Please stand by for realtime captions.

Good morning, everyone. Good afternoon actually. This is Marghie Giuliano and I am the regional lead from the New England QIN QIO and thank you for joining us for today's webinar entitled and insurers care transition program emphasizes medication reconciliation to reduce readmissions and costs. Before we get started I'm going to quickly review a few housekeeping items. This call will be recorded for training purposes. The recorded presentation will be available within a few business days after the webinar on our website. The phone lines will be on mute for the duration of the presentation. We will take questions at the end and I will provide instructions on how to ask questions at that time. Although the lines will be muted, we want you to actively participate in this session, so please share any medication safety initiatives you are involved with your facility and share via the chat. My colleague in Massachusetts will be monitoring and responding to the chat during the session so we would love to learn more about your efforts and how we might best support you going forward.

Today's speakers have no conflicts of interest to disclose. Our learning objectives for this program are to recognize the association between adverse medication events and hospital readmissions. To identify the roles pharmacists can play in providing medication reconciliation based programs to recently discharged patients and assess the implications of the current studies for prevention programs nationwide.

As I shared already on this call, we want you to use the chat feature so we get to hear from you, what you were doing, what you might need assistance with so let's start by seeing who was on the call. Please type in your name, roles, organization, state and participate via the chat. I am now going to introduce our speaker Jennifer Polinski. Jennifer is the senior director for enterprise evaluation at public health analytics. Jennifer leads CVS Health companywide strategic research teams. We are excited to have Jennifer present her work to us today. Jennifer, I will pass the ball to you.

Thank you. My pleasure to be here and thank you for inviting me. We will talk today about a program CVS did in partnership with a large nationwide insurer.

I'm probably going to be telling you much information you are already aware of, that hospital readmissions, particularly those within 30 days of discharge are quite common. Approximately one in seven patients are readmitted within 30 days and that results in about $41 billion in additional health costs per year. There has been a substantial body of research to understand why that's the case and what factors are driving that high readmission rate. We've seen adverse drug events, whether they be drug interactions, non-adherence, difficulty in filling medication, understanding which medication to take when, reconciling pre- and during hospital medications with post discharge medications, etc. All of those combined are associated with up to two thirds of readmissions. They are primary cause of those readmissions.
Medication reconciliation programs have been around for a long time. We've seen from the literature these programs can result in significant reductions in these adverse drug events. However, to date it is unclear just reducing those adverse drug events would indeed reduce readmission rates. It is also unclear whether medication reconciliation would reduce healthcare costs given the investment you would have to make into such a program. The other barrier we faced as a company and a provider of healthcare is much of the evidence is from academic teaching hospitals or integrated health systems. If we take the academic teaching hospital lens, these are hospital driven programs so at discharge hospitals are providing this service and again, CVS is a broader insurer and a pharmaceutical benefits manager. We can work with hospitals but we are also in touch with over 1000 different hospitals, each of which has its own program so we were interested in seeing whether a program layered on top of whatever a hospital was otherwise doing would make an impact. The other piece is around integrated health systems. The evidence there, those health systems are at a great advantage because they can see all the care of patient is getting as the patient moves from the hospital back to a primary care provider and to specialists. However, those integrated medical centers and academic medical centers only treat about 20% of the U.S. population. Clearly more information was needed. That's the background and underpinnings of our study. We were particularly interested as I said in looking at a commercial insurer supported medication reconciliation program and the two main outcomes we wanted to investigate were 30 day readmission rates and net cost savings so our return on investment. This was recently published earlier this year in health affairs so here is the citation on the left-hand side if you're interested in learning more about the paper and the ins and outs.

Let's move on to the methods we used in the study. Our members in our pharmaceutical benefits benefit program and members of the insurer, these members were discharged any time between June and November 2013. We excluded patients who had a primary discharge diagnosis of malignant neoplasm because those folks obviously would be very different from patients who were otherwise discharged, their healthcare trajectory would be different. The intervention itself was pharmacist led. This is important because pharmacists have a grasp of the clinical knowledge they need to reconcile pre- and post- and even during inpatient drug regimens. They also provided education and support, coaching and motivational support on the proper use and adherence to medications the patient was taking. This could involve things like making sure a person's pharmacy was aware of all the medications the patient was supposed to be taking and perhaps consolidating those and working with the insurer to consolidate the pickup dates so let's say the patient had to fill five medications, the pharmacist could work with the insurer to make sure he or she could pick up those five medications on one day rather than having to go back to the pharmacy multiple times. It could also mean the pharmacist during the medication reconciliation would reach out to the provider with questions and get back to the patient. It could mean does consolidation so if a person had to take a drug multiple times a day and there was a simplified approach that would result in fewer doses per day, the pharmacist would reach out to the provider and suggest that.

