Slide 1

Population Health Nurse
Active Learning Collaborative
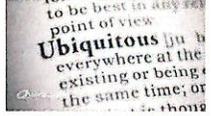
Katie Gillespie DNP RN CPH

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National RN Lead Faculty

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Overview

"Nurses are ubiquitous in population health practice, making contributions consistent with the profession's skills, values, and well-earned positive reputation with the public."

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What is an ALC?

"A group of individuals from different organizations who come together to work on a shared problem or goal."

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Population Health Pyramid

Risk Stratification Case Example

Midwest Regional Health System

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Midwest Regional Health System

Midwest Regional Health System (MRHS) manages a patient population of 250,000 individuals across urban and rural settings. To optimize resource allocation and improve patient outcomes, MRHS implemented a comprehensive risk stratification model that considers multiple factors including clinical conditions, utilization patterns, and social determinants of health

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Risk stratification methodology

Clinical factors (0-50 points)
- Chronic conditions
- Disease severity
- Medication complexity

Utilization patterns (0-30 points)
- ED visits
- Hospitalizations
- Readmissions

Social determinants (0-20 points)
- Housing stability
- Transportation access
- Social support
- Food security

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Risk Level	Score Range	Population %	Description	Intervention Strategy	Annual Cost Per Member
Level 1 (Very High)	80-100	5%	Multiple chronic conditions, frequent hospitalizations, significant social needs	- Intensive care management - Weekly outreach - Home visits - Social worker assignment	$25,000+
Level 2 (High)	60-79	15%	2+ chronic conditions, moderate hospital utilization, some social needs	- Regular care management - Monthly check-ins - Telehealth monitoring - Community resource connection	$12,000-24,999
Level 3 (Rising)	40-59	30%	Single chronic condition, occasional ED visits, minimal social needs	- Disease management - Quarterly check-ins - Education programs - Preventive care focus	$5,000-11,999
Level 4 (Low)	0-39	50%	Generally healthy, minimal healthcare utilization	- Annual wellness visits - Health risk assessments - Preventive screenings - Self-management tools	$500-4,999

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Clinical Factors Scoring Details

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Chronic Conditions (0-25 points)

Each major chronic condition : 5 points
- Diabetes (HbA1c > 7.0)
- Heart Failure (Class II-IV)
- COPD (FEV1 <80% predicted)
- End-Stage Renal Disease
- Advanced Cancer

Each minor chronic condition: 2 points
- Hypertension
- Hyperlipidemia
- Obesity (BMI >30)
- Depression
- Anxiety

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Disease Severity (0-15 points)

Disease Control Status
- Poor control: 5 points per condition
- Moderate control: 3 points per condition
- Well-controlled: 1 point per condition

Recent Acute Events
- Major event within 3 months: 10 points
- Major event within 3-6 months: 5 points
- Major event within 6-12 months: 2 points

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Medication Complexity (0-10 points)

- 10 or more medications: 10 points
- 7-9 medications: 7 points
- 4-6 medications: 4 points
- 1-3 medications: 2 points
- High-risk medications: +2 points each (anticoagulants, insulin, opioids)

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Utilization Patterns Scoring (0-30 points)

Emergency Department Visits
- 4+ visits in past year: 10 points
- 2-3 visits in past year: 7 points
- 1 visit in past year: 4 points
- No visits: 0 points

Hospitalizations
- 3+ admissions in past year: 12 points
- 2 admissions in past year: 8 points
- 1 admission in past year: 4 points
- No admissions: 0 points

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Utilization Patterns (cont.)

Readmissions
- 30-day readmission within past 3 months: 8 points
- 30-day readmission within past 3-6 months: 6 points
- 30-day readmission within past 6-12 months: 4 points
- No readmissions: 0 points

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Social Determinants Scoring (0-20 points)

Housing Stability
- Homeless: 5 points
- Unstable housing: 3 points
- Stable but not unaffordable: 2 points
- Stable and affordable: 0 points

Transportation Access
- No reliable transportation: 5 points
- Limited public transportation: 3 points
- Reliable public transportation: 1 point
- Personal vehicle available: 0 points

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Social Determinants (cont.)

