Precursors of first-episode psychosis in a population-based sample

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| **Project Name:**  Precursors of first-episode psychosis in a population-based sample | |
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| **Principal Investigator institution:**  Kaiser Permanente Washington |  |
| **Funding Period:**  07/2013 – 06/2017 |  |
| **Abstract:**  Schizophrenia is estimated to be the 8th-ranked cause of life years lost to disability and premature death among people aged 15 to 44. Reducing this disease burden is a public health priority. Among people experiencing first onset of psychotic symptoms, delay in receipt of effective treatment contributes significantly to poor long-term outcomes. Furthermore, warning signs or prodromal symptoms may be identifiable prior to onset of actual psychotic symptoms. Accumulating evidence suggests that preventive interventions (prior to onset of actual psychotic symptoms) or early clinical interventions (to reduce the interval between onset of symptoms and receipt of effective care) can both improve long-term prognosis. Existing models for early detection and early intervention - either for research or care delivery - have limited reach and scalability.  Our preliminary studies suggest that a generalizable algorithm retrospectively applied to electronic medical records data can accurately identify first episodes of psychosis with a positive predictive value of 80 to 90% and a sensitivity of over 80% - when compared to structured chart review. If electronic records in large health systems could be used to efficiently identify large and representative samples of people experiencing first- episode psychosis, this method could dramatically accelerate research and transform care delivery.  We propose a population-based research program to address immediate questions regarding early intervention programs and to develop methods to support the next generation of early intervention research. This research will draw from five large health systems serving a diverse and representative population of over 7.5 million people. Specific aims of this program include:   1. Use electronic records data from large integrated health care systems to validate and refine a generalizable algorithm for identifying first presentations of psychosis. 2. Examine patterns of health care contact prior to first diagnosis of psychosis to identify the optimal care settings and target populations for early detection programs and preventive interventions. 3. Examine patterns of treatment following first diagnosis of psychosis in order to identify the gaps in care leading to prolonged duration of untreated psychosis. 4. Examine sources of health insurance coverage at first diagnosis of psychotic disorder and subsequent lapses in coverage in order to inform the design of future intervention programs. 5. Explore the use of text mining methods to identify potential indicators of prodromal symptoms in notes of outpatient visits prior to first diagnosis of psychosis in order to develop innovative strategies for accurate real-time identification of prodromal symptoms. 6. Understand patient, family, and clinician perspectives regarding population-based research outreach following a new diagnosis of psychosis to inform future research and care delivery. 7. Examine rate and causes of mortality after first diagnosis of psychotic disorder |  |
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| **Participating Sites:** Group Health Cooperative Kaiser Permanente Colorado Kaiser Permanente Northern California Kaiser Permanente Northwest Kaiser Permanente Southern California |  |
| **Investigators:** Gregory Simon, MD MPH David Carrell, PhD Frances Lynch, PhD Bobbi Jo Yarborough, PhD Carla Green, PhD Arne Beck, PhD Enid Hunkeler, MA Stacy Sterling, PhD Karen Coleman, PhD |  |
| **Major Goals:** Goals include:   * Aim 1: Describe initial presentation with psychotic symptoms in a population-base sample * Aim 2: Examine patterns of care prior to diagnosis * Aim 3: Examine treatment adherence/continuity after diagnosis * Aim 4: Examine impact of health insurance coverage * Aim 5: Mine clinical text to identify possible prodromal “signals” * Aim 6: Explore acceptability of outreach interventions * Aim 7: Examine mortality after first diagnosis of psychotic disorder |  |
| **Description of study sample:** Cases:   * First diagnosis of schizophrenia spectrum psychosis, mood disorder with psychosis or other psychotic disorder between 1/1/2007 and 12/31/2012. * Continuously enrolled in the health plan for >=12 months prior to the initial diagnosis * Age 15 and above   Controls:   * No prior record of psychosis or mood disorder * Continuously enrolled in the health plan for >=24 months * Age 15 and above * Meet one of these criteria for one of three control groups   + First diagnosis of depression (matched to cases by age, sex, and year)   + First diagnosis of inflammatory bowel disease (matched to cases by age, sex, and year)   + Any outpatient visit (matched to cases by age, sex, and year) |  |
| **Current Status:**   * Analyses for Aims 1 through 5 are complete. * Pilot work for Aim 6 is ongoing * Analyses for Aim 7 are complete |  |
| **Study Registration:**  N/A |  |
| **Publications:**  Simon GE, Coleman KJ, Yarborough BJ, Operskalski B, Stewart C, Hunkeler EM, Lynch F, Carrell D, Beck A[. First presentation with psychotic symptoms in a population-based sample](https://ps.psychiatryonline.org/doi/abs/10.1176/appi.ps.201600257?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub%3Dpubmed). Psychiatr Serv. 2017; 68: 457-461.  Simon GE, Stewart C, Yarborough BJ, Lynch F, Coleman KJ, Beck A, Operskalski BH, Penfold RS, Hunkeler EM. [Mortality after first diagnosis of psychotic disorder in adolescents and young adults](https://jamanetwork.com/journals/jamapsychiatry/fullarticle/2670697). JAMA Psychiatry 2018; 75: 254-260.  Simon GE, Stewart C, Hunkeler EM, Yarborough BJ, Lynch F, Coleman KJ, Beck A, Operskalski BH, Penfold RS, Carrell DS. [Care pathways prior to first diagnosis of psychotic disorder in adolescents and young adults](https://ajp.psychiatryonline.org/doi/abs/10.1176/appi.ajp.2017.17080844?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub%3Dpubmed). Am J Psychiatry 2018 (Jan 24 epub ahead of print). |  |
| **Resources:**  None available yet |  |
| **Lessons Learned:** Detection   * Incidence rate suggests reasonable capture of all new cases * Half have some prior mental health contact * There are significant differences by race/ethnicity   Initiation   * >90% without patient specialty MH follow-up within 1 month * >60% with filled prescription for antipsychotic medication within 1 month   Engagement/Continuation   * Only 50% still engaged in outpatient specialty MH care by 1 year * Of those who disengage:  outcome is poor in 1/3 and unknown in 1/3 |  |
| **What’s next?**   * Submit manuscripts for Aims 3, 4, 5, and 6 * Complete pilot-testing of outreach interventions. |  |