There were two levels of intervention. We used several identification algorithms that used age, gender, clinical complexity, history of hospitalization, etc. to stratify members and highest risk of 30 day readmission and at moderate to high risk. The patients at the highest risk received an in-home consultation. The pharmacist went to their home and did.
And reconciliation there. For moderate high risk members the pharmacist performed the medication reconciliation in discussion with the patient on the telephone and all members regardless of their risk level received ongoing telephone support for 30 days and on average there were three additional calls during that 30 days so the pharmacist could reach out to the patient and the patient could reach out back to the pharmacist.

Let's take a look at the study design. On the left-hand side, we have a 90 day baseline period. That is when we are looking at things like a patient pretty medication regimen. Their clinical complexity, what kind of conditions they have. How often are they picking up their medications? Age, gender and other sociodemographic see. The first vertical line is their admission date and you see the baseline period is followed by the period of their hospitalization. We see the second vertical line is there discharge date and that is followed by at least a 30 day follow-up period to see if they are readmitted. Importantly pharmacist typically completed the medication reconciliation within one to three days after discharge and we did not include patients in our analysis who were we had made it prior to the pharmacist reaching out to them.

Members who received a program consultation were in our intervention group. In the control group were members who would have been study eligible but lived in the region of the United States where the program was unavailable. The program I'm speaking about now, members resided in South Eastern states. Alabama, Arkansas, Florida, etc., or the District of Columbia. As a comparison control group we selected members from the northeastern states and used them for comparison. The primary outcome was all cause readmission within 30 days. Our secondary outcome was looking at that readmission and what it was for. If they were readmitted was at the same as the index hospitalization? Had they been discharged with a primary diagnosis of the cardiovascular condition and or respiratory condition. Finally, we looked at the return on investment so you can think about that as cost savings for each $1 we spent and devoted to the program.

Confounding adjustments. As you might imagine, there are certain factors about the patient, about the hospital, about their condition that are going to impact whether or not they are readmitted at 30 days. Those factors are related to both be eligible for the medication reconciliation program itself and related to whether or not they are going to be readmitted at 30 days. We want to adjust for these confounders and make sure to the largest extent possible those confounders are balanced between our intervention and control groups. We used something called propensity score matching. Essentially it looks at the patient's propensity or likelihood of being in the intervention group versus the control and it includes all of the factors of covariance you see listed. At the individual level we have many demographics and clinical variables and that there's a code level we had measures of socio-economic status. Given that persons probability or propensity to be in the medication reconciliation program, we matched intervention to control patients. You might imagine within that match, those two patients have a very similar if not equal likelihood of being in the medication reconciliation program. There were three intervention patients who could not be matched to a control. You can think of those as the outliers, the extreme cases, and those were excluded.

Our analyses, we looked at baseline descriptive characteristics. In the 90 days prior to that persons hospitalization, we looked at their descriptive and by descriptive see will see age,
gender, clinical complexity, etc. We can. Intervention versus their match controls and we also looked at the high risk members who received the program in home and see how their characteristics compared to those receiving telephone consultations. For our 30 day readmissions outcome, we looked at absolute risk. This is an additive measure. We are comparing the proportion of patients or percent the patient who with 30 day readmissions between the intervention group and the control group and we are subtracting those so it is on and add subtraction scale. We looked at risk differences which adjusts for all of those covariance and confounders I mentioned before. Then we looked at risk ratios which are multiplication. Literally the risk of readmission divided by the control group risk. We will go over those as well when we get to the results. Given this was a 2013 study, we looked at the nationwide cost of a readmission event and those are published estimates from the healthcare utilization project which is a survey and data collection project from the agency for healthcare research and quality. Finally we look at the program cost itself and we knew those of course because we implemented the program and that was a weighted average of the in-home and telephone costs.

