GH 301

Health Analytics and Management Comprehensive Summary

1st Edition

Josh B. Collins, FSA, MAAA

An SOA Exam

Actuarial & Financial Risk Resource Materials

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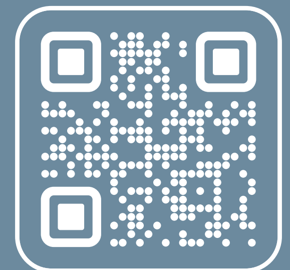

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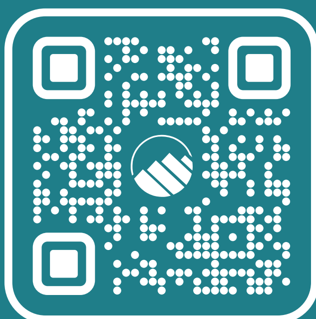

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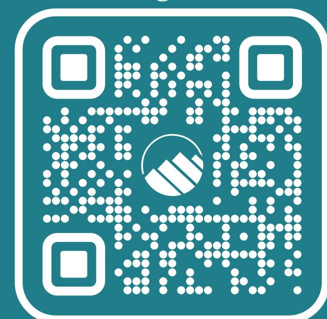

NOTES

This comprehensive summary is design for the GH 301 – Health Analytics and Management (GH 301) fellowship exam administered by the Society of Actuaries (SOA).

The comprehensive summary includes summaries of each of the resources listed in the GH 301 syllabus including the study notes, online readings, textbooks, videos and module content with an assigned learning objective. Note, the first two resources on the syllabus are provided as *background* material and summaries are not included in the comprehensive summary; however, links to the SOA videos are included and recommended to be watched as you begin your studying.

Additionally, Topic 4 (Medical Data) and Topic 6 (Predictive Analytics) are provided as eLearning modules. Although, this comprehensive summary includes this material, I recommend you also work through the eLearning modules directly. You can register for free for the eLearning modules through the SOA's website here:

https://store.soa.org/?returnurl=%2fMeeting-Registration%2fproductid%2f028202

Every exam taker will have their own preference in approaching the material. The comprehensive summary is ordered by the topics and resources provided on the SOA syllabus, but the SOA also provides an additional strategy guide with an alternate recommended order for reviewing the resource material. The SOA guide also highlights certain sections in yellow for emphasis:

https://www.soa.org/globalassets/assets/files/edu/2025/fall/strat-guide/2025-11-gh-301-strat-guide.pdf

Although I have made every effort to provide a comprehensive overview of each resource and eliminate errors, issues may exist. I encourage students who find errors to bring them to my attention and I welcome any other feedback.

I wish you the best of luck on your exam success!

Josh B. Collins, FSA, MAAA

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Topic 2

Disease Management (20 %-30 %)

Learning Objectives

The candidate will understand how to evaluate healthcare intervention programs.

Learning Outcomes

The candidate will be able to:

a) Describe, compare, and evaluate programs

b) Estimate savings, utilization rate changes, and return on investment

c) Apply the actuarially adjusted historical control methodology

d) Calculate chronic and non-chronic trends in a manner that reflects patient risk

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MANAGING AND EVALUATING HEALTHCARE INTERVENTION PROGRAMS, DUNCAN, 2ND EDITION, 2014 - CH. 3 CARE MANAGEMENT PROGRAMS AND INTERVENTIONS

