Models of HIV Care

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Overview

Complexity of HIV medicine

HIV Expert Primary Care Providers

Quality Assessment

Ryan White-funded HIV Care Settings
  • Patient-Centered Medical Home

Components of comprehensive patient-centered HIV care
  • Primary continuity care
  • Continuum of services across all care settings
  • Case management

Cost-effective care

Health care reform opportunity to expand capacity HIV care
  • Enhance HIV PCMH
  • Innovation in HIV Care
Complexity of HIV Medicine

Multi-organ system disease
- Rapidly changing standards of care
- Advancing knowledge of pathogenesis and treatment

First decade HIV epidemic, usual model of care was recast
- Generalist physicians provide primary care and specialists serve as consultants
- Experts in HIV care, regardless of their formal training, became the primary providers of continuity care (1)

HIV experts higher quality care than non-expert generalists (2)
- Internal medicine, generalist
- Internal medicine, infectious disease specialist
- Family practice
- Physician assistant, nurse practitioner (3)

Generalist Physicians - Higher Adjusted Hazard of Death than Experienced HIV Physicians

Adjusted Hazard Ratio

Calendar Period of Diagnosis

Adjusted Hazard Ratio

Physician Experience

Least Moderate Most

HIV Expertise and Quality of Care

Critical to the quality of HIV care

HIV experts higher quality care than non-expert generalists

Outcome:

• Longer survival (1)

Process measures of complex tasks:

• Earlier adoption of advances in treatment (2)
• More timely and appropriate use antiretroviral regimens (2,3)
• Regular outpatient follow up, laboratory monitoring (4)
• Fewer hospitalizations (5)

HIV Expertise

• Patient volume
• Years providing HIV care
• Education

Quality Assessment

Improve clinical outcomes: Survival, QALYs
EHRs track clinical data, reporting

Quality Performance Indicators / Process measures

- Most indicators assess routine tasks (1)
  - National Guidelines Screening and prevention (2)
    - TB, HCV, PAP, Vaccinations, PCP prophylaxis
  - Can measure numerator and denominator of patients at risk
  - EHRs clinical reminders that better organize needed information improve performance of routine tasks (3)
  - Patient-reported outcomes (PRO) measurement

- Very limited quality indicators of more complex tasks
  - ART treatment - denominator changing
  - Undetectable VL – adjusted for case mix

HIV care increasing complexity

Publically-funded Models HIV Care

Medicaid, Ryan White CARE Act fund majority HIV care US(1)

- Psychosocial Complexity of HIV Care
  - Low socioeconomic status - underserved, vulnerable pop
  - Mental health and substance use problems
  - Loss of income due to disability

Accordingly, models of comprehensive service delivery for HIV care evolved in the public sector

- Coordination and Integration of services
  - Increases access to services
  - Decreases fragmented care
  - Public funding and community services filled critical gaps in continuum of HIV care
  - Not reimbursed in traditional fee-for-service system

(1) Aseltyne J Acquir Immune Defic Syndr Hum Retrovirol 1995
Components of Comprehensive HIV Care
Ryan White Patient-Centered Medical-Home

- **Primary continuity care**
  - Expert HIV primary care provider
  - Patient-provider relationship
  - Care and treatment Antiretroviral Therapy
  - Ancillary services: Lab, Pharmacy, Radiology

- **Continuum of care**
  - Coordinating services around patient needs: EHR - clinical data, Rx, communication, reminders
  - Clinic
  - Hospital
  - Subspecialty Providers
  - Community Settings
  - Skilled nursing
  - Home/residential

- **Case Management**
  - Coordinate medical, social, community-based services (SW, RN)
  - Mental health clinician (psychiatrist, psychologist, NP, SW) Substance use treatment
  - Financial assistance: Insurance, Antiretroviral therapy, Housing, Transportation
  - Education and support for patients and caregivers

- **Medication management**
  - HIV Expert pharmacist/pharmacy
  - Antiretroviral Regimens
  - Drug Interactions
  - Medication Cassettes
  - Adherence
Cost Effective HIV Care

HIV expert physicians managing continuity care improve the outcomes of treatment, prolong survival (1)

- Evidence supports the health and economic advantages of continuous primary care (2)
- Forestalls need for more expensive care (3)

Coordinated, accessible outpatient and home care reduces hospital care and the overall need for care (4)

- HIV patients and providers instrumental in shifting HIV care from hospital to clinic and home, ahead of other chronic diseases (5, 6)

Case management shown to help HIV patients coordinate services, saving money and improving quality of life (3)

- HIV-infected patients with better access to community-based care have fewer HIV-related hospitalizations (7)

2010 Higher Complexity of HIV Care
Multiple Chronic Diseases

Antiretroviral Therapy
- Earlier initiation
- Integrase Inhibitors, CCR5
- Hep B co-infection
- Resistance Testing

AIDS-defining Illnesses
- Decrease incidence
- Morbidity & Mortality
- Untreated HIV infection
- Late entry into care

Metabolic Diseases
- Dyslipidemia
- Lipatrophy/lipo hypertrophy
- Diabetes Mellitus
- Hypertension
- Osteoporosis

Cardiovascular Disease
- Increase incidence M&M
- Younger Age
- Screening - when?
- ART decreases risk

Non-AIDS Malignancies
- Viral co-infection HHV-8, Hep B, Hep C, HPV, EBV
- Lung, liver, M&M
- Screening - when?

