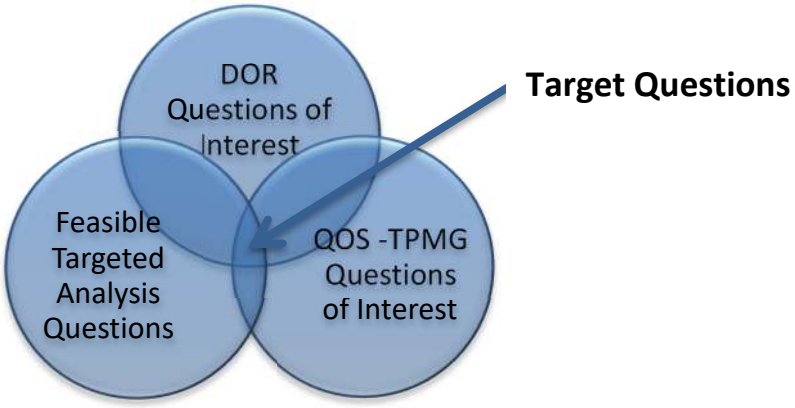
The Delivery Science Targeted Analysis Program (TAP)
Request for Proposals – Cycle 13

Purpose of the Program: Health care researchers and delivery system leaders share a common mission to improve health care quality and outcomes. A key goal for the Division of Research (DOR) is to address delivery science research questions that are strategically important to Kaiser Permanente. The Permanente Medical Group, and its Quality and Operations Support (QOS) Department, address questions on how to improve care delivery to support quality improvement initiatives throughout the Kaiser Permanente Northern California region. Many of these questions are of mutual interest to both DOR and TPMG, and often can be answered quickly through the use of targeted analysis of our EPIC integrated electronic health record (EHR) data. The Delivery Science Targeted Analysis Program prioritizes and funds analyses to address these target questions (see Figure). This Request for Proposals solicits submissions from KPNC Division of Research Investigators partnered with TPMG clinical and operations leaders, to fund *rapid-cycle projects that will be completed within 6 months.* While we expect most proposals will focus on observational data analysis, proposals for short-term qualitative data collection projects (such as focus groups and semi-structured interviews) are also welcome. The TAP Program can provide programmer/analyst time to complete the proposed projects that are selected for funding upon request from the project investigator. While not all proposed projects will require IRB approval (for example, where there are no immediate plans for publication), the TAP project manager will submit an IRB application for projects selected for funding where appropriate.

The TAP Program welcomes submissions in all clinical areas.

Target Research Questions for the Delivery Science Targeted Analysis Program



Review Process and Criteria:

The TAP program Steering Committee, which includes representatives from DOR, QOS, and TPMG, will select the projects for funding based on the following criteria:

a. Alignment with current TPMG/KPNC leadership (clinical/operational) goals
b. Support of regional health plan leaders in the delivery system (e.g., an Associated Executive Director, Chair of Chiefs, or regional clinical leader of a related regional program or initiative)
c. Whether project is feasible within the allotted time and budget
d. Potential/feasibility of project to impact operations practice within 12 months post-project
e. Potential to enhance research and operational partnerships and future collaborations

Please note, the committee may ask study investigators and their operational partners to be available via phone during the review meeting; the committee may also request written clarifications after review.

Project Deliverables: Deliverables for each individual project include a final report, and at least one specific research product: examples include a conference abstract, or pilot data for a future collaborative grant-funding opportunity. Deliverables also include a specific plan to incorporate the analysis findings into operations or clinical practice.

Instructions: Please fill out the template attached to this cover page; the completed template should not exceed 4 pages (single-spaced, 12-point font, ½ inch margins) in length, excluding CVs and appendices. Applications should be sent via email to Deanne Wiley (Deanne.Wiley@kp.org)

Deadline: Submissions for Cycle 13 are due **November 4, 2019**, **at 5 pm PST.** We expect to make Cycle 13 funding announcements in December 2019.