Care management methods

1. Pre-Authorization
    a. Requires that the provider obtain approval prior to performing a service
    b. May be required for claim payment approval and discharge planning for services that were not pre-authorized (i.e. emergency admission)
    c. Applies to procedures that have high cost and utilization, for safety/quality reasons, and ensures requested services are appropriate
2. Concurrent Review
    a. Monitoring of care while it is being received in an acute hospital or nursing home
    b. Usually performed by a utilization review nurse
    c. May be performed by a physician located in the hospital who coordinates the members care (hospitalist)
    d. Enables improved outcomes and lower costs (i.e. lower length of stay)
3. Case Management
    a. Health care professional coordinates care across multiple providers and care settings for a member who has a serious disease or illness
    b. Generally begins with planning of post-hospital care during the hospital stay (discharge planning) and continues after the hospital stay
    c. Case manager is a nursing professional (registered nurse, licensed practical nurse)
    d. Involves services outside the acute hospital setting
    e. Caseloads are small and the duration of services are long
    f. Case manager can authorize alternative treatments (extra-contractual benefits)
    g. Case manager may be limited to recommending alternatives to a patient or provider if they are not given the authority to control access to resources

   h. Work can be difficult due to a wide range of treatments and responses and varying quality and quantity of medical resources

4. Demand Management
   a. Represents an informational intervention generally provided by clinical staff over the telephone
   b. Includes nurse advice lines to address episodic (often acute) illnesses
   c. Objectives
      – Determines whether a medical condition requires immediate care
      – Ensures that the initial diagnosis and information provided to a member is consistent with care quality standards
   d. Shared decision making
      – Information on care alternatives is provided by nurses to a member who is making a major medical decision
      – Allows for informed decision making
   e. Consumer clinics in a pharmacy provide similar initial diagnostic services as nurse lines and provide other clinical services (i.e. screenings, preventive services)
5. Disease Management
   a. DM focuses on chronic conditions that have characteristics that make the conditions ideal for clinical interventions

      These characteristics include
      – Disease persists for the remainder of the members life
      – Disease is manageable with drug therapy and lifestyle change
      – Member takes responsibility for their condition (selfmanagement)
      – Chronic cost is high relative to the cost to manage the condition and the expected cost due to not adhering to the treatment is large
   b. System of coordinated health care interventions and communications that emphasizes preventing worsening of conditions and complications
   c. Focuses on the following chronic diseases (and others)
      – Coronary artery disease
      – Diabetes
      – COPD
      – Asthma
      – Heart failure

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    - Other (i.e. diseases of kidneys, depression)

  d. Chronic population represents a major source of plan costs and an opportunity for savings by intervening in the members care

  e. Disease management is limited by issues

     These include

    - Lack of a complete list of conditions that are defined as chronic
    - No agreed upon criteria to identify the presence of a condition

  f. Programs generally are provided telephonically via a trained nursing professional over a period of time

     Conditions which makes the approach ideal include

    - Large population to manage
    - Treatment exists (i.e. drug therapy) that allows for member selfmanagement of their care

  g. Programs include educating the member as the program requires the member to actively manage their care

  h. Programs require strong outreach efforts to contact and enroll members and change the member's behavior

  i. Whole person model is applied in which all conditions of the member are managed by the DM program (i.e. Population Health)

    - Population health approach also focuses on the member's health over time

  j. Programs are mostly patient focused and may contain a provider focused element

     Approaches include:

    - Providing the member with information to share with their physician
    - Critical issues of the member are communicated to the provider (i.e. gaps in care)

6. Specialty Case Management

  a. Performed by a care manager (Specialty Case Manager)

    - Has expertise in a particular area (i.e. mental health, oncology)
    - Has primary responsibility for coordinating care

  b. Intervention is carved out by the plan to specialty case management company that has networks of specialists or centers of excellence

  c. Approach may rely on concurrent review, case management, and DM techniques due to the many types of illnesses and levels of disease severity

7. Population Health Management

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a. Entire membership of the health plan is evaluated to identify potential high cost patients
b. Differs from Disease Management in that this approach does not focus on members with a targeted condition
c. High cost members are identified via statistical tools
   - Predictive modeling is based on medical or drug claims
   - Health risk assessments to identify diseases and risky behaviors
d. Programs provide education and other information to the target population in order to make members more aware of and better managers of their condition
e. Patients are tracked using nurses or other clinical experts
f. Emphasis is on wellness, prevention, or early detection of disease via educational services or health risk appraisals
g. May also include population wide programs (i.e. programs that target disease prevention thru immunizations, weight loss, smoking cessation)

