on bottom line of hospitals. The discrepancies in healthcare system highlights the importance of regulation, standardization.

Keywords: Health, hospital, Lack of regulation, pricing, policy framework.

A Community Perspective in Maternal Health Program in a Tribal Area of Odisha, India

Ranjit Kumar Dehury
Goa Institute of Management, Panaji, Goa

Introduction:
This paper provides an account of the challenges faced by tribal pregnant women in accessing reproductive health care services. It takes a critical position and argues that the uniformly
designed public health services barely suit the tribal populace who has different ethnic identities and socioeconomic conditions. In the context of Jaleswar block where tribal population constitutes the majority of the population, this study tries to figure out how tribal families become vulnerable within a ‘homogenized’ public health care structure.

Methodology:
Both primary and secondary sources of data collection were adopted. Various tools and techniques were used according to the scientific requirement of the study. Primary data was collected by using both quantitative and qualitative methods. Focus Group Discussions (FGDs) and Key Informant (KI) interview techniques have been used to collect information regarding program implementation of JSY at Jaleswar. Secondary data have been analyzed to understand the effectiveness of government policy in the improvement of maternal health.

Findings:
Field study indicates that despite an elaborate program of action, community perception and trust on bio-medical procedures are still very low among the tribals and much need to be done to win the confidence of the community. Adoption of the ‘clean delivery practices’ during home delivery by trained personnel (known as Skilled Birth Attendants or SBAs) is not followed which often causes septicemia. Further, the SBAs are not widely available for the services in the community.

Conclusion:
The maternal health program implemented by the government hardly considers tribal specific culture and beliefs in the delivery of services. The tribal women face challenges within the family due to taboos in the community and are also excluded from the services of the government due to lack of accessibility and acceptability of maternal health programs. To cater to the health needs of the tribes, there is a need to modify the program according to local requirements.

Keywords: National Rural Health Mission, Tribal Health, Reproductive Health, Health Policy, Women’s Health
Improving Access to Low Cost, Quality Medicines in India: A Case Study

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Introduction:
About 65% of the population in India lacks access to essential medicines. The main source (70%) of health funding is out of pocket (OOP) expenditure, of which 66% is spent on medicines alone. The Government of Delhi implemented a drug policy based on the essential medicine concept in 1994, with the aim to make a limited list of quality medicines available at all health facilities (HF).

Objectives:
To 1) evaluate the impact of the drug policy on availability, accessibility, costs, quality, and rational use of medicines; 2) identify reasons for the outcomes

Design:
Operational field, randomized study.

Setting:
National Capital Territory of Delhi (area 1483 km2), 43 public HF distributed across all districts of Delhi, primary(35), secondary(5) and tertiary(3) level of health care.

Policy change and intervention:
Preparation of essential medicine list (EML), establishment of a pooled procurement system and quality assurance system for medicines and training of health professionals in rational use of medicines (RUM).

Results:
Availability of medicines improved with 91.2% of prescribed medicines being dispensed. Accessibility to medicines has improved in terms of proximity of the patients and time taken to reach HF, expenditure incurred to reach HF, and availability of medicines, but only 8% of patients had complete knowledge about how to take the prescribed medicines. The total costs of medicines have decreased by 33%. The quality of medicines has improved with the percentage of medicines failing quality testing decreasing from 1.45% to 0.13%.
Prescribing of medicines from the EML has increased, (from 77% to 94.6%) and antimicrobial use decreased, (from 66% to 51%). However, use of generics has decreased, (from 35% to 18%), and 80% of prescriptions were not written completely.

Conclusion:
Implementation of essential medicine policy improved availability, accessibility costs and quality of medicines. Rational use of medicines requires improvement.

Regulatory interventions bring about faster changes in comparison to educational interventions that require behavioral changes to make an impact. Adoption of drug policies by the States, based on essential medicine concept may help improve access to medicines in India.