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All right, the moment you have been waiting for, the results. Here you get a sense of what the patient's characteristics were before they were hospitalized. Here we have 131 into vegan group patients and a matched 131 control group members. The nice thing you will see here, and this is an attribute of the propensity score we use is most of the measures -- most of the characteristics required balanced across the group. For example age which is the first row, average age was about 62 in the intervention group and about 61 in the control group. The one characteristic that remained out of balance were the hospitalizations prior to their index hospitalization. In the intervention group 15% were hospitalized in the 30 days prior to their index where as about 7% in the control group. Similar in balance for 90 days prior to the index hospitalization. We additionally control for this in our analysis and importantly, this would also bias the results. Let's say we weren't able to adjust for this. It would make our intervention group harder to prevent 30 day readmissions because they had evidence of repeated admissions. If it is harder to move the needle on those 30 day readmissions, it is more likely we are not going to see a difference we can attribute to the medication reconciliation program.

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This slide compares patients who received an in-home consultation. There were 54 of those, to those who received a telephone consultation. As we might expect, they are more likely to have hospitalizations in the 30 days prior -- 30 days prior to their index, those are at the highest risk. They are more likely to have an index hospitalization for a cardiovascular condition and importantly, they are more likely to be female and to be older. There also taking at the bottom an average of five medications and telephone consultation folks taking on average four medications.

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Let's take a look at readmission risk at 30 days. There is a lot of information on this slide so I will take some time to orient you to it. The leftmost column are the different outcomes we are looking at. Let's take the additional columns piece by piece. Intervention group risk is the proportion of patients or the percent of patients who are readmitted at 30 days in the intervention group. For readmissions at 30 days for any reason, 12.2% of the intervention group was readmitted. 6.9% of those were readmitted to the same condition as their index hospitalization. Then you see 5.3% cardiovascular condition and 1.5% the index hospitalization was respiratory in nature. In the middle column you can see the comparison with the control group. In comparison 22.1% of control group members were readmitted for any cause within 30 days of
their discharge date and in the following three rows you see how that broke down and what percent were readmitted with the same condition, with the cardiovascular condition or with respiratory. Moving along to the risk difference column. As I mentioned before this is subtracting the two groups so here we are subtracting the intervention group risk from the control group risk and we see we have -- they had an 11.1 percentage point reduce risk of all cause readmission at 30 days. If you think about the error around that, very from 2.3% less to 19.9% last. Because that interval does not cross zero which would indicate they are equal, that is considered a significant difference. The main take away their is the intervention group patients, 11% fewer patients in the intervention group were readmitted within 30 days. If we move over to the risk ratio, now we are comparing the intervention group divided by the control group risk. Adjusted intervention group had a 50% reduced risk of 30 day readmission as compared to the control group. Here you will see that is significant as well. It is really two different ways to look at the same data.

Let's look at return on investment. The program cost per person was $677 and this is $2013. You saw from the previous slide the change in the readmission rate. 11% less and the average cost per readmission from the HCUP was roughly $13,500. When we compare that, the benefit, the cost savings relative to the cost of having the program is 1.99 so a two to one benefit to cost ratio. The cost savings per person was approximately $1300. This was quite valuable. Substantial savings here. Of notes, the average cost for readmission definitely varies depending on where you are in the country. You would see higher average cost per readmission as well as lower depending on where you are.

Let's discuss some of these results and I think this is where I am interested in hearing your questions and feedback as we wrap up the presentation. Too sum up, the insurer supported reconciliation program had a reduction in 30 day readmissions in reduced those by 50%, and the savings of $2 for every $1 spent on the program. As we see it, the success likely dependent on several key factors. We had an algorithm we used to identify members at moderate to high risk. That algorithm included demographics, measures of clinical complexity and past medical use as well as measures of socioeconomic status. We were able to perform successful outreach and enrollment of members and this can be one of the hardest barriers to prevent 30 day readmissions. Once that discharge occurs to the community it can be tough to maintain contact with those patients. Our successful outreach was key too driving our results. As I mentioned before, the initial consultation was within three days of discharge so we want to offer support in these services as soon as possible posted discharge. After that, we offer 30 days of follow-up support. Recognizing not everything is going to be resolved in one in-home visit or one telephone call, we offered at least a month of support. Both patients and pharmacists took advantage of that and the average number of calls during that one month was three. Finally we matched the intensity of the program to the members level of need. The highest risk members of course got the in-home consultations, much more expensive than the telephone consultation. By matching that intensity to the risk, we were able to maximize our impact but at the same time manage our costs.