8. Care management models that have been revised

   Most programs have shown little of no improvement in quality of care.

   a. Practice transformation models (i.e. chronic care model, Medical Home model)
   b. Embedded Care Manager models
      - Care manager placed in a physician's office coordinates care of high risk members
   c. Transition models
      - Targets members who transition between care levels and intensities
   d. External Care manager and Team-based care models
      - Target conditions as well as other issues (i.e. literacy of the member)
   e. Palliative care
      - Targets improving quality of life (i.e. end of life care)

9. Provider-focused intervention programs
   a. Pay for Performance programs (P4P)
      - Clinical quality targets are established for physicians
      - Bonus is paid to providers if an absolute level of a clinical measure or improvements in the clinical measure over its baseline value are achieved (i.e. target level for blood sugar)
      - Program does not indicate the manner in which the physician is expected to attain the targets

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b. Medical Home model (Patient-centered Medical Home)

- Physician organizes the testing, education, and overall care coordination for members
- Program relies on the primary care physician
- Principles that are required to establish the Patient-centered Medical Home (PCMH)
    i. Personal physician provides care
    ii. Physician directed medical practice that is responsible for the members ongoing care
    iii. Appropriate care is arranged with all qualified professionals for all life stages (Whole person orientation)
    iv. Care is coordinated and integrated across providers and the community
    v. Quality and safety (i.e. via evidence-based medicine, performance measurement, Continuous Quality Improvement)
    vi. Enhanced provider access (i.e. expanded office hours)
    vii. Provider reimbursement structure that supports this model
- NCQA Standards for Medical Homes cover the following areas
    i. Access and communication
    ii. Patient tracking and registry
    iii. Care management
    iv. Patient self-management support
    v. Electronic prescribing
    vi. Test tracking
    vii. Referral tracking
    viii. Performance reporting and improvement
    ix. Advanced electronic communications
- Difficulties in implementing the model
    i. High costs in terms of time and effort with patients and in terms of the required supporting infrastructure

        3rd party care management vendors are beginning to provide the required infrastructure.

    ii. Physician may be unable to manage the care coordination that is required for the member

iii. Difficulty in paying providers via this program

iv. Use of other programs and interventions by payers which makes care coordination by the physician difficult (i.e. case management programs, DM programs, and wellness and coaching programs)

– Little evidence that demonstrates the model results in higher quality and lower costs

10. Accountable Care Organizations (ACOs)

a. Provider is accountable for providing quality care, improving care coordination, lowering gaps in care, lowering utilization of services, lowering cost, and influencing the member to continue to receive care within the ACO network

b. ACO is responsible for medical utilization of services by its assigned membership

– ACO develops referral networks that include high quality and low cost providers

– The member can see any provider without a referral

c. Most ACOs consists of hospitals

– ACOs need to include or be created by physicians as they impact costs (i.e. control referrals (admissions))

d. Key considerations when implementing an ACO (and PCMH)

These considerations are based on experiences with DM programs.

– High quality data analytics are necessary which includes data on services performed both within and outside of the physician's practice

– Ability of the ACO to apply the information contained in electronic medical records for decision making (i.e. targeting the high risk members for intervention)

– Ability of the ACO to achieve savings within a 3 year period

– Interventions must be focused on members who have the greatest potential for cost reductions (i.e. savings)

i. Cost reductions due to the ACO must be greater than the cost of the program to achieve savings as CMS does not provide additional funding for care coordination

– Ability to establish an economically effective intervention based on identifying the appropriate members, their conditions, and targeted program outcomes (i.e. use of an Opportunity Analysis)

e. Sources of ACO savings

– Use of care coordination to manage members who require additional services

– Lower utilization of diagnostic tests due to integrated medical records and the provider managing the members care

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- Encourage the use of a network of efficient and lower cost providers for referrals
- Lower utilization and costs due to a focus on quality (i.e. use of preventive services)

The following care management methods are discussed in detail in the following lists.