CMHS/IC-17/017

Identifying Factors of Indian Health System and their Influence for Providing Good Customer Care

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Background:
Customer relationship management is important for any service industry as a satisfied customer is likely to remain loyal, spread publicity through way of mouth thereby ensuring profits to the organizations. Healthcare is an important and fast growing service industry in which patient is the customer and maintaining good relationship with them is highly profitable for the patient, the care provider as well as the policy makers. Good customer relationship comes from an understanding of patients’ expectations and what factors lead to patient satisfaction. World Health Organization in its report in 2000 introduced the Concept-Responsiveness, which deals with ‘meeting the universal, legitimate expectations of the patients’. It has eight elements - Autonomy, communication, choice of care provider, confidentiality, dignity, quality of basic amenities, prompt attention and social support.

Objective:
To identify factors related to patients’ expectations, satisfaction and hence good customer relations in Indian health system.
Methodology:
A survey questionnaire was distributed among 415 people including patients and attendants. 379 people responded and total 358 responses were used for analysis. The respondents were surveyed in OPD’s of private and public hospitals in the months of February to April 2017 in Chandigarh and two adjoining districts of Punjab and Haryana i.e. Mohali and Panchkula respectively. It shows the influence of Patient expectations on CRM in hospitals. This hypotheses model was tested by structural equation modeling.

Results:
The results show significant influence of patient’s expectations on customer relationship. The factor confidentiality and communication emerged out to be most significant for Indian patients in building the good customer relations.

Keywords: Hospitals, Patient’s Expectations, Patient’s satisfaction, Responsiveness, Customer relationship

CMHS/IC-17/019
Bridging Healthcare with Wellness Tourism in India
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Background/Objectives:
The intent of this paper is to perceive how factors such as Social Wellness, Emotional Wellness, Ayurvedha Treatment and Travel Motivation influence Customer Satisfaction of clientele in Chennai’s to bridge the gap of Health and Wellness Tourism sector.

Methods/Statistical Analysis:
The paper uses multivariate statistical techniques to decipher the motive behind the utility of Health and Wellness Tourism.

Findings:
The results of the SEM show a very strong relationship between the different variables. The independent variables are Social Wellness, Emotional Wellness, Ayurveda Tourism. The dependent variables are Customer Satisfaction and Travel Motivation.
Applications/Improvement:

This paper tries to find the relationship of tourism with wellbeing. New research is emerging on the relationships between tourism and subjective well-being. With this trend in other countries we researcher studied the aspect of wellbeing in our Indian conditions.

Keywords: Social Wellness, Emotional Wellness, Ayurveda Treatment, Travel Motivation, Customer Satisfaction.

Medical Value Travel: An Overview of International Patients in JCI Accredited Hospitals of Delhi, India

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The Medical Value Travel industry has emerged as one of the fastest growing segments of tourism industry. Medical Tourism is an emergent phenomenon that entails economic benefits and healthcare concerns. The study intends to perform a comparison among three hospitals (Apollo group of hospitals, Max Healthcare and Fortis Healthcare) in Delhi/NCR based on the countries from where they treat patients and the services these foreign patients receive in the national capital. Furthermore, the study tries to bring out an analysis on the marketing strategies used by these hospitals with respect to international patients. To bring about this study, data from primary and secondary sources was used. In primary data, data from international patients and a few facilitators was taken. The aim of personal interview was to find answer to questions such as marketing strategies for international patients, specialties which see maximum patient load, cost incurred, number of patients seen by the facility and overview of contribution of international patients in hospital income. Data collection was done by informally searching official websites of respective hospitals and accessing the annual reports and investor’s presentation so available. Reports on Medical Tourism as published by Mckinsey, IBEF, ASA & Associates and Ministry of Tourism were also scanned for literature. The results from the study call Apollo to be the market leader in medical tourism market followed by Fortis and Max. International patients receive almost similar kind of services in all the hospitals and every hospital is trying its best to be the leader in the field.

