Synthesizing Priority IS HIV Co-morbidity Research Questions

- **OPTIMIZE SCREENING**
  - How can we improve screening and documentation of HIV and co-morbid diseases?
    - Includes capacity issues for mental health & issues; obesity; diabetes;
    - Includes statins, CVD risk, valid models of data using modeling, analytics, novel measurement techniques, etc.

- **PRE-IMPLEMENTATION**
  - What are the specific co-morbid diseases? Risk categories, developmental ages, groups?
    - Diabetes
    - Obesity
    - HLBS

- **INTERVENTION FOR COMORBIDITIES**
  - What are the best models/strategies for evidenced based collaborative care? How can we use the existing HIV infrastructures for care?
    - Are there other implementation models from other diseases to be tested?
    - Can we use data modeling, predictive analytics to improve treatment and care of HIV & comorbidity?
    - Primary care models vs specialty care models? How do we this globally, in LMICs?
    - Do we have the available workforce and economic structure?
    - Can we test the various healthcare structures for comorbidity care through interventions for scale up?
      - (e.g. task shifting vs delivering statin; different models of service delivery; different service providers for MH into routine HIV care for LMIC settings; patient engagement models)
    - Dual care models
      - Knowledge from specialist to primary care primary care to specialist: TRANSFER of KNOWLEDGE. E.g.
        - Poor statin use in HIV population in existing research in US study
        - Hypertension can be more important than lipids (LMIC vs US)—context important
  - Competencies
    - Knowledge transfer/Skills Transfer
    - (Budget Implications—core IS priority)
Synthesizing Priority IS HIV Co-morbidity Research Questions

• **CONTEXT**
  • US & LMIC
  • Implementation outcomes defined for HIV co-morbidity

• **MODELING (SIMULATION)**
  • Actionable targets and outcomes using streams of data available
    • Sensors, integrated devices, EMR, smart phones, etc.
    • Privacy issues due to marketing, people do not tell truth in apps (e.g. age, weight, height)
      • People do bring phones and calendars, important source of information to assist with data information paired with interviews, in person data for validity
    • E.g. adolescents not in clinics, unaffiliated with clinics,
    • in person interventions with online hybrid space: e.g. web based smoking, digital interventions
  • Prevalence and burden over time: MODELING EXAMPLES
    1. Understanding heterogeneity, understanding how strategy would be different,
    2. Cost effectiveness: traditional against threshold vs optimization; looking at multiple strategies, not looking at just one outcomes, trying to optimize many different ones, many together or constrain some of the solutions
    3. Data driver; allow for interaction, intervention might change what others will do, downstream effects, allow for others to adapt
Novel Observational & Experimental IS Research Designs

• Approaches
  • Mixed methods:
    • Qualitative and quantitative methods?
    • Why it does not get implemented into practice?
  • Regression discontinuity designs
    • Certain level of intervention based on where they fall on cut point of severity, fits well with natural experiments
      • E.g. ASCVD (Atherosclerotic Cardiovascular Disease) risk scores comparing those who fall above and below high risk cut point
      • Depression screening and SSRIs.
  • Adaptive, SMART designs
    • e.g. Deciding on pharmacotherapy, looking at costs

• Online/Web treatment
  • SBIRT for various comorbidities, and other models from different comorbidities in adaptive designs

• Adolescent vs Adult Research Design considerations
  • Technology based vs other models in person, support based
Novel Observational & Experimental IS Research Designs

• De-implementation
  • e.g. existing two structures in health, perhaps more cost, optimization analyses
  • Cultural aspects implementation at patient, provider, system and community level
  • Modeling complexity
    • Can think of strategies implementation and de-implementing at same time
    • Need data on those formative components, quasi-experiments to inform models
    • Can inform unintended effects
    • Happening may not be measured, implementation may have downstream negative or positive downstream effects
  • Adjacency: two data streams in same direction, validating approach
    • E.g. mortality indicator, person dead adjacent to data on medication that is life saving.

• Dis-implementation
  • Studying the natural experiment of de-implementation
Implementation Science Training

• Resources for US and Global Implementation Science (to be culled)
• Case studies needed from early to late phase, both success and failures, for constructive learning
  • e.g. CTSAs, implementation science training programs, CFARs, local community, global sites....repositories?
• Key principle: involve multidisciplinary team early on

Core Issues
• Both HIV researchers and IS researchers need cross-training
• Multi-disciplinary teams needed
• Mid-career and senior career training needed
• Generalist to specialist training needed for range or roles in research projects
• Core Design Fundamentals, for example:
  • Quasi experimental
  • Cost effectiveness/health economics→ policy implications, financing, sustainability
  • Stepped wedge designs
  • Mixed methods
  • Behavioral economics
  • Health behavior
  • Health communication
  • Technology developers