Session date: 2/01/2016

Series: VIReC Databases & Methods

Session title: Examining Veterans’ Pharmacy Use with VA and Medicare Pharmacy Data

Presenter: Walid Gellad

*This is an unedited transcript of this session. As such, it may contain omissions or errors due to sound quality or misinterpretation. For clarification or verification of any points in the transcript, please refer to the audio version posted at* [*www.hsrd.research.va.gov/cyberseminars/catalog-archive.cfm*](http://www.hsrd.research.va.gov/cyberseminars/catalog-archive.cfm)*.*

Moderator: Welcome everyone to VIReC Database & Methods Cyberseminar entitled “Examining Veterans’ Pharmacy Use with VA and Medicare Pharmacy Data”. Thank you to CIDER for providing the technical and promotional support for this series. Today’s speaker is Dr. Walid Gellad. Dr. Gellad is an Associate Professor at the University of Pittsburgh’s Schools of Medicine and Public Health. His research focuses on physician prescribing practices and on policy issues affecting access to medications for patients. He is currently studying the overlap in prescription use among Veterans cared for in multiple health systems. If you have any questions for Dr. Gellad during the presentation, please send them in using the Chat Box, I will present them to him at the end of the session. After the Q&A there will be a brief evaluation questionnaire, if possible please stay until the very end and take a few minutes to complete it. I am pleased to welcome today’s speaker, Dr. Walid Gellad.

Dr. Walid Gellad: Thank you Hera [ph]. Thanks to VIReC for the invitation to come back and present on the topic of Pharmacy Use. I apologize in advance for my coughing and my throat clearing I have a cold, but I will make it through the whole thing.

As last time when I presented many of the slides come from prior VA speakers so I just want to acknowledge them and their input. This will be about forty minutes and then there is plenty of time for questions so looking forward to your questions. Before we get started we will have a poll question which I will go into right now. [pause]

Heidi: And the first question we have - I am interested in VA data primarily due to my role as \_\_\_\_\_\_\_\_\_\_\_. Research investigator; Data manager; Project coordinator; Program specialist or Analyst or Other. If you fit in that Other category just send in on the questions pane what that other Category is and we can read that through the phone line.

Dr. Walid Gellad: Thank you Heidi I will take care of that next time.

Heidi: Oh no it is fine not a problem. Responses are coming in nicely; I will give everyone just a few more moments to respond before I close things out. It looks like we have slowed down so we will go through what we are seeing here. We have thirty-one percent saying Research Investigator; sixteen percent Data Manager; fifteen percent Project Coordinator; twenty-eight percent Program Specialist or Analyst; and ten percent Other. And the response we have in there is Research Oversight. Thank you everyone for participating.

Dr. Walid Gellad: Thank you and there are a few others actually but it is helpful for the talk to know who is here. The other question is – Have You Ever Used VA Pharmacy Data? The responses are Yes or No.

Heidi: Again I will give everyone a few more moments to fill this out, should be a pretty quick response and I will close it out and we can go through that. It looks like we have slowed down so what we are seeing is fifty-three percent saying Yes and forty-seven percent saying No. Thank you everyone.

Dr. Walid Gellad: Alright so that is a great mix and the last question here is – How Would you Rate Your Overall Knowledge of VA Pharmacy Data for Those Who Have Use It? One - Never Used; two, three, four, five - Used Frequently – Very Familiar. So from one to five.

Heidi: And again, I will give everyone just a few more moments to respond and we will go through the results here. I can definitely see where we are trending though so I will give everyone just a few more moments and we will go through that on the line. And it looks like we have slowed down but what we are seeing is thirty-four percent saying they have never used it; twenty percent gauge themselves at a two; twenty-seven percent at three; sixteen percent at four; and three percent used frequently – very familiar. Thank you everyone.

Dr. Walid Gellad: Great so those who answered four and five in the last part can send in questions clarifying anything I might have set incorrectly or if there are any questions that I cannot answer, I am totally happy for anyone else to pipe in with an answer.

Let us get started. Here are the session objectives, we are going to start with just a brief intro to how pharmacy data has been used in VA studies and it will be a broad overview and then we will go into detail in some of the studies but you can use this as a reference later. Then we will talk about just an over of VA Medicare pharmacy databases and then talk about how to find information in VA Medicare Pharmacy Databases focusing specifically here on how we identify drugs of interest, and then a few words about cost. Then we will go into more detail about some specific VA studies that have used the VA and Medicare Pharmacy Databases.