Keywords: Medical Value Travel, International patients, Delhi, JCI Hospital
Impact of Demographic Variables on Employee Loyalty in Indian Private Hospitals

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According to Indian Brand Equity Foundation (IBEF), Healthcare is a largest sector in term of revenue as well as employment. Healthcare is like a tree which has many branches such as hospitals, health insurance and medical equipment etc. Demand for good healthcare services is keep on increasing not only in urban areas but also in rural areas and this demand is being fulfilled jointly by public and private enterprises. Hospitals are the example of high contact service industry and very complex among all service organizations. Direct supervision to employees is more difficult in fastest growing service sector. Organization behaviour research has mentioned that employee attitude very crucial for organization effectiveness. Therefore, employee loyalty is necessary to imbibe great motivation, increase employee engagement, gives key competitive advantage, and helps to retain loyal customer.

The present study examines the impact of demographic variables (age, gender, education, marital status) and employment related factor (No. of years worked for current organization, nature of work and total work experience) on perception of reasons for being loyal. Ineson et al., (2013) has given 21 items for measure the perception of reasons for being loyal. For this study, response has been taken from 100 middle and lower level employees of National Accreditation Board for Hospitals and Healthcare Providers (NABH) accredited hospitals in Uttarakhand. ANOVA and independent samples t-test are performed to analyze the data. The results of the study exhibit that reasons for employee loyalty are not affected by gender, age, education and it is also not affected by total work experience. However, it is influenced by one demographic variable which is marital status of respondents and by two employment factors such as no. of years worked for current organization and nature of work.
Mortality to Incident Ratio (MIR) for Three Major Cancers (Lungs, Mouth, Prostate) Among Males Based on Indian Cancer Registries and its Correlation with Health and Socio-Economic Indicators

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The global burden of cancer continues to increase because of several factors like aging and adoption of behaviors which are known to be risk factors for development of cancers. With estimated 14.1 million new cases and 8.2 million deaths annually, Cancer is one of the leading causes of mortality and morbidity worldwide. The study intended to analyze trends of incidence, mortality and mortality to incident ratio for three major cancers among males from Indian cancer registries and association with different health and socio-economic indicators in India. Study is based on secondary data extracted from 27 Cancer Registries of India. Mortality was predicted by using liner regression. Data analysis was done using Descriptive statistics (graphs, tabulation) and inferential statistics (regression analysis, Karl-Pearson Correlation) using SPSS version 21.0. The results indicated an association was found between MIR and literacy rate. Mortality to incidence ratio and Literacy rate were significantly correlated (p less than 0.05) with an $r=0.475$. Both the variables were found to be positively related with moderate strength.

Keywords: Population based cancer registries, Incidence, Cancer Male, regression analysis
Impact of Socio-economic Indicators and Lifestyle on Cardiovascular Disease Risk Profile: A case control Study

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Cardiovascular diseases (CVD), primarily coronary artery disease and stroke, are the leading causes of death and disability in both developed and developing countries. Till recently, major thrust of control measures was on the so called “hard risk factors”, notably hypertension, diabetes, high cholesterol level, and smoking. Many studies have now pointed towards the rationality of targeting the “causes of the cause”, i.e. the soft risk factors that alter the risk profile of an individual towards developing CVD. Ironically, most, if not all, of the risk factors are amenable to being reversed or modified as majority of these factors are determined by the lifestyle an individual follows. It is also being increasingly recognized that apart from individual characteristics, community and other socio-economic factors also have a bearing on both, prevalence, and distribution, of the modifiable risk factors in a geographical region.

Amongst the developing nations, it is the people of Indian Asian descent that account for one fifth of the world population. And it is this “Asian Indian Phenotype” which is predisposed to developing diabetes and premature cardiovascular disease (CVD). This is because of prevalence of a combination of clinical, biochemical and metabolic abnormalities. This particular predisposition in Indian Asian population, combined with the socioeconomic milieu specific to the developing world, thus imposes a dual cardiovascular disease burden. The present study, with a case control design, was undertaken to highlight the association between the socioeconomic indicators and modifiable lifestyle and medical risk factors of CVD. There was a significant correlation between the prevalence of nine potentially modifiable risk factors and socioeconomic indicators, highlighting the reverse social gradient that India is going through.

