Zeppo: Our final speaker is Sam Edwards, who’s an investigator and an internist at the Portland VA. I know Sam’s work from his work in hospital readmissions. And this project seems like he’s taken some of the same methodological expertise in a different area.

Samuel Edwards: Great. Thanks Zeppo. Yep, I’m Sam Edwards. I’m a General Internist PCP at VA Portland and the Center of Improved Veteran Involvement and Care. This project’s really exciting to me as someone who trained in VA and continues to train residents in primary care. So this is the Association of the Offices of Academic Affiliation Centers of Excellence and Primary Care Education with Quality and Utilization.

 So inter-professional education initiatives prepare clinicians from different disciplines to work together in teams. But the effect of these initiatives on patient outcomes, such as clinical quality and utilization is unknown. On one hand, the contribution and collaboration of different trainees could improve quality of care. Conversely, IPE could be burdensome and negatively affect the quality of care.

 So the COEPCE was an initiative to integrate physician and nurse practitioner training in the academic PAC clinics.it started in 2010 and since then has now included Pharmacy and Psychology trainees. The first initial sites were San Francisco, Cleveland, Boise, Seattle, and New Haven. Since then they’ve added Houston and Greater Los Angeles. This is a gross oversimplification of the hard work that they’ve done, but generally, the goal is to prepare trainees to work in team-based care, to improve quality of care, and retain trainees in primary care and within the VA. Interventions included: aligning schedules of the trainees of different disciplines, integrated didactics and clinical training environments, quality improvement projects in which all the different trainees work together, and population health management activities.

 So our partnered evaluation center, the Inter-Professional Learning and Practice, PEC, is doing an evaluation and partnership with the OAA’s coordinating center and the individual COE sites who are also performing their own evaluations. Generally, they’re performing a realist evaluation. We try to understand mechanisms, the drive to delivery of inter-professional education. But also looking at the impact on quality and utilization. Overall, we deal with qualitative and quantitative data collection, but for this presentation, I’m going to focus just on the secondary data.

 So the main question here is to determine the impact of the COEPCE initiative on clinical quality and utilization over the first four years of the intervention in the five original intervention sites.

 So to sort of build an analytic strategy, we first started by developing a cross-site work group. So we invited participants from each of the COE sites, in addition from the OAS Coordinating Center, and made sure to include participants from each of the types of trainees. We compared sort of intervention approaches and measures used across sites and then worked together to determine sort of appropriate measures that we could construct using the corporate data warehouse. Then we built a common analytic dataset and sort of compared outcomes using a differences and differences approach with our center.

 So these are the co-work definitions we landed on as a group. So patients that were assigned to the Centers of Excellence were assigned to a team in the Centers of Excellence between July 2011 to June 2015. They were also assigned to an associate provider so they had a trainee primary care provider and they had at least one outpatient visit with the trainee primary care provider. Control patients—so these were in the same clinics, were assigned to non-COE team over the same timeframe, were never assigned to an associate provider, and they also had at least one visit. So for comparing sort of resident or nurse practitioner trainee patients to attendant patients in the same clinics. The attendant patients were never assigned to a resident but could have seen a resident in that clinic.

 The quality measures we agreed on for diabetes, three measures. \_\_\_\_\_ [00:04:31] A1C testing annually, hemoglobin A1C poor controls. This is a measure of over 9 or no measure in a year. And then renal testing. So this is one of the several tests you could do for renal function or being prescribed an Ace or an R [sic]. We also looked at inappropriate prescribing in patients over age 65, so we used the 2015 Beers criteria. And then for utilization, we looked at primary care visits, timely mental health referrals, which is actually a measure that we constructed. So this is a mental health visit within 24 hours of a primary care visit. Primary care mental health integrated visits and emergency department visits.

 So analysis approach was difference in difference. This was a formula demonstrating sort of general form, so the ideas we’re comparing the change in outcomes between the intervention and control group before and after the inception of the intervention, which is July 1, 2011. So we looked from 2007 and 2011 was the pre-intervention period; 2011 to 2015 is the post-intervention period. The analysis was done at the individual levels. We were able to control for age, sex, race, comorbidities, so the Alex Hauser comorbidities, and COE site and standard areas were clustered by individual. For the quality measures, these are ordinarily squares for questions and for utilizations are negative binomial.