Let us start here with a brief intro sort of a survey of several studies that have used VA Pharmacy Data. Here is the first one, this is from Elizabeth Tarlov from a few years ago and this is a common way in which pharmacy data is used and looking at trends in medication used. As I looked at trends in anemia management specifically the use of erythropoiesis-stimulating agents in the VA before and after a black box warning. Again this is a common way that pharmacy data is used and we will talk about this in more detail at the end of the talk.

Pharmacy data is also used for cohort identification and this was the study from again a few years ago from investigators in Houston using the pharmacy database to identify patients with a particular condition in this case rheumatoid arthritis. You will see examples like this in lots of other conditions where pharmacy data is used to identify conditions.

Another broad category I would say of pharmacy use would be measuring the quality of medication prescribing. And this was a study from last year Brian Lund from Iowa, looking at incidence versus prevalence based measures of inappropriate prescribing in the VA Health Administration. Again another broad category of pharmacy use and this was a nice example of using the DSS or what is now known as MCA database which we will talk about later.

In a similar category about measuring quality of medication prescribing, this is a study again from last year from investigators from RAND looking at the quality of medication treatment for mental disorders in the VA. Next they use VA data and compared it to market scan data to look at commercially insured individuals.

Here is another study this is from a few years I was involved in this study and I would put this in the broad category of medication adherence studies. This was specifically looking at adherence to hormonal contraception among women Veterans and looking at differences by race and ethnicity. Here PBM data was used and we will talk more about the differences between these different databases later.

Again, another study from last year this was one of my studies and this is an example of using pharmacy data on Veterans from both VA and Medicare simultaneously. So we will talk about this in more detail at the end of the talk. It will have some important lessons about how you use both of these databases together. This was looking at dual use of VA and Medicare benefits and use of glucose test strips among those with diabetes.

And just two more again there has been a lot of these really interesting studies recently. This is from Jeremy Sussman from Michigan from last year and it was looking at rates at the intensification of blood pressure and diabetes medication treatment in older adults. Here they actually used CDW data on blood pressure and diabetes medication.

Lastly, a study that I was also involved in looking at tight glycemic control, this time and in older adults who had dementia. This used VA PBM data and Medicare data and we will talk about this in more detail at the end specifically because it was a very interesting way of using Medicare data to define the cohort and actually did a find some exclusion criteria.

That is just a broad overview of some of the more recent studies that used VA pharmacy data and some that used Medicare data. There have been a lot of other ones but we will go into some more detail about some of these a little bit later.

Now let us talk about the specific databases that I mentioned before. All prescription orders are captured in VistA in the local VistA file. It is where the pharmacy data are entered, processed, and stored and then they are aggregated nationally in these various National Data Sources. The National Data Sources are listed they include PBM or Pharmacy Benefit Management Database; what is now called the Managerial Cost Accounting (MCA) these are The National Data Extract (NDE); The Pharmacy Datasets this is what was called Decision Support System or DSS data until recently. Then separately there are separate pharmacy data in the Corporate Data Warehouse that we will talk about and then finally, Medicare Part D Events Data from the Slim File which is where you get data about Medicare prescriptions.

There are other key pharmacy data sources and these are summary data, not person level data and we will talk about these in a little bit of detail. This is the DSS or what was called the DSS product table which is a listing of all DSS products. Then the National Drug File which is listed of all the drugs in the VA. We will talk about those in more detail.

I want to do one more poll question here and that is – Which National Sources of Pharmacy Data have you used in the past? The MCA National Data Extract; the PBM Pharmacy Data; CDW Pharmacy Data; Part D Slim File or None.

Heidi: And you can choose more than one option here. I will give everyone just a few more moments before we go through the results of this poll question. It looks like things have slowed down so we are seeing eighteen percent staying MCA NDE Pharmacy Data; sixteen percent saying PBM Pharmacy Data; forty-six percent saying CDW Pharmacy Data; five percent Part D Slim File; forty-one percent none. Thank you everyone.

Dr. Walid Gellad: That is really helpful to hear. I am surprised by the big number of CDW Pharmacy Data which may be relatively new to some of the researchers at least. I have the most experience with PBM data and we will talk about all the datasets.