How does this relate to a broader policy and more important for you all is how we translate this into practice. Readmission prevention is and has been in the spotlight, both public and private payers have focused increasing attention on this phenomenon and are using this in quality
performance measures, financial incentives and/or penalties. Our program we feel offers real-world applicability. Here is three key reasons why. As I mentioned before, only 20% of patients receive their care at academic teaching hospitals or integrated health systems. The majority of Americans are in a disjointed and less than ideal connected healthcare system where all of their providers and provider locations can see the totality of their care. Our successful program was successful because the capitalized on flexible implementation. We layered this on top of whatever initiatives hospitals, providers or other organizations were doing to prevent 30 day readmissions, and because we were able to layer that on, we were agnostic as to those programs and could do our outreach to all of these patients. File it, we capitalized on what we know are really unique and meaningful skills and thoughtfulness and ability to interact with patients that pharmacists process. Having a pharmacist’s medication reconciliation sessions we think is generalizable to many settings, whether it be an insurer or a QIN QIO setting. Of course CVS as a healthcare company we value our pharmacists very much and so we thought they were uniquely positioned to implement this program.

Like I said, work was recently published in health affairs and if you'd like more information I would encourage you to see it there. Thanks so much. I'm very happy to take questions.

Thank you, Jennifer. I think we are ready for some questions. You can submit via the chat or open your phone line to share. Morgan, can you let the participants know how to open their phone lines, and while we wait, Colleen do we have any questions or comments in the chat?

To unmute your line you will press # 6, but while we wait for folks to figure that out, Colleen, are there any questions?

Not currently. Chris said what did the 30 day follow-up look like and how was it communicated to the participant patients?

I'm not sure I follow on the question. During this 30 day follow-up, maybe I will start here and if this is not what you were interested in, please feel free to ask again. Can you speak about the process of getting commercial insurers to support your program, would you put her right answer that one first?

Why do we go in order. Lucy asked what was the criteria used for the in-home visits for the high-risk patients?

Glad to ask that you asked that. Hard to fit on slides that happy to answer that. The highest risk could receive the in-home consultations. They had to use at least seven medications or they used at least five medications and had what we considered a readmission sensitive condition so that would be congestive heart failure, chronic obstructive pulmonary disease or asthma, discharged for pneumonia, diabetes, end-stage renal disease. Some of the mental health conditions, schizophrenia or bipolar disorder or history of falls. I will also say the members at moderate to high risk, those you might imagine were a step down for the telephone calls. Those folks either used five or six medications and had none of the sensitive conditions I described were they used three or four medications and did have one of the sensitive conditions I described.
Great, thank you. The next question says what did the 30 day follow-up look like and how was it communicated to the participant patients?

Again, I'm not sure what that one is getting out but I will try. Within the 30 days, they had ongoing telephone support. What that meant was 24/7 they have access to a pharmacist lead telephone led telephone line. Patients could call in with any questions they had and the pharmacist on call would take that question, answer it and put it in the person’s record, or if it needed action for follow-up, send it to the pharmacist to the patient had been working with. On the other side if pharmacists could reach out to the patient and the pharmacist might reach out to say I talked with your provider about simplifying your dosing schedule, here is what we worked out and here are the next steps, or I was able to schedule you a visit with your provider based on what we discussed about side effects with your medication and here is the information on that. It was presented to patients as an opportunity and an option they had, but not a requirement of the intervention. Hopefully that helps.

Thank you. Our next question is if you could speak about the process of getting a commercial insurers to support the program?

Good question. I think every commercial insurer is going to be unique. One of the things we were able to work in collaboration with our insurer is we have an established relationship with them as the pharmacy benefits manager for the insurer. We already had an established collaboration with them, a track record of helping and supporting their patients and taking medications as prescribed. Improving adherence, avoiding drug interactions, etc.. We were able to present this as an opportunity to enhance that collaboration and take it to the next level to see what impact we could have on medical outcomes.

Thank you. What kind of index diagnosis and was statistically significant in reducing risk?

Good question, let me go back to that slide. We looked at three flavors, if you will, of the readmission risk. Keep in mind we had 262 patients in total in the evaluation. That meant only a certain percent were readmitted so we have relatively small numbers to be able to detect a statistically significant difference by condition. If you look at the third row of this table, same condition as index hospitalization, you will see neither measure, the risk difference or the risk ratio, the risk difference nor the risk ratio were actually statistically significant, and the same goes for if the index hospitalization was a cardiovascular condition or respiratory condition. We just don't see significant there. We believe that is just a lack of numbers to detect that difference.