Keywords: Social determinants, lifestyle, Myocardial Infarction, Risk factors
Study on Intention to Use of Fitness Tracker Bands (FTB) using Unified Theory of Acceptance and Use of Technology (UTAUT) Model.

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Quantifying the parameters of health using innovative technology of Fitness Tracker Bands to monitor the activities that positively promote health is a lucrative idea. Irrespective of its potential to generate big data for health monitoring, wearable Fitness Tracker Bands’ market is at a nascent stage in India right now. UTAUT model has demonstrated usefulness in analyzing the influencing factors for use of technology. However, in the context of Fitness Tracker Bands very little efforts had been done to determine the factors affecting the intention to use it. This study attempts to investigate intention to use Fitness Tracker Bands in adult population using key dimensions of UTAUT model on an empirical level, namely Performance expectancy (PE), Effort expectancy (EE), Attitude towards using technology (ATT), Social influence (SI), Value of money (V) and validated 185 responses. Performance expectancy was found to have considerable influence on the intention to use Fitness Tracker Band. Further investigation of the influence of demographic variables as moderator variable on the acceptance of use with respect to key determinants of UTAUT model found that the social influence was the only factor which showed statistically significant difference between genders. It is expected that this research will shed new light on perceived usefulness as a basic concept underlying intention to use Fitness Tracker Bands in adults with the context of the Fitness Tracker Bands as health monitoring devices in a digital environment.

Keywords: Fitness Tracker Bands, Unified Theory of Acceptance and Use of Technology model (UTAUT), Intention to use, wearable devices.
Leprosy Related Stigma and Associated Factors: A Cross Sectional Study in General Community of Delhi.

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As per WHO report, India is looked upon as Global Leprosy Centre because of its annual contribution of 60% cases. After claiming eradication in December 2005, there is a change from active surveillance of leprosy detection to self-reporting by the patient. In 2016, the total numbers of new cases have gone up by 1.22% with grade 2 disabilities showing a spurt of 63%. During massive leprosy detection campaign, more than twenty thousand hidden cases were detected in the month of September-October 2016. Numbers of new cases in Delhi are also rising. It is observed that delay in self-reporting and dropouts during treatment affect the overall Government efforts. The non-reporting/delay in reporting is due to multiple factors, stigma being one of them. This study was undertaken to analyze the factors contributing to stigma in the general community and to study their impact on the life of leprosy affected population of Delhi. This cross sectional descriptive study was conducted using mix method approach. Triangulation technique was incorporated to validate quantitative data with data obtained from qualitative approach. At the commencement of the study 260 people were approached, of which 246 gave a completed response (including both quantitative and qualitative responses). The study resulted in quantifying four reasons of stigma i.e. Awareness, Knowledge, Attitude and Fear among general community. About 86% community was generally aware of leprosy, whereas specific awareness regarding cause and transmission was found only in 59.2% and 17.1% of the respondents respectively. Though 48.9% population shared their willingness to work with leprosy patient, 50.7% gave a mixed response about the same. 15.8% people brought out that isolating such patients is essential, the idea which was opposed by 38.8% population. This discrimination by the community as well as self-discrimination by the patient resulted in an overall lowering of quality of life including difficulties after full cure or during rehabilitation phase.

Keywords: Awareness, Attitude, Discrimination, Fear, Knowledge, Life, Quality.
CMHS/IC-17/42

Technique and Assessment of Ethical & Privacy and Web Content for Ehealthcare System in Developing Countries.

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Introduction:
Application of electronics and communication technology in existing healthcare system holds the potential to facilitate health services. However, the government and all stakeholders of the healthcare system have concern over misuse and protection of rights under proper established system. This paper is proposing a methodology to deal with such aspect.