11. Non-traditional provider interventions and care settings
12. Gaps in Care and Quality Improvement programs
13. Telehealth, Telemedicine, and Automated Monitoring Systems
14. Bundled Payment initiatives

Non-traditional provider interventions and care settings - Pharmacists as healthcare providers

1. Use of pharmacist based interventions to control drug utilization, cost, and complications
2. Interventions are performed by pharmacists

   a. Drug Utilization Review (DUR) programs

   DUR programs target the following

   - Price

     i. A lower cost generic equivalent drug is dispensed instead of the brand name drug (Generic substitution)

     ii. A similar drug to the prescribed drug that is recommended by the pharmacist is prescribed which is based on payer formularies and on pharmacist clinical judgment (Therapeutic substitution)

     iii. Approaches to manage high cost specialty drugs depend on whether the drug is covered under the pharmacy benefit (i.e. via copays, prior authorization) or the medical benefit (via moving location of the delivery of the drug from outpatient to a physician office setting)

   - Utilization

     i. Prior authorization of certain drugs by the payer based on a request by the prescribing physician is required

     ii. Prior authorization criteria

       - Presence of a validated diagnosis that permits the use of the drug
       - Lab values must be submitted to ensure the drug is appropriate and safe
       - Indication of the time period that the drug will be covered
       - Indication of the dosage amount of the drug

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b. Medication Therapy Management (MTM) and other programs that target drug utilization

   See EMHC: Prescription Drug Benefits in Managed Care

   – Health plans may use targeted medication reviews (TMRs) instead of MTM for the more costly drugs

   – Many health plans require using specialty pharmacies for highcost specialty drugs

     i. Specialty pharmacy clinical programs provide guidance regarding the drug similar to MTM programs (i.e. correct dosage, side effects, storage requirements)

     ii. Specialty programs are used along with MTM

   – MTM interventions can be face-to-face or telephone/mail based

   – A MTM program may only consist of a comprehensive medication review (reconciliation) feature of the program to address drug related issues (i.e. use of incorrect drugs or dosage)

     i. This is performed prior to discharge from the hospital to prevent readmissions

   – Coordination of drug-specific interventions may be a concern for stand-alone Medicare Part D plans

     i. Where care is integrated between a PDP and an ACO, there is less incentive for an ACO to improve medication compliance via a MTM program as the ACO is not accountable for Part D costs

     ii. Where care is integrated and each plan is accountable for drug costs (or each plan is accountable for both drug and medical costs), there is greater incentive to improve medication compliance via a MTM program

        An ACO would be accountable for drug costs if a pharmacist that performs MTM is part of the ACO.

c. Pharmacist-delivered care management programs

   – Pharmacy can perform outreach (i.e. identify gaps in prescription fills and first time prescribers, provide education regarding the drug and its appropriate use)

   – Pharmacists collaborate with PCPs (i.e. regarding optimizing medications, prescribing multiple drugs, drug safety)

   – Pharmacists can perform preventive interventions (i.e. perform vaccinations)

   – Pharmacist-driven interventions have had success (i.e. resulted in lower blood sugar and cholesterol levels)

3. Medication adherence

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a. Programs target improving drug adherence
   - Counseling is performed by the pharmacist when the drug is initially prescribed to the member
b. Medication compliance (adherence)
   - Measures the degree the member complies with directions regarding the drug (i.e. dosage, frequency)
c. Medication persistence
   - Measures the length of time that the member complies with the drug therapy
d. Drug adherence measures
   - Medical Possession Ratio (MPR)

     $$\text{MPR} = \frac{\text{Number of days supply in the member's possession}}{\text{Number of days during the measurement period during which the Member could have had the drug}}$$

     $$\begin{aligned}\text{Denominator} &= \text{Last Date of Filled Prescription}\\ &+ \text{First Day of Filled prescription}\\ &- \text{Number of days supply in the last drug fill}\end{aligned}$$