Thank you. As of now, that is all the questions in the chat. Anybody have any other questions or are there any comments? We do have one from Jeff, of the eligible patient what percent agree to participate? How many covered lives were part of this study?

That's a great question. I don't have how many covered lives. I will say this is a large nationwide insurer. Of the eligible members for the program, either they were identified at highest risk or moderate to high risk, approximately 15% could not be contacted at all and 11% of those who were contacted the client to participate. When we asked them the reason they are declining,
roughly half of them said the program will be useful in 27% said they had other services that would meet the same needs so they were duplicate of services.

Thank you. How many hours are required to manage the 131 patients for consultation documentation?

That is a good question as well. Let me look that up. I don't see it immediately available in my notes. One way we could back that out is looking at the cost of the program itself which was $677 per member. As you might imagine the medication reconciliation initial consultation was several hours both with the preparation -- not both but the actual consultation and follow-up and documentation. I would have to get the exact numbers to you.

Okay, thank you. There are no more questions right now in the chat. If you have a question please chat in and comments are welcome as well. A couple people asked when the slides will be available and Marghie just posted our website and now you can download and print those.

If you have a question you wanted to ask Z of the phone press # 6 to unmute your line.

[Echo in Audio]

Can you guys hear me?

We still hear an echo.

[Captioner has been disconnected from audio]

Hello?

I just tried muting all participants to see if that helps. Jennifer, if you can press # 6, are you still there?

I am.

Okay, let's get back to questions and answers. The last question is is the ensuring hospital willing to pay for continuation of the service based on the outcome of this study?

Yes, in this case we did continue to work with the insurer and refine the intervention itself based on some of the things we learned about the highest risk patients and those consultations. We are still working with that insurer and we continue to work with other insurers. As well as other healthcare systems to talk about this kind of collaboration. Okay, thank you. Someone asked if the if event was available for CE credit?
We do have accreditation and we will give you the coded just a minute as we wrap up. All pharmacists to fill out the evaluation will able to get ACPE credit for this program. Do we have any other questions either via the chat or if you want to try on the phone?

We do have one from Sandra, to what extent were pharmacists involved in the readmission process? Were new reconciliations performed to find out if readmission was as a result of the medication regimen?

That's a great question. I am not familiar with that part of the program and what happened if the patient was readmitted. I can ask the program brains if you will to see what that looks like.

Thank you. If there other questions feel free to chat in or unmute yourself.

Any other questions out there?

We do have a question, were the same pharmacists going into the home and conducting the telephone follow-ups?

Yes, it could be.

Great. We will give it one more minute to see if anybody has any follow-up questions.

Or if you would like to share anything similar you are doing in your organizations.

Jennifer, I want to say thank you so much for the presentation. It is very exciting especially for the pharmacists on the call. I think it is definitely real-life research and I think that is definitely valuable. Right now we have on the screen the future of our lunch and learns. In January we would take a deeper dive into managing chronic pain. We will have Michelle Matthews from Massachusetts who will present I'm breaking the back of the beast, improving outcomes in chronic pain management through commonsensical opioid use. Later in January we will have a panel discussion which will feature the Connecticut director Robert -- who will receive the prescription drug monitoring program and who also hear from two clinicians who used the tool so save the dates for that. As you see we have a program in March on the antibiotic stewardship we would do a deep provide into anticoagulants in May and in July we will be looking at diabetes. Our code for the program today is reconciliation so for pharmacists looking for ACPE credit make sure you fill out the evaluation and include the ACPE code for that program. Now on the screen I wanted to share with you contact for your safety lead in each of the states. If you have some initiatives you are undertaking and you would like to share that, please feel free to reach out to us however we can help you. Thank you for attending today's webinar and I wish you have a wonderful holiday season.

As you close out of the webinar the evaluation will pop up on your screen. If you could fill that out we would greatly appreciate it. The PowerPoint presentation is located on our event website and I put the link into chat but again it will be in the e-mail you will receive tomorrow which will include that link as well as the evaluation should do not have time to fill that out today. The New England QIN QIO is now a social media and you can find this on LinkedIn and Facebook said
check us out to see the upcoming events we have going on. Our next webinar is January 10th so be on the lookout for e-mails about that and thanks again Jennifer for great presentation and thank you for bearing with us during some minor technology issues that everyone have a great day.

Thank you.

[Event Concluded]