Methods:
Considering privacy, ethics & web-content, we are formulating relevant policy and also a quality assessment tool, organizing all within the domain of e-Healthcare System. The proposed procedure consists of a structured, comprehensive questionnaire with component of privacy, ethics and web-content under Section-A and B. The technique has been evaluated by 67 experts of medical specialists on a Likert scale.

Results:
Data consists of 47.8 percent females & 52.2 percent males. 94.03 percent of all, have postgraduate and above degree with 9.98 (SD=7.20) average years of work experience. Experts have almost 80 to 85 percent agreed on 95.52 percent of proposed contents and 15 to 20 percent response were otherwise on remaining content. Further analysis shows that experts are biased on those questions, proposing binding on them. Cross tab analysis at the 5 percent level of significance reveals influences of gender, work experiences, designations on responses in few cases.

Conclusions:
Results obtained through the proposed technique to show the significance of the contents, in expert consensus (95.52 percent) and thus could provide a basis for developing countries in
framing worthy policy for protecting the rights of patients and doctors and regulating other stakeholders for better utilization of the e-healthcare system.

Keywords: Web content, Medical specialist, Policy, Quality assessment tool

CMHS/IC-17/44

Stochastic Priority Queuing Model with Encouraged Arrivals for Managing the Healthcare Facility

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When a disease outbreaks in a particular area, large number of patients tend to visit doctor in nearby locality for immediate consultation. This sudden increase in the number of patients of what is normally expected in that locality is referred to as encouraged arrivals in this paper. In the clinic such patients are given priority over the other patients, as if delayed, condition of such patients can get worst and infection may spread more rapidly. Hence there is a need to design strategy in advance for smooth administration and effective functioning of the clinic, which can be done efficiently if performance of the system can be measured with some probabilities in advance. A concrete platform for measuring performance of the system can be produced by developing a stochastic mathematical queuing model.

Hence in this paper, we develop a stochastic priority queuing model with encouraged arrivals, addressing all practically valid aspects of healthcare management in the case of sudden outbreak of some specific disease as mentioned above. The model helps any healthcare facility to understand its performance well in advance theoretically. These theoretical results can help in better management and less chaos after outbreak of some specific disease.

Keywords: non-preemptive priority queues, encouraged arrivals, stochastic models, queuing theory, healthcare queuing model
CMHS/IC-17/49

Medicine Dispensing: A Comparative Study of Technology Intervention Vis a Vie Attendants using Dmaic Approach

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Medicine dispensing has evolved over time from human to the automated drug dispensing machines. The study aims to compare human delivery and a technological intervention-pneumatic transport system delivery using a quality tool-DMAIC to identify its efficacy in reducing medication turn-around time. The study used a pre-test and post-test design. To rationally rule out cause of failure Ishikawa, Pareto are used and Student t test to quantify and analyze the data acquired. The study was conducted in a 300-bedded hospital in tier-II city for 2 months. The pre-test results showed only 3-minute difference between human and technological delivery. With eliminating the delays, assigning duties to defined person, training the personnel for use of technology has marked the improvement and implement phase of the study thereby reducing medication turn-around time (TAT). The results suggested that technology intervention had reduced medication TAT to 64%, in a post-test study of 100 samples of combined deliveries. Installing new technology should be combined with human training and comparative improvements in process and monitoring to attain best results.

Keywords: Medicine Dispensing, Technological Intervention, Pneumatic Transport System, DMAIC

CMHS/IC-17/51

Service Marketing of a Fertility Clinic at a Tertiary Care Hospital Evaluation of Factors and Impact of Strategies to Improve Utilization of Services Offered