   - Proportion of days covered (PDC)

     $$\text{PDC} = \frac{\text{Number of days of coverage}}{\text{Total number of days in the measurement period}}$$

   - First refill rate

     First refill rate = % of members who refill their prescriptions within 2 weeks of the expected refill date
e. The MPR measure includes all days of supply even if there is an overlap in the prescription
   - The MPR can be > 1.0 due to this measurement as drugs can be double counted (i.e. more than one drug is taken in a day)
f. PDC determines if a member had any drug on a given day during the period (i.e. if more than one drug is taken in a day it is considered as one drug for that day)
g. MPR and PDC measures do not consider if the member actually took the drug
h. Minimum threshold for the possession ratio (adherence) is 80% (and 95% for certain drugs)

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4. Evidence is limited that pharmacist interventions result in lower drug costs (although the interventions lead to improvements in quality of care)

    a. Interventions that were effective were due to changes made to the prescription or dosage by the physician and pharmacist (i.e. interventions that are used in MTM programs)

Non-traditional provider interventions and care settings - Clinics

1. Retail (Convenient care) Clinics (CCCs)

    a. Formed by pharmacy companies, hospitals, and grocery chains to provide non-urgent care to consumers (i.e. physical exams, immunizations)

    b. Majority are located in pharmacies and larger retail stores (i.e. grocery stores)

    c. Clinics are staffed by nurse practitioners and physician assistants and offer convenience (i.e. in terms of expanded hours of operation, location, no need to make appointments, lower cost, and lack of other care alternatives)

    d. Most clinics accept private insurance

    e. Quality provided by CCCs is similar to that of physician offices and urgent care centers

        – CCCs have shorter wait times compared to family practice physician offices

    f. Issues regarding clinics

        – Do services provided result in lower ER or PCP visits?
        – Is the PCP relationship disrupted by the retail clinic?
        – Do consumers shop for health care services and select the appropriate care setting based on their condition?
        – Is the retail clinic preferred due to its convenience or is it a preferable care site?
        – Is adequate preventive and chronic care provided at the clinics?
        – Is electronic health records and health information exchanged used by the clinics?
        – Is there potential for integrating care provided by retail clinics with tele-health?
        – Impact of regulation on the clinics?

2. Employer Worksite Clinics

    a. Worksite clinics offer health services at the workplace

    b. Each clinic varies based on the employer's industry and size

    c. Products offered include occupational, preventive, acute, primary care, pharmacy, disease management, dental, vision, wellness, HRA, and radiological services

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- Each market (i.e. occupational health, health and wellness) is dominated by a few companies that provide the services
- Retail and grocery stores and large hospital corporations are beginning to enter the worksite health market

d. The companies have staffs that include doctors, nurse practitioners, registered nurses, physical therapists, pharmacists, and health coaches

e. Goal of clinics is to lower medical costs, improve employee productivity, and provide convenient access

- Lower costs are based on reimbursement on a cost plus management fee basis and not based on FFS

3. Urgent Care Clinics

a. Most are standalone and are staffed by physician directed clinicians

b. Offer the full range of ambulatory services (i.e. conditions that are not appropriate to be treated at a retail clinic or at a hospital)

c. Have longer hours of operation compared to physician offices and are generally owned or operated by hospital systems

4. Federally qualified health centers (FQHCs)

a. Goal is to improve primary care services to underserved areas and to the uninsured

b. Others services that are provided either directly or via an arrangement with another provider

- Preventive health services
- Dental services
- Mental health and substance abuse services
- Necessary transportation services
- Hospital and specialty care

c. Serve as safety net providers and include community health centers and programs that provide services to migrants and the homeless

d. Provide primary and preventative health services, laboratory tests, dental and mental health services, and case management in a single care setting

e. Fees are based on income levels as a % of the federal poverty level

f. Benefits of FQHCs

- Cost-based reimbursement for Medicare services
- Reimbursement based on the Prospective Payment System (PPS) for Medicaid services