Social Support
- No support system: 5 points
- Limited support system: 3 points
- Moderate support system: 1 point
- Strong support system: 0 points

Food Security
- Severe food insecurity: 5 points
- Moderate food insecurity: 3 points
- Mild food insecurity: 1 point
- Food secure: 0 points

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Implementation Strategy by Risk Level

Intervention Design

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Level I: Very High Risk

Possible Interventions:
- Dedicated case manager assigned (1:50 ratio)
- Weekly contact at minimum
- Comprehensive care plan review monthly (may include care team)
- Home-based primary care when needed
- Integration with community services (PHIN and CM share information with outside service providers)

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Level II: High Risk

Possible Interventions:
- Care manager oversight (1:150 ratio)
- Monthly contact at minimum
- Care plan review quarterly
- Regular specialist coordination
- Medication management support

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Level III: Rising Risk

Possible Interventions:
- Population health nurse oversight (1:500 ratio)
- Quarterly outreach
- Disease-specific education programs
- Digital health monitoring
- Lifestyle modification support

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Level IV: Low Risk

Possible Interventions:
- Annual wellness focus
- Digital engagement tools (phone apps, My Chart messages)
- Health education resources (group classes, virtual coaching)
- Preventive care reminders
- Self-management support

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Cost Analysis

Return on Investment

Cost-Benefit Analysis

Cost-benefit analysis is a methodology for evaluating the pros and cons of major projects, investments, and policy changes by quantifying and comparing costs and benefits in monetary terms.

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Program Implementation Costs

Staff costs
- Care managers and PHINs : $1.2 M
- Social workers: $400K
- Support staff: $200K

Technology infrastructure: $500K

Training and development: $200K

Community partnerships: $300K

Total: $2.8M

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Cost Savings Calculation

Reduced ED visits
- Baseline cost per visit: $1,200
- Reduction in visits: 22%
- Annual savings: $850K

Reduced Hospitalizations
- Average cost per admission: $12,000
- Reduction in admissions: 18%
- Annual savings: $1.5M

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Cost Savings (cont.)

Improved Medication Management
- Reduced pharmacy costs: 12%
- Annual savings: $450K

Reduced Specialist Visits
- Average cost per visit: $200
- Reduction in unnecessary visits: 15%
- Annual savings: $400K

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Slide 25: ROI Calculation

$$\text{Return on Investment (ROI)} = \frac{\text{Net Return}}{\text{Cost of Investment}}$$

Total savings: $3.2M

ROI= (Net program benefits – program costs) / program costs x 100

ROI = ($3.2M - $2.8M) / $2.8M x 100 = 14%

Population Health benefits occur over time/years - requires a rethink of current "ROI"

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Quality Metrics Impact

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Clinical Outcomes
- HbA1c control improvement: 15%
- Blood pressure control improvement: 18%
- Medication adherence improvement: 222%

Patient Experience
- Patient satisfaction scores: +18%
- Provider satisfaction scores: +22%
- Care plan adherence: +25%

Operational Efficiency
- Reduced wait times: 30%
- Improved appointment scheduling: 35%
- Reduced care gaps: 28%

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Implementation Results

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Slide 29: After one year of implementation

- 22% reduction in ED visits among Level I patients
- 18% decrease in hospital readmissions
- 15% improvement in chronic disease management metrics
- $3.2M in total cost savings

Better Care for Individuals / Better Care for Population / Lower Cost Through Improvement

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Slide 30: Key Success Factors

- Integration of clinical and social data for comprehensive risk management
- Regular recalibration of risk scores (quarterly)
- Customized intervention strategies for each risk level
- Strong community partnerships for addressing social needs
- Robust data analytics infrastructure

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