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Infertility affects nearly 10 -15 % of individuals in the reproductive age group. In India, around 13 – 19 million people face infertility problems and approximately 8% of these require advanced treatment modalities. This study aims at devising and implementing marketing strategies to
improve the utilization of a fertility clinic in a tertiary care hospital. The marketing strategies would be based on, identification of the factors from patient’s and doctor’s perspective when making a choice. It also includes evaluation of costs of treatments and market position and developing competitive pricing strategies. The study is a mixed method research using both descriptive – quantitative and descriptive – qualitative aspects. Purposive sampling was done for both groups. 80 patients who completed the treatment cycle, 24 gynecologists affiliated to the clinic and 43 patients attending the fertility camp responded to the questionnaires. Patients searched for options by asking their gynecologist/ family/friends, searching for information in newspapers and the internet. Patients choose a fertility clinic based on the reputation of the clinic, fertility specialist and reference of their gynecologist. Majority of the patients found the price for treatments acceptable, more so during the camp where the revised pricing was offered with additional discount. The gynecologists value the “Doctor-Patient connect” and expect their patients to be referred back to them for antenatal care. 75% of the gynecologists opined that the revised pricing policy was more competitive. The fertility and IVF clinic under study has a cost leadership advantage and the defender posture should help in gaining market share in the fertility treatment space.

Keywords: Infertility treatment, In Vitro Fertilization, Marketing strategy, Market position

CMHS/IC-17/52

The Effects of Employee Engagement in the Healthcare Industry

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Employee engagement is a concept that has gained considerable popularity in recent years. Research conducted in the healthcare industry has shown that employee engagement can be used as an indicator to predict outcomes for several factors including: patient safety, patient satisfaction, and employee retention. It has been found that high levels of employee engagement lead to positive while low levels of employee engagement have been found to produce negative outcomes. The effects employee engagement has on the three factors referenced above have the potential to have a positive or detrimental effect to an organization’s function, healthcare expenditures and image. More importantly the effect employee engagement has on those three elements has the potential to positively or negatively directly affect patient care. This literature review explores the effects employee engagement has on patient safety, employee retention and employee turnover. The information found in this literature review is significant to public health because the results demonstrate that employee engagement strategies can be used to improve patient safety and health within healthcare organizations and to reduce negative effects on patient care.
Keywords: Employee Engagement, healthcare industry, patient safety, patient satisfaction and employee retention.

CMHS/IC-17/53

Role of Knowledge Management in Enhancing Learning and its Impact on Hospital Performance in Public Sector

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Healthcare has been identified as one of the key service sectors and an area that is poised for significant growth in the next few decades. Due to this, healthcare sector is undergoing tremendous transformation and is in the state of continuous change. The major objective of this study was to explore the Knowledge Management scenario in healthcare organizations in India. This involved an exhaustive study of the various Knowledge Management strategies and activities used by the respondents. The study also assesses the impact of knowledge management practices on organizational learning and the impact of Knowledge Management and Organizational Learning on Hospital performance. The research was conducted on three main government hospitals – AIIMS (Delhi), PGIMER (Chandigarh) and GMC (Jammu). For this research the primary data was collected from Doctors (Faculty Members) of the chosen hospitals. Regression and Correlation analysis revealed that Knowledge Management and Organizational Learning were significantly related. Knowledge Management and Organizational Learning show a strong linear positive correlation in this study. The regression analysis indicated that Performance of a hospital is a function of Knowledge Management and Organizational Learning. Thus, this study adds to the literature which recognizes improvement of performance of an organization through better management of knowledge assets and increased Organizational Learning. The study provides a good understanding of factors that influence Knowledge Management to improve performance of the hospitals. Organizational Learning was found to be an important intermediate outcome of Knowledge Management which contributed significantly to hospital performance. The present study contributes to the field of Healthcare Knowledge Management with special reference to public sector hospitals in northern India.