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- Medical malpractice coverage via the Federal Tort Claims Act
- Access to outpatient medications and lower costs via the 340 B Drug Pricing Program
- Access to National Health Service Corps (NHSC)
    i. The NHSC offers financial and other support to primary care providers and sites in underserved communities
- Access to no cost vaccines to children via the Vaccine for Children Program
- Eligibility for other federal grants and programs

Gaps in Care and Quality Improvement Programs

1. Major approaches to identify future high-risk members for intervention programs
    a. Analytical models (i.e. regression-based models)
    b. Rules-based models that identify areas where the treatment is not according to best-practice care (i.e. gaps in care)

    An example of a gap in care is a diabetic member who has not had an eye or foot exam (i.e. a diabetes quality measure).
2. Gaps in care programs target improvements in clinical quality
3. Gaps in care measure
$$\text{Measure} = \frac{\text{Quality measure}}{\text{Members eligible for the service}}$$
4. An issue is that predictive models and care gap algorithms may identify different members as high-risk
5. The Electronic Health Record (EHR) meaningful use initiative and ACOs are based on attaining improvements in clinical quality and reductions in gaps in care
    a. The Medicare and Medicaid EHR Incentive Programs provide financial incentives for the "meaningful use" of certified EHR technology
    b. To be eligible for an EHR incentive payment, providers must demonstrate that they are "meaningfully using" their certified EHR technology by meeting certain measurement thresholds

    Examples of meaningful use include
    - Use of the EHR to record patient data
    - Use of data transmission such as e-prescribing
    - Reporting of patient and care quality information

c. Gaps in care can be reduced based on gaps in care identification algorithms that are included in EHRs

Telemedicine, Telehealth, and Automated Patient Monitoring Systems (i.e. eHealth technology)

1. eHealth vs. Telemedicine and Telehealth
   a. eHealth represents the supporting infrastructure to improve patient outcomes (i.e. electronic medical records, patient monitoring devices)
   b. Telemedicine and Telehealth include active patient management that is supported by eHealth technology
2. Telemedicine
   a. Represents the exchange of medical information from the member's care setting to another location via electronic transmission (i.e. clinical variables, test results) in order to receive assistance in diagnosing or treating the member
   b. It enables interactions between providers and promotes more effective and efficient care to be provided
   c. Components of Telemedicine
      - Remote consultations with specialists regarding the patient
      - Remote live consultations between the patient and provider to determine a diagnosis and treatment
   d. Telemedicine services are being covered by more health plans and are required to be a covered expense in some states
   e. The use of Telehealth/Telemedicine services under the ACA

      Medicare
      - Center for Medicare and Medicaid Innovation (CMI) will investigate the use of electronic monitoring by specialists to improve inpatient care
      - Allows CMI to investigate the use of patient-based remote monitoring systems to coordinate care
      - Directs CMI to investigate the use of Telehealth services in medically underserved areas to treat behavioral health issues and stroke
      - Requires that ACOs use Telehealth and remote patient monitoring to promote evidence based medicine and coordinate care
      - Allows physicians to use Telehealth to determine the need for home health services or DME

  - Allows Telehealth to be used when reviewing MTM programs and performing subsequent interventions

  Medicaid

  - Use wireless patient technology for the health home option (i.e. to improve the care coordination and management and patient adherence to care)

3. Telehealth

   a. Represents the use of telecommunication technologies (i.e. videoconferencing, the internet) to provide health care related services and information (i.e. analysis, diagnosis, treatment, assessment, monitoring, prevention, communications, and health education)

   b. Telemedicine vs. Telehealth

Service	**Telehealth**	**Telemedicine**
Patient Education	X	
Patient Monitoring	X	
Patient Intervention	X	X
Clinical Care	X	X
Remote Diagnosis and Prescribing	X	X
Telephonic Case/Demand Management	X	