TARGETED ANALYSIS PROGRAM REQUEST FOR PROPOSAL TEMPLATE

1. Principal Investigator Full Name and Contact Information (office phone, email): [redacted]

2. Title of Project: "Clinical, Demographic, and Referral Pattern Characteristics of 'Connect to Care' (C2C) Outpatients"

3. TPMG/KPNC Regional Leadership (Clinical/Operations) Partner(s) and DOR Collaborator* (Required):
Regional Leadership: [redacted]

**For those applications where the PI is not a DOR scientist, please contact Julie Schmittdiel, TAP Director, if you need assistance connecting with a DOR Collaborator.*

4. Other Key Personnel (if applicable): [redacted]

5. Are you requesting a TAP programmer/analyst be assigned to this project? Yes ☐ No ☒
[redacted] who is familiar with HealthConnect Clarity mental health data, will conduct these analyses.

6. What is the challenge you are addressing? Include how common the problem is and its impact.
Passage of mental health parity legislation in 1996 and 2008, implementation of the Affordable Care Act (ACA) in 2014 – both leading to expanded mental health insurance coverage – and a general lack of growth in the US mental health workforce, have exacerbated mental health access issues already faced by Kaiser Permanente Northern California. In a study using KPNC data, new members with substance use disorders who entered KPNC following passage of the ACA (compared with similar patients before the ACA) had higher rates of cannabis and amphetamine use disorders, more psychiatric and medical conditions, and were more likely to be covered by Medi-Cal and to have high-deductible insurance plans.[1] In addition, since the passage of the ACA, increases in mental health services use among KPMC members has far outpaced the growth rate of the general KPNC member population [redacted]. These factors have posed significant challenges to the system, in terms of meeting the increased mental health services needs of members, including providing timely initial evaluations. Untreated mental illness has significant personal and societal costs, including decreased quality of life, heightened risk of suicide, worsened physical conditions, exacerbation of comorbid substance use disorders, work absenteeism and decreased work productivity, and increased use of emergency medical services. The Connect to Care (C2C) program, described below, seeks to facilitate timely and appropriate access to mental health and wellness services for KPNC members.

7. What is the existing evidence for solving this problem (trials or observational studies)? Include if current evidence is sufficient to inform implementation or if new knowledge/investigation is needed and, if so, what knowledge.
The Connect to Care (C2C) Telepsychiatry Center, introduced among Northern California KP mental health departments in June 2018, aims to address the high prevalence of mental illness and pressing need for timely and high-quality mental health care (see Appendix, C2C Flow Diagram). Patients may be referred to C2C by a mental health triage clinician if they meet broad inclusion criteria (e.g., non-urgent presenting problem, no active psychosis or mania, amenable to a telemedicine visit). Patients can meet via phone or video with a C2C Initial Assessment Coordinator (IAC) within 0-3 days following triage. In that encounter, patients receive a full, diagnostic psychological evaluation, and are referred to a subsequent clinical appointment and/or clinical resources outside of specialty mental health (e.g., wellness coaching), as indicated. The C2C leverages telemedicine (phone and video) to accommodate the needs of KPNC members and to broaden the reach of individual therapists; this modality, compared to physical clinic-based care, allows an individual therapist to evaluate and treat more members over a greater geographic distribution. A robust body of evidence supports the use of telemedicine to increase access to mental health services to populations with limited in-person access to mental health services.[2] For instance, in many rural areas (e.g., cities in the Central Valley within the

KPNC catchment area), patients often face logistical barriers to accessing mental health services. Evidence from multiple pragmatic, randomized, and observational studies demonstrate that implementation of telemedicine in rural communities improves overall access, patient satisfaction, and clinical outcomes.[3] Furthermore, the Veterans Administration (VA), a single-payer, integrated health care system, has pioneered the use of telehealth in the US. Numerous studies have similarly demonstrated the cost-efficacy and high rates of patient and physician satisfaction for telehealth services for mental health.[4,5] Among KPNC patients who used telemedicine services for a primary care appointment (n=1274), 87% stated that telemedicine was more convenient than in-person care, 90% reported being confident in the quality of care they received, and 89% reported interest in a future video visit.[6] Taken together, these studies establish a foundation for implementation of telehealth in diverse populations. The ACA has opened new opportunities to explore the role of telemedicine for mental health in healthcare delivery systems.[7]