So what about the PBM Database. Outpatient data on prescription available from Fiscal Year 1999 and inpatient data from Fiscal Year 2003 and again the source of the pharmacy data is really the local VA facilities VistA systems which are aggregated nationally. This includes records for inpatient and outpatient prescriptions from VA pharmacies or those that are dispensed through the CMOP, through the Consolidated Mail Outpatient Pharmacy. These data are housed by PBM, the Pharmacy Benefits Management Group and are available through custom extract. A request process is in place and it is outlined on the PBM website for how to request the data. The next slide will show you exactly what the data looks like and I think it is valuable to actually go through these variables so you can see what is on here.

If you start at the top this is the VA product name and the VA product name includes not just the generic name which Diclofenac in this example but also other information. For example – the strength, the fact that it is a tab and that it is enteric coated. There is a lot of information in that VA product name. There is the VA class variable it tells you what class it is in and then the generic name and the direction for use which is something that is useful that is in the PBM data, here it says take one tab. We have a field for the dispensing unit which in this case is a tab but it could be in other situations a syrup or a liquid or a suppository or a pen if you are talking about an insulin pen. So it is a really valuable variable to have. You have data supply, total quantity and then the price per dispensing unit. This is really the price in this case per tab that you can see dispensing unit is tab so fifteen cents per tab. Then if you multiply the total quantity by the price you get the total drug cost. This is just the acquisition cost, the ingredient cost of the drug for the VA and we will talk more about some of the cost variables later, but that is what is in the PBM data is this ingredient cost. Then release date and then the NDC code which we will talk about in more detail and then whether or not it is available through the CMOP. Those are some of the key variables in the PBM data.

What about MCA formerly DSS pharmacy datasets. While this is going to be very similar to data available within Fiscal Year 2005 it includes records for inpatient and outpatient prescriptions, again from the VA pharmacy then the CMOP. The same thing that the pharmacy data source is the local VA facility VistA System. Now, this MCA data is housed within custom extracts in the corporate data warehouse in yearly extracts. So it is a different process for requesting the data and after I go through some of the other data sources we will specifically compare what is in MCA versus PBM versus CDW. I do not have a specific field like I did with PBM about each of the fields in MCA.

What about CDW? Here the data is available from Fiscal Year 2000 and same source as the pharmacy data is the VistA file and CDW has two pharmacy production domains - outpatient pharmacy and then the BCMA, the Bar Code Medication Administration. I am going to focus really on outpatient pharmacy and not the inpatient BCMA data.

The CDW has two types of tables really, it has Fact Tables which are larger and have more sensitive data in them and there are so-called Dimension Tables which are smaller and have supporting information that are accessed repeatedly in the course of doing the analyses. There are great Cyberseminars actually specifically are using CDW data, so that is the extent of how I am going to explain CDW. Specific to pharmacy there are four pharmacy fact tables – RxOutpat; RxOutpat Fill; RxOutpat Sig; and then medication instructions. And you can imagine what those have in each of them. Those four tables are linked by a primary identifier of each prescription order which is RxOutpatSID. That is how you link between the tables. The six dimension tables linked to this RxOut Fact Tables by Dim Table specific primary keys and I will show you in a slide upcoming. For example in the dosage form dimension table there will be a dosage form SID which will link back to the fact table. These tables have to be linked together in order to access, to identify, to put together the specific data you are interested in for each prescription order.

Here is a schematic and focus first on; I wanted you to get a feel for how this really works in CDW so if you start with the middle row this is RxOutpat. And you can see and we have made up some of these numbers so we are not identifying any patient information. You can see there is an RxOutpatSID, and identifier and then the station number, the prescription number, the issue data which is Christmas of this year. There is a cancel date field whether it is a partial and here is the patient identifier and then there is a local drug SID and there is a national drug SID. You can use these to connect to the dimension tables so for example the local drug SID would connect to the local drug dimension table on this local drug SID. Then you will have additional information on this local drug table including the station, the specific drug with the dose, the NDC code and here is the drug name, this is the national drug name and this is the local drug name. In order to get this information about NDC and about what specific drug you are looking at for this particular fill you need to link based on the local drug SID or the national drug SID which will link to the national drug dimension table and give you similar information. For this particular fulfill you can also link to the SID table by this RxOutpatSID which will give you the specific instructions for use – take one tab b.i.d. This gives you a sense of exactly how you use these different fact tables and dimension tables to come up with the different variables you need for your analysis depending on what exactly you need. At this point if it were an audience I was in front of I would actually look at your faces to see if you are getting it, but we will see in the questions later whether that is the case.