4. Automated Patient Monitoring Systems

   a. Purposes

      - Provides data to be used in determining diagnosis
      - Allows for more informed treatment decisions
      - Allows for improved outcomes
      - Allows for monitoring of the patient which can enable early diagnosis and effective treatment of the condition

   b. Can be used at the care setting or remotely

   c. Remote patient monitoring system

      - Patients can use medical devices to perform tests and transmit the results electronically to the provider
      - Improves the ability to track medical conditions, ensure adherence to medications, and allows for scheduling follow-up visits to the provider

   d. Requires the necessary infrastructure (i.e. software, internet connection) and proper use by the member

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Bundled Payment Initiatives

See GH301-100-25: Evaluating Bundled Payment Contracting

1. Hospital reimbursement is based on diagnosis-related groups (DRGs)
   a. DRG is a type of bundled payment in which a single payment is made for all inpatient hospital services
2. ACA requires that CMS bundles the payment for services for a care episode into a single payment (which includes the DRG payment) that are provided across multiple providers (i.e. surgeon fees, rehab facility fees)
   a. Goal of the approach is to improve care coordination and quality and to lower costs
3. Bundled payment may cover services provided by one entity (i.e. hospital) or by many providers in many care settings
4. Bundled payment demonstrations have achieved savings, a decline in utilization of services, and improved quality of care
   a. An AHRQ study indicated that costs declined and impacts on quality measures were inconclusive
      – Some quality measures improved and others deteriorated for a particular bundled payment intervention or different conclusions were drawn by different studies on the impact of the intervention on quality measures

Common features of care management programs or interventions

1. Rely on identification of at-risk members via claims data or identification and stratification algorithms
   a. Recent models include clinical data into the algorithms
2. Rely on clinical resources (i.e. gaps-in-care algorithms or telemedicine) to evaluate the members condition and to provide coaching to members whose care is not according to best practice guidelines
3. Rely on member participation in their own care
   a. Information can be provided to the clinician and member via the internet
4. Rely on best-practice standards for treatment and care
   a. Member is encouraged to obtain best-practice care (i.e. if a 3rd party program) or the physician must provide care according to evidence-based guidelines
5. Financial improvement resulting from the programs is difficult to assess and justify
   a. Intervention programs can generally be justified based on improvements in clinical outcomes or quality (i.e. reducing adverse events)

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b. Difficult to demonstrate that financial improvement is due to improvement in quality measures

Topic 5

Social Determinants of Health
(5% – 15%)

Learning Objectives

The candidate will understand how to explain the social determinants of health (SDOH) and their impact on health care costs and policy.

Learning Outcomes

The candidate will be able to:

a) Explain the social determinants of health and how they impact the cost of healthcare

b) Describe program design and economic techniques used to measure program performance

c) Describe the current use of SDOH in traditional actuarial practices

d) Evaluate applications of SDOH derived statistics in actuarial models

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GH301-108-25: SOCIAL DETERMINANTS OF HEALTH IN THE WORK OF HEALTH ACTUARIES

Main determinants of health (CDC definition)

1. Medical care (i.e. the traditional medical care and delivery system)
2. Behavior
3. Social and environmental factors
4. Genetic predisposition

Definition of SDOH (HHS definition)

1. The conditions in the social, physical, and economic environment in which people are born, live, work, and age

Environmental categories to promote health

1. Economic stability
    a. Income, food insecurity, house
2. Education access and quality
    a. High school graduation, language, children ready for school
3. Social and community context
    a. Incarceration, civic participation, discrimination
4. Neighborhood and built environment
    a. Transportation, broadband internet, safe water
5. Health care access and quality
    a. Health literacy, access to preventive care

Types of analyses used by public health professionals to evaluate programs

1. Cost minimization analysis

   a. Compares the cost of two or more interventions regardless of which one delivers better outcomes