 So who’s our cohort, over 110,000 patients who are assigned. They’re assigned to a primary care team at a COE site over the intervention period. About 29,000 were assigned to COE teams. Close to 9500 were assigned to a COE trainee. And then just over 8200 had at least one visit. So we called that our COE group. There were 78,000 patients assigned to non-COE teams, 59,000 were assigned to attending physicians only, and then 50,000 had at least one visit. So we defined that as our control group.

 So some characteristics of patients across our two groups, you can see not perfectly matched. The control patients are a little older, more likely to be male. But COE teams included some women health teams on some of the sites. COE patients were more commonly black. Control patients had slightly higher prevalence of some chronic diseases. But for the difference in difference’s modeling approach, the exact balance of the stages aren’t strictly necessary, just to give you guys a sense of what these patients looked like.

 Alright, so quality measures. So this shows the proportion of patients that met the quality measure, the AIC performed within a year for each year for the four years before and after the intervention began. That’s sort of reliant on the middle is where we started. The bottom is the mean pre- and post-intervention level with a change and then with difference in difference and the key value. So you can see here that not a lot of change. Maybe a modest decline of quality for not a very high baseline for hemoglobin A1C performed with no difference between the groups.

 For hemoglobin A1C poor control, a little hard to appreciate in the picture. But if you look at the mean values at the bottom, so this is a bad thing. You don’t want hemoglobin A1C poor control. So they’re both getting worse. But the COE patients are getting worse more slowly and it’s a significant difference. So that relative improvement compared to controls in the same sites.

 Renal testing for diabetes, no real changes and no difference between groups. Hypertension control, while the picture suggests that the trainee group is actually doing worse, the model there’s no significant difference here. Inappropriate prescribing of the elderly, so here we can see that the trainees have a better baseline rate, but there’s kind of a similar decline for both groups over time and there’s no difference between groups.

 So for utilization, so this is our measure of timely mental health referrals. So we can see that among the COE group, we see a faster increase in the rate of timely mental health referrals over the intervention period than the control group. And the picture is fairly convincing that we’re seeing a real increase here.

 So PCMHI visits, you can see that the prevalence is very low and going up quickly in both groups. I think this stop code was new. So we’re seeing kind of rapid adoption in both groups. But both in the model and in the picture, fairly convincing evidence that the adoption PCMHI visits is faster among the trainee patients than the control patients.

 Primary care visits, they’re both increasing in both groups, but no significant difference in the model. The same with emergency department visits.

 So to conclude, the COEPCE intervention in this analysis was associated with a relative increase in patients of poor diabetes control, increase in timely mental health referrals and PCMHI visits, but no changes in any of the other quality and utilization methods we examined. So limitations, this is an observational study and we think one of the real challenges here is trying to define the cohorts and accurately link patients to trainees. And there were some difficult decisions to make there. We did it in the best way we thought we could, but it was a challenging step. It actually took more work than running the models just trying to define the cohorts.

 So IPE may improve quality for diabetes, increase the use of mental health resources, and appears not to negatively impact any other quality measures. So thanks, everyone. Thanks, to OA and QUERI and I’m happy to take questions. [Applause]

Sylvia Hysong: Hi there, Sylvia Hysong from the Houston Clinic. Thank you very much for your presentation. As with question askers, I have a million questions, but will limit it to one. So if I remember correctly that I read the COE program, the trainees are in there for one year or two years?

Samuel Edwards: Well, it depends on the type of trainee and on the site. But typically, internal medicine trainees are in for the full three years of their residency.

Sylvia Hysong: But the trainees—if they train together, right, so they train together for the three years, and then they scatter to the four winds. And so it would be interesting—so once they leave the traineeship and so you’ve got like 10 years of data. And so I’m wondering—so two things come to mind: 1) it would be interesting to follow the team as a cohort to see sort of how the patients of a given team sort of perform given that they’re supposed to sort of work together. But it would also be interesting to—I’m wondering, have you considered at all following the trainees over time, rather than following patients over time, to see sort of whether the patients of alumni of the program sort of seem to do better?

Samuel Edwards: Right. Well, I mean, there’s a whole data collection effort focused on the trainees and what happens to them and whether they stay in VA and whether they stay in primary care, which I don’t know the result of yet. But that’s a key focus of the study because one of the impacts that we’re really hoping to have here. In terms of how the teams kind of hold together, the way that the teams are defined in each site varies a lot in how cohesive they are vary a lot. So it’s pretty challenging to do. We were hoping to kind of do the analysis at the team level, but, yeah, I don’t want to get too CDW technical, but there’s a lot of issues around defining teams. So we chose to do this at the patient level.