There is great documentation about CDW and I put the link up here and really, really good documentation. You can use that as a reference for later.

Let us compare use a table comparing these pharmacy sources on some of the variables you are more likely to use. Data availability at this point really is pretty similar across all these sources whether it is PBM or MCA or CDW. Cost data is a difference again in the PBM data there will be a drug product cost. This is really an ingredient cost, the cost to the VA for purchasing the product and then there will be a patient payment. If you are interested in more sophisticated analyses of costs, really the MCA data is the place to go, formerly DSS, where there are several cost variables and I have listed them here and we will talk about them in more detail later. The drug product total cost, the dispensing labor cost and the variable supply cost. In CDW you have a unit price. Then directions for use are not available really, they do not contain the same dosing instructions or dispensing unit in the MCA data where those are present on the PBM and CDW data. Each of these data sources will have an NDC code although in the MCA data it is contained within the feeder key which is a specific variable and I will mention that in just a little bit.

There are strengths and weaknesses of each of these depending on exactly what you want to know and what specific aspects you are mostly interested in. There was an analysis that is a little old now but it looked at data comparability and this was done by VIReC and compared DSS at the time, now called MCA compared DSS and PBM data sources on outpatient prescriptions for a cohort and found that nearly all the same prescriptions appeared in both files with a very low discrepancy rate. And you can see the reference down there and the reference for the Research User Guide from VIReC which is very useful for first time users of pharmacy data within the VA.

What about the Medicare data? In 2013 forty-four percent of VA Medicare dually enrolled Veterans were enrolled in Medicare Part D. So a large percentage of Medicare enrolled invidious. Part D is different than A and B; claims for drugs are paid for by specific private insurance companies not by Medicare. Although those insurance companies then submit data on filled prescription to CMS or all prescriptions filled and that is what is called the prescription drug event file which is available for use by researchers. There are other files also including information about the plans; Medicare beneficiaries are enrolled in; the formularies for specific plans; pharmacies where drugs are filled and information about the prescribers. Those are available from ResDAC through VIReC and they have a cost associated with them, a substantial cost associated with them. We are lucky in the VA researchers have access to the Slim File through VIReC which is a subset of the Prescription Drug Event data, the PDE data. It is thirteen variables, the most common variables that you are going to need to understand what drugs are being used by Veterans dually enrolled in Part D. I am going to show you that in a few slides.

There is other information from Medicare you are going to want, Medicare Part D enrollment for example is very important and the Medicare enrollment files. The variables are for example the number of months that they are enrolled in Part D coverage and the type of Part D plan they are in whether they are in a managed care plan or prescription drug plan. If they are in a managed care plan you are not going to be able to access Parts A and B data on those individuals in Medicare because of issues around how managed care deals with encounters. Again, the PDE file and the Slim File is thirteen variables from the prescription drug event file available from VIReC in the custom extract and data available now through 2012.

This slide will give you a sense of some of those key variables so this is from Medicare Part D, again the Slim File. Service date, the product service ID which is the national drug code which is an eleven digit number in Part D as it is in VA and we will talk more about that. The quantity dispensed the day supply. Here is the patient payment and the gross drug cost and the brand name, dosage form in this case tab, strength and then a generic name. And those are key variables really to understanding non-VA pharmacies use by Part D enrolled Veterans.

There are other, I will just briefly mention these other data files, the DSS product table is a list of all products that are categorized in the DSS or MCA. And some of the key variables are the IP number which is the unique identifier, the feeder key and then there is a description about the drug and then the specific drug class. The feeder key the first five characters are the VA product file internal entry number. It is the identifier on the local VistA product file for that drug. The last twelve characters of the feeder key are the NDC and actually they take the eleven digit NDC and they add a leading zero. In that way you can find the NDC code from the feeder key in the DSS data.