2. Cost-benefit analysis (CBA)
   a. The benefits of the health intervention are expressed in dollars (>1.0 means intervention saved money)
   b. Generally performed in one year view
   c. Most applicable to actuarial work where reducing the total cost of care is the ultimate outcome

3. Cost-utility analysis (CUA)
   a. The benefits are expressed as quality-adjusted life-years (QALY's) or disability adjusted life years (DALY's)
   b. Assumes a year in good health is less expensive than a year in poor health

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Overview of The Actuarial Faculty Development Program

The AFDP is a pilot program developed by ACTEX to strengthen actuarial teaching staff in low-middle income countries with a program of live virtual classes and education resources. This program is supported by the UNDP-Milliman Global Actuarial Initiative (GAIN).

Actuarial Education Bootcamp

Virtual live lectures focused on:

1. Actuarial Science Program Development
2. Insurance principles and the actuarial profession
3. Technical actuarial skills
4. Actuarial Pathways
5. Professionalism and Ethics

Curriculum Resources

Recommendations for curriculum and access to resources to provide in the classroom:

1. Open access to digital resources provided through the Bootcamp
2. Academic GOAL bundles including student access for one academic year

Community of Practice

Online platform for members of the program to pose questions, interact with international community of actuarial science faculty, and receive inspiration.

Mentorship

Direct mentorship with experience university faculty to provide ongoing support.

ACTEX Academic GOAL Bundles

As part of the program, the participants will have access to ACTEX Academic GOAL bundles for the duration of the program (1 academic year). ACTEX Academic GOAL provides instructional videos, textbooks and manuals, as well as an actuarial science database of hundreds of questions to both students and teachers, equipping them with additional teaching content.

Benefits of Academic GOAL

- Allows editing capabilities to customize any question or solution(s)
- Build course assignments effectively
- Automated grading (for Multiple Choice questions) with autonomy to when grades and solutions are released to students
- Simple enrollment with one shared access code per class
- Analyze performance in multiple ways – by student and/or assignment

ACTEX Academic GOAL Resources

- Digital access to textbook or study manual (choice of instructor) covering entire syllabus with step-by-step explanations of concepts as well as hundreds of examples exercises
- Academic GOAL database for assignments and student independent study
- Instructional video library for independent study or flip classroom options
- Flashcards and formula sheets to support student exam prep
- Academic Resource Center providing centralized online resource library
- Access to Actuarial University which includes hub of definitions and access to student forums

Key Highlights of The Actuarial Faculty Development Program

Program Cost

An estimated fee of:
- $375 early bird registration
- $675 regular admissions

Participant will be charged by ACTEX for the participation in this program. The fee is used to offset operational costs (including the development of program, learning portal and royalties of study materials) involved in administering the program.

Bootcamp Instructors

- Volunteer actuarial practitioners from Milliman GAIN and other companies
- Professors with extensive actuarial science teaching experience
- ACTEX eLearning specialists

Program Duration

The Bootcamp Component will be 6 months with the program set to run for 1 year per cohort. This period includes access to a community of practice, curriculum resources and mentorship directly provided and organized by the program.

Program Structure

Fully Virtual

Size of Cohort

Minimum 5, Maximum 25

Program Timeline

- April – Early bird enrollment of participants
- May to June – Regular enrollment of participants
- July – Live teaching component commencing
- Following June – Cohort graduation

Certificate

At the end of the program, the participants will receive a certifcate recognizing their participation.

How You May be Able to Support

Encourage and support academic staff at your university to participate in the AFDP. If you are an academic staff and would like to participate in this program, please contact us to get in touch with you.

Support as a Volunteer to:

- Sponsor a participant to cover their program cost to support faculty and student development
- Teach the live virtual classes for the Bootcamp
- Develop course materials
- Become a mentor / community champion in the CoP
- Provide resources and reference teaching materials / curriculum.

Talk to Us

Reach out with any questions!

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