8. What specific clinical actions/changes are anticipated from addressing the challenge? Include any technology, nursing, or tracking needed, and all specialties impacted. If new knowledge is needed, are existing KP data sufficient or are new data required (and, if so, what)?
By increasing access to mental health care among KPNC members, delays will be reduced from initial presentation for a mental health issue to a diagnostic evaluation, and members will be more rapidly referred to appropriate resources. This analysis of the C2C data will elucidate C2C patient characteristics and patterns of service use, which will in turn inform modifications of the C2C protocol to enhance its effectiveness to best meet the needs of patients who are using this service. Specifically, an understanding of which patients are most likely to use C2C, and the most frequent referrals made by IACs, will help Regional Mental Health leaders to modify the initial process for referral to C2C and referral offerings to meet the needs of patients. For instance, if it found that the majority of referrals to C2C result in a diagnosis of a depressive disorder, the C2C program could be modified to include a greater number of referral options for various depressive disorders. In addition, as described in item #18, results of this TAP grant will establish a foundation for future research, including a longitudinal analysis of service use and clinical outcomes of patients with a C2C encounter.

9. If the challenge is addressed, has commitment for the actions been obtained by relevant regional clinical leaders?
Yes, C2C has strong support [redacted]

10. Project Description: Provide a succinct description of the proposed work.
This is a retrospective analysis of EHR-derived data from the C2C program that aims to identify the demographic and clinical characteristics and services use patterns among members referred to C2C evaluation. Specifically, we aim to explore *who* is being referred to C2C following triage, *where* they are referred following evaluation by a C2C IAC, *whether* and *how rapidly* they follow up with clinical services, and *how frequently* members subsequently require a higher level of mental health care following their initial referral.

11. Specific Analysis Aims: Include a statement of the primary analysis questions to be addressed.
Aim 1: C2C patient demographic and clinical characteristics.
- We will describe the demographic (e.g., age, sex, race/ethnicity, estimated household income) and clinical (e.g., diagnostic codes, comorbidity burden) characteristics of patients in the C2C program.
- We will compare patients who were triaged by their local mental health department and referred to C2C with patients who were *not* referred to C2C.
- We will also compare characteristics of patients who were referred to C2C among local participating mental health departments.

Aim 2: C2C referrals.
- Among patients referred to C2C, we will examine the referrals made by the IACs.
- We will determine what percent of C2C patients are referred to specialty mental health, versus those who either don't require follow-up care, or are referred to clinical resources outside of specialty mental health.

12. Background and Significance: Include how the project will fulfill the primary review criteria:
a. Alignment with current TPMG/KPNC leadership (clinical/operational) goals*.

b. Name(s) of regional health plan leaders who endorse this analysis. (Examples include Associate Executive Directors, Chair of chiefs' groups, or leaders of regional programs or initiatives)
c. Feasibility within the allotted time and budget
d. Potential and feasibility of analyses to impact clinical and operational practice in the 12 months post-project *(please be as specific as possible on what direct next steps will be taken to improve care based on the analysis results)*
e. Potential to enhance research and operational partnerships and future collaborations

This project addresses multiple high-priority topics, including providing timely, high-quality, patient-focused mental health care options to KPNC members. The C2C program seeks to improve mental health care through virtual visits and other novel uses of mobile technology, enhancement of the care experience, patient engagement, and operational excellence. Results of this TAP grant will provide essential descriptive and outcomes data about C2C. [redacted], have expressed strong support for this research project. Based on the experience of the research team, we will be able to extract the relevant EHR data, perform the appropriate analyses, evaluate the results, and summarize findings and their implications in a report within the 6-month period. The TAP grant budget will sufficiently support [redacted] analyst time (see Budget, below). In the 12 months following completion of the this grant, its results will be subsequently applied to: develop and submit a Community Benefits grant based on the results of this study (see item #18), develop standardized criteria for triage referral to the C2C program; and develop clinical and patient-reported outcome measures of the C2C program. As a collaboration between Regional Mental Health and the Division of Research (DOR), this TAP grant will set the foundation for subsequent collaborations between TPMG and the DOR. This collaboration will benefit both organizations: namely, subsequent collaborative projects will enhance the clinical applicability of DOR research projects and advance TPMG's use of evidence-supported clinical care.