Liver Disease
- Hep B & C co-infection
- HIV worsens course
- NASH/NAFLD
- ESLD, M&M

Kidney Disease
- HIVAN
- CKD – Tenofovir, Hep C
- ESRD, M&M

Neurocognitive Dysfunction
- High prevalence
- Young age at onset
- Executive function, memory, psychomotor slowing
Untreated HIV + Comorbid Diseases
CVD, Renal, Liver, Bone, Malignancies

Routine Screening in HIV is Complex

34 yr, non-smoking male, asymptomatic HIV disease Dx >10y

- TC 226 mg/dL, triglycerides 390 mg/dL, HDL 24 mg/dL, LDL 124 mg/dL, non-HDL 202 mg/dL, no Fhx, DM, HTN: Framingham risk score = 2%
- 2008 K103 mutation - ritonavir boosted atazanavir, tenofovir, FTC
- 2009 age of 38: non-Q wave MI, severe 3-vessel CVD
  - CABG heavy calcification of all coronary arteries
  - Atorvastatin, lovaza (omega-3-acid ethyl esters), lisinopril, ASA, beta-blocker

Untreated HIV disease:

- Severe CVD / MI – young age, HIV is independent risk factor
- Dyslipidemia (not LDL predominant): low HDL, high TG
- Steatohepatitis elevated AST/ALT (NASH) treated with Metformin
- Statins alone not effective (2-3 drugs)
- Drug interactions - simvastatin contraindicated PI, rosvastatin level increased by atazanavir
- Liver disease - viral co-infection Hep B or Hep C is common
Generalist Physicians Lower Adjusted Odds of Primary Care and Specialty Care Delivery

- Least
- Moderate
- Most

Odds Ratio

- Primary
- Specialty
- No Visits

Type of Care

Physician Experience

Kitahata J Gen Intern Med 2003
Model of Multi-Provider Team

Multiple providers did not improve quality of HIV care
  • Generalist physicians increased specialty visits
  • Did not substitute for more experienced primary care provider in improving survival (1)
  • Staff-model HMO supports team care, usual referral system specialty consultation initiated by primary care provider

Core of primary continuity care is patient-provider relationship
  • Avert ER visits, hospitalizations, shorten LOS
  • Undermined by models where generalist “Hand-off” patient to HIV expert when care becomes “complex”
    • Complex decision-making at first presentation to care
  • Patients highlight relationship with primacy care provider as quality improvement (2), less in multi-provider settings (3)

Models of Multi-Provider Team Care Lack Evidence Improve Quality of HIV Care

Bosch Med Care Res Rev 2009: reviewed lit 1990-2008 Effect of Teamwork
• Enhancement of clinical expertise effective component of care teams
• Added value of care coordination functions remained unclear
2010 Ryan White Part C Outpatient Care Centers of Expert HIV Care in US
HIV Care Center: >500-5000 HIV patients

- Expert HIV providers / Educators
  - HIV primary care daily, on-site services
    - Ryan White Part C funding

Satellite HIV Clinic: 250-500 HIV patients

- 1-2 Expert HIV providers
  - HIV primary care one day a week
    - WA state RW Part B / AIDS Omnibus Bill

Community Clinic: 50-250 HIV patients

- 1 HIV-experienced primary care provider daily
  - Expert HIV provider on-site per wk/2wk
  - Lower cost per patient than visit-based
    - Funding unclear
HIV Workforce Training

Providers in lower volume community practice settings
- 1-2 HIV experienced primary care providers/setting
- 1-2 HIV experienced nurses/setting - triage acute care
- Pharmacy expertise locally
- Case management

Lessons from decades of successful HIV care
- Providers committed to providing complex HIV care
- Vulnerable, underserved, minority populations, stigma

Resident and Fellow training
- Usual - rotate through HIV clinic once a week for a month
  - Acute care walk-in patients, not continuity primary care
- Instituted HIV primary continuity clinic for residents, fellows
- HIV Care Fellowships
- HIVMA Minority Clinical Fellowship
Expanding HIV Care Capacity

Delegation of appropriate tasks to non-physician staff

- Central feature of successful efforts to improve outcomes for chronic disease and increase physician productivity (1)
- Nurse panel – work closely with primary care providers
- Pharmacy staff - medication management
- Adherence support and education

Doctors doctoring, not keyboarding

- Most frequently cited obstacle to increasing time for patient care
- Dictation, Doctor scribe, Dragon

Innovative approaches to delivery HIV expert care, funding

- Rural and low prevalence areas
- HIV expert on-site weekly
- HIV expert via Telemedicine
  - Project ECHO

(1) Payne HMO Pract 1995
Disparities in Payment - Cost of HIV Care

- HIV expert primary care providers eligible for enhanced primary care rates under Medicare and Medicaid
- Legislation to designate Ryan White Part C-funded programs as eligible for the prospective cost-based reimbursement that FQHC receive
- Develop funding mechanisms that provide the flexibility currently afforded through the Ryan White program to support the coordination of care and the delivery of comprehensive care
- CMS Innovation Center - document and evaluate the impact of Ryan White model for patient-centered medical home care on patient outcomes and the cost of care