Keywords: Knowledge Management, Organizational Learning, Hospital Performance, Healthcare management.
A Study on Perceived Satisfaction of Medical Services

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A unique echelon of patient-driven health care services is emerging to be additive and extends traditional healthcare models and empower patient to make decisions on their self-care aspect. Patient-driven health care system posturing several factors such as increased level of information flow, customization, transparency, choices, predictive and preventive facet ensue in potential improvement of traditional health care system and enhance new services in the health care industry. Adding to the competition and cost in the healthcare industry is the recent rapid increase in usage of this patient-driven healthcare system. This study broadly studies the markets of a hospital, thereby the needs, expectations and preferences of people. The preferences of the people change widely with respect to income, availability of quality services, access, cost, hygiene, facilities et al. The main aim of the study is confined to find out the most telling factors and the relationship between them in order to improve the facilities in the future thus following the patient-driven technique.

Keywords: Healthcare Industry, Existing Customers, Customer Satisfaction.

Digital for Ensuring Healthcare for those Living at the Bottom of Economic Pyramid – Proposing a National Level Initiative on the Lines of Mukhyamantri Amrutum Yojana of Gujarat

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Indian government has a vision of achieving universal health coverage (UHC) by 2022, and it has taken a number of initiatives to achieve this vision. One major thrust has been on creation of a vast public health infrastructure. There is a wide spectrum of activities that the government is undertaking simultaneously to achieve this objective of UHC. If we slice and dice the complex
structure of UHC, we find that one of the key imperatives for the government is to ensure access to tertiary healthcare services to the people living at the bottom of economic pyramid (BOeP). It, indeed, is a big bottleneck in the achievement of the UHC objective.

The paper presents a case study on a Gujarat government initiative – Mukhyamantri Amrutum (Vatsalya) Yojana. This case study would help us understand the concept of “access to tertiary healthcare services by the BOeP population”. The study would highlight what gaps MA(V) Yojana addressed in Gujarat and how these are relevant not just in one state rather in the entire country. The authors also present a case for national scalability of this initiative and propose key considerations for designing an initiative on the line of MA (V) Yojana.

Keywords: Universal Health Coverage (UHC), Tertiary Healthcare services, Digital Governance

Product Concept Testing of Health Care App: A Special Reference to Wrizto Health App

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Healthcare informatics is accelerating towards digital environments and despite the wealth of available information, these healthinformatics is localized and fragmented. Wrizto healthcare ecosystem (wrizto) has attempted to bring consumers, care providers and financiers on a single digital platform to enable transparent, secured and last mile healthcare service delivery.

The survey was conducted in three cities across consumer demography consisting of age, gender, income, family status, lifestyle and profession. The parameters to measure the product acceptability were; perception towards need for family health and fitness, healthcare practices, need analysis, customer awareness about the product and technology and customer readiness to adopt product.

The aim of the study was to assess market viability of wrizto product and team’s findings reveals more than 50% of the respondents express their willingness to adopt wrizto. Indicating positive market opportunity for similar solutions.
Role of Healthcare Quality in Improving Patient’s Satisfaction at Private Hospitals in India

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Determining the factors responsible for patient satisfaction is an important topic for the interest of healthcare providers. Healthcare is among the largest sectors of India in terms of revenue involved and employment opportunities. In this study different constructs has been covered under the six dimensions for measuring patients’ expectations as well as satisfaction. On the basis of these variables this study has been conducted and with these constructs a structural equation model has been developed for evaluation of service quality in the private hospitals in India. This study was conducted to understand the patient’s perception about the quality of services provided in the Private Hospitals in India. To achieve the research objectives a closed ended questionnaire was administered as a survey instrument in this study. Findings of this study showed that doctors have genuine concerns for patients. Doctors as well as nurses pay attention to provide care to patients. Doctors’ and staff qualifications and their expertness in the field, well equipped labs and producing exact results have a positive impact on healthcare quality. All the above findings of the study indicates that service quality provided in private hospitals in India is meeting patient’s expectations. Private hospitals are putting maximum efforts for providing comforts to patients. The results of this study can be used by other private hospitals also in India for redesigning and improving the process of quality management. Further study can be conducted to cover other private and public hospitals for checking quality of healthcare.

Keywords: Healthcare Quality, Patient Satisfaction, Private Hospitals