13. Data and Methods: Provide sufficient detail to judge if the data required are available and appropriate to address the project aims; if the methods are feasible and appropriate; and if project can be completed within the proposed timeline and budget.

Data will be extracted from the HealthConnect Clarity database tables; [redacted] manages variables in this database that pertain to C2C. Patients who were triaged to C2C will be identified from PARRS scheduling tables. All patients involved in C2C are currently evaluated by IACs in 1 clinic in San Leandro and receive a standardized evaluation. C2C visits will be identified from PARRS scheduling tables; referrals by the C2C IAC will be extracted from Clarity flowsheets following the initial C2C encounter. Ms. Weltzien has collected these C2C program data for administrative presentations and can attest to the completeness of the data in the Clarity tables. Demographic data is available from Clarity patient encounter tables and mental health service use following the initial C2C encounter will be extracted from outpatient clinic data and ED/inpatient psychiatric records. Moreover, Regional Mental Health staff who lead C2C will work closely with the assigned [redacted] analyst to help contextualize the raw data and synthesize the results. We anticipate completing the data extraction, cleaning, and analysis by month 3 of the grant; synthesis and follow-up analyses by month 4; and summarization and presentation of the results and their implications by month 6.

14. Proposed Timeline and Milestones (6 months max. including start and end date):

Q1 2020:

- IRB research determination
- Identification of key demographic, clinical, and service-use variables from HealthConnect Clarity
- Extraction and cleaning of data, refinement of variables that can be used for these analyses (e.g., based on missing data patterns); developing analytic strategy

Q2 2020:

- Analysis of data, refinement of analyses and supplementary analyses based on initial results
- Synthesis of results with Regional Mental Health and DOR stakeholders
- Composition and dissemination of results in written and oral formats (see below)

15. Deliverables: Deliverables should include 'research' deliverables (*e.g*. abstract, pilot data for a future grant application), and clinical/operational plan to incorporate findings into practice (please see 8D above.) Where applicable, indicate any existing performance improvement (PI) infrastructure already in place to implement or act on the results of the analysis.

The results of this grant will be used to submit an abstract for regional and national meetings [redacted], a research presentation for Regional Mental Health and DOR staff, and pilot data for a Delivery Science grant based on C2C data. As summarized above in question 8D, the results will be directly applied to improve the clinical efficacy and patient satisfaction associated with C2C.

17. Internal / Regional Dissemination Plan:
The results of this study will be presented in a grand-rounds style talk to DOR staff, and in a separate presentation delivered to Regional Mental Health leaders. We will also develop a brief summary of "take-home" points of this study with clinical and service-use implications for Regional Mental Health leaders.

18. Plans for Future Research: Be very specific and include an anticipated timeline for development and submission of a future research proposal/manuscript based on project results.
We will summarize these results in a brief report, which we will submit to a scientific journal for peer review within 3 months following completion of the grant. In addition, [redacted] will apply the results to develop a Community Benefit or Delivery Science grant proposal in the next funding cycle. The specific research questions for the new study will be partially contingent on the results of this pilot study. In brief, the next study will use a longitudinal analytic approach to examine patient service use following their initial referral from the C2C IAC encounter. For instance, we will examine rates of clinical service use among patients who were initially referred to non-clinical resources. In addition, the next study will examine the effects of modifications to the C2C program (e.g., implementation of standardized criteria for referral to clinical resources from the C2C encounter), and will study the results of C2C patient-reported outcome measures.

19. Budget and Justification (use TAP program budget and justification templates). $36,000 total costs maximum are allowed; no more than 5% FTE of investigator time may be paid for through the TAP budgets. Note: the TPMG fringe rate (29%) is used for all personnel costs for TAP projects.
Please see the template and justification below.