Here is a link if you want to learn more. The National Drug File is used to standardize information about drugs available in the VA across VA facilities. You can see information here like the VA product name, again the feeder key, the NDC code, the VA class, whether it is prescription or over the counter and the dispensing unit. This can actually be very useful if you have a set of NDC’s for example from a non-VA source and you want to link them in or match them into a VA class. That is where the National Drug File can become very useful, it is not a person level file but it is a file of all the drugs.

That is an overview of VA Medicare Pharmacy Databases. Now I want to talk about finding information in VA Medicare Pharmacy Databases and I talked about a bunch already but I just want to focus really on identifying drugs and then talking about costs.

How do you search for medications of interest? Let us say for example that you want to look for all diabetes drugs. How would you start if you wanted to find all diabetes drugs among Veterans and all diabetes drugs that they use VA and all diabetes drugs that they use in Medicare? You can search by drug generic name in which case you need to know to know all the generic names that could possibly be included in diabetes or you can search by medication class if that existed. For example in VA HS501 and 502 are the diabetes medication classes but there are a few caveats. One is that medication class is not available in the Part D Slim File so you cannot just say I want to search for all diabetes drugs. You have to be careful in VA data among these classes sometimes there are to going to be drugs in those classes you do not really want and the best example in diabetes is the glucose tabs which if you are just looking for drugs to treat diabetes or hypoglycemic drugs sometimes do not want to include beaucoup steps. You can also search by National Drug Code by NDC and you can use Medi-Span for Stata Bank or some other database to obtain these NDC codes. I will tell you from personal experience it is not ideal to use NDC in the VA if you do not have to but in some cases you really have to use NDC and in other date like Medicare it becomes very useful and then in Medicaid data it is actually essential.

Let me just give you a slide on what the NDC code is if you do not know. It is a unique ten digit three segment number and the segments identify, the first segment identifies the labeler, the product and the commercial package size. So there are three segments and it can be in different formats; it can be four/four/two and these all add up to ten; it can be five/three/two or five/four/one. Here is an example of a ten digit NDC for a hundred count bottle of Prozac 20 milligrams. The labeler code is assigned by the FDA, it is the specific labeler the specific manufacturer or the labeler if it is not a manufacturer and it is either four or five digits. That is how you get this four/four/two or a different configuration. In this place it is the four digit labeler code. The product code is specific for Prozac 20 milligram capsules and then the package tells you that it is a total of a hundred pills. That is the NDC code. Now VA PBM and in the Part D data will use an eleven digit NDC where this is a ten digit NDC and I actually do not know the details it is something related to HIPAA but is now standardized to use an eleven digit NDC in the format of five for the labeler code and then four then two. This is really relevant when you are searching across VA and Medicare data.

I will show you an example. Here are two VA product names different products, this is Hydrocodone acetaminophen and this is Oxycodone that have the same NDC code. In this case you can see it is an eleven digit number and it is the same NDC. There might be a lot of reasons and there is some error, but a lot of reasons why the same NDC might be present for two different product names – either the VA product name is wrong which is unlikely or the NDC is wrong. So it turns out actually and this happened when I was looking at some drugs, it turns out that this NDC is actually Viagra and this is neither Hydrocodone nor Oxycodone and it just tells you the issue with using NDC for research purposes within the VA. Here is the ten digit NDC for Viagra and you can see what happens typically to convert from ten to eleven digits is you add a zero to whatever segment needs to be extended. So to go from four/four/two to five/four/two you add a leading zero which is how you get this eleven digit NDC. This is just a warning that NDC’s can be very useful but you have to be very careful when you use them understanding that they can be wrong in some cases they have been transformed from a ten to eleven digit NDC.