20. References: Use sparingly; include only citations showing project fills a gap in the literature.
1. Campbell CI, Parthasarathy S, Altschuler A, et al. Characteristics of patients with substance use disorder before and after the Affordable Care Act. *Drug Alcohol Depend.* 2018;193:124-30.
2. Fletcher TL, Hogan JB, Keegan F, et al. Recent advances in delivering mental health treatment via video to home. *Curr Psychiatry Rep.* 2018;20:5-y.
3. Benavides-Vaello S, Strode A, Sheeran BC. Using technology in the delivery of mental health and substance abuse treatment in rural communities: a review. *J Behav Health Serv Res.* 2013;40:111-20.
4. Shore P, Goranson A, Ward MF, et al. Meeting veterans where they're @: a VA Home-Based Telemental Health (HBTMH) pilot program. *Int J Psychiatry Med.* 2014;48:5-17.
5. Smucker Barnwell SV, Juretic MA, Hoerster KD, et al. VA Puget Sound Telemental Health Service to rural veterans: a growing program. *Psychol Serv.* 2012;9:209-11.
6. Reed ME, Huang J, Parikh R, et al. Patient-provider video telemedicine integrated with clinical care: patient experiences. *Ann Intern Med.* 2019;171:222-4.
7. Bartels SJ, Gill L, Naslund JA. The Affordable Care Act, accountable care organizations, and mental health care for older adults: implications and opportunities. *Harv Rev Psychiatry.* 2015;23:304-19.

18. CV and Appendices: Please include the CV of the submitting principal investigator. Use other appendix materials sparingly, including only those relevant for evaluating the proposal.

**High priority goals may include, but are not limited to, those addressing performance improvements in access, quality, service, and affordability. Please also see Appendix for example list of current high priority topic areas.*

Appendix: Example Topic Areas for Targeted Analysis Program (TAP) Submissions

Below is a partial list of current high priority TPMG topic areas provided by the TAP Steering Committee. ***Please note that the TAP program welcomes submissions in ALL areas of high priority to TPMG and KP, not just those on this list*.** These examples are meant to help set the context for investigators and their operations partners interested in applying for current or future rounds of TAP funding.

- **Care coordination interventions:** What elements work best for what subgroups? What are we doing well and how can we improve? How can we improve hand-offs and increase trust and coordination? What leads to members losing trust due to hand-offs? Are there learnings that can be used specialty wide?
- **Shared Decision Making**: What tools resonate the best with patients? What modalities work for the patients? What is easy for the Provider to use and what do they find helpful? Analyze from both the provider and patient point of view.
- **Effects of specialization / sub-regionalization**: What is the impact of fewer specialized provider's concentrating on fewer specializations? What is the care experience of these populations? What incremental efficiency/outcome is achieved from adding technology support?
- **Virtual Visits** (secure messaging, telephone, and video): What is the impact of virtual visits? What makes for a positive care experience? What is the best way to communicate with a patient? What makes a positive secure-messaging experience?
- **Lab results and communication:** Values research for care experience and lab interpretation: What is the best way to facilitate patient/provider communication around lab results?
- **Enhancing care experience / Voice of the customer:** Learnings from high performers on member patient survey (MPS): What are the organizational learnings from providers who consistently score 'Excellent' on these surveys? Do member patient survey (MPS) questions and responses compare to CAHPS and other validated surveys? How does a KP care experience affect CAHPS?
- **Patient Engagement:** How can provider's best engage with patients to help them receive appropriate screenings and follow through on treatment plan? (e.g. FIT positive). Identifying gaps in follow-up care for cancer survivors and other chronic care experiences.
- **Patient reported outcomes (PROs*):*** Pilots, use and clinical relevance for how to ascertain them in a sustainable way and use them to improve care?
- **Optimizing medications:** What are the best strategies to help patients start appropriate evidence-based medications, adhere to them when appropriate and then de-intensify or discontinue medications appropriately?
- **Equitable Care efforts**: Closing gaps based on (income, race/ethnicity, and socioeconomic status). How does cost-sharing affect patient processes and outcomes of care for different incomes and chronic conditions?
- **Technology**: Pilots, use, clinical relevance for mobile technologies – How to translate mobile data for precise and potentially actionable clinical information?
- **Operational Excellence**: How do we reduce cost and increase efficiency? How do we ensure consistent high quality and safety across regions?
- **Joy and meaning in medicine and work**: How do we reduce physician and staff burnout while increasing job satisfaction?

Appendix: Example Topic Areas for Targeted Analysis Program (TAP) Submissions