That is a little bit about NDC codes, let me just talk about the cost variables. The MCA and PBM data contain different cost variables. PBM as I mentioned is as the cost of the drug product from the supplier, these are the ingredient costs. MCA has these three cost variables and before I go into those I will say that if you really plan to use the cost variables there is a really nice HERC technical report and information in the VIReC user guide that you should go through and probably even contact HERC because it can be a little complicated. The dispensing cost is the direct pharmacist labor for dispensing the prescription and the mailing cost if it is mailed. So if it is dispensed at the window then there is no mailing cost. The supply cost is the cost of the supplies used in preparing the prescription like bottles and labels and it also includes the cost of the drug. If it is a CMOP dispensed prescription and in case people are not familiar CMOP is the centralized pharmacy where drugs are mailed out to all Veterans. If it is a CMOP prescription sometimes only the acquisition costs of the drug will be included. Actual cost includes the drug product cost, the cost of supplies that we just talked about and overhead but it does not include dispensing costs. So if you really want to know the total cost of the drug you really would want to look at the actual cost which includes the drug product cost and the cost of the overhead and the supplies plus the dispensing costs which are the pharmacist labor costs. That is very different than just looking at in PBM data the ingredient costs for the drug. It is very different from looking at costs in Medicare in the Slim File. In the Slim File you will have two variables – the patient pay amount is the amount that the patient pays for the medication, this is the co-pay. Then you have a gross drug cost variable which will derive from a sum of ingredient costs paid, the dispensing fee paid and the total amount attributed to sales tax and vaccine administration fees that is relevant. This gross drug cost includes the dispensing fee which makes it different from just looking at the ingredient cost that you might get from VA. The dispensing fee is going to be different than dispensing costs in MCA data which is a measure of pharmacist labor costs. I will just let that sink in but those are the variables available to look at costs for drugs within these databases.

Let me go into a little bit more detail in this last section about some of the VA studies that have used the pharmacy databases and then we will get to questions. There have been many questions addressed with pharmacy data and I mentioned some of these - Cohort identification - can pharmacy data to be used to identify specific groups of patients? Medication utilization - does a specific policy change impact medication use? There are studies of quality which I already mentioned, studies of adherence and then studies of exposure to specific medications. Are they associated with better or worse outcomes? Some more traditional pharmacopeia. There is interest and I think this is real interesting in combining outpatient and pharmacy data to identify events. For example - can you identify an acute exacerbation of COPD with outpatient and prescription data combined? Then there are nice examples of studies using prescription data to identify comorbidities.

Just a few examples again, this is the Tarlov study from a few years ago and the objective here was to examine erythropoiesis-stimulating agents in lung and colon cancer patients receiving chemotherapy. These are drugs like Procrit or Epo. And there was a black box warning in 2007 with significant restrictions on the use of these drugs and the idea was to look at trends and their use.

How was pharmacy data used? Pharmacy data was used to examine whether ESA, the erythropoiesis-stimulating agent use differed before or after a black box warning which was here in 2007. Now look at trends in ESA use over time. Source of pharmacy data, PBM and MCA data and ESA’s were identified in the PBM database using NDC codes. An important note is that ESA’s were also identified actually from CPT and HCPCS codes from VA inpatient and outpatient encounters. HCPCS codes are healthcare common procedure coding and this is simply an important lesson that sometimes if you have to look at non-drug files to identify a drug. In this case the drug is physician administered or administered in the course of an office visit, it may show up as a CPT code or HCPCS code rather than a dispensed prescription. Another example of that is methadone for substance abuse disorder which is dispensed in a substance use disorder clinic with CPT codes not dispensed from the pharmacy.

Here out of interest is just to give you some results is what they found in both colon and lung cancer that ESA used began to decline for both cancer groups before actually the black box warning was issued but declined quite dramatically.

This is another example, this was again from last year the objective of this study was to examine risk factors for tight glycemic control in a population of older Veterans with Type 2 Diabetes and dementia and look at medications associated with high risk of hypoglycemia in this cohort. The analysis used PBM data to identify patients with diabetes but what I think is really interesting is how Medicare data was used to identify the cohort specifically here excludes those who would use Part D drugs. As you all know, one of the issues when you do studies within the VA, is you cannot necessarily know if drugs are being used outside the VA. If you want to Part D data, you can identify drugs used outside the VA, but if that data is not accessible you may be able to limit the sample to those who are likely to use VA for all their prescription medicines.

Here is the flow chart from the study, here are VA users with diabetes aged greater sixty-five there are about six hundred thousand across the VA, older Veterans with diabetes and if you limited it just to those who have dementia there are around fifty-one thousand. The study excluded those who had other credible drug coverage and this is present in the Medicare beneficiary summary file, the enrollment file really for Medicare you can identify individuals who are enrolled in a prescription drug plan, a Part D plan; if they are enrolled in Medicare Advantage or if they have credible employer sponsored coverage. By identifying these people then you can limit those who are likely to use VA for their prescription medication, these are individuals over the age of sixty-five who do not have Part D and do not have employer coverage. The study further excluded those individuals if they had their A1C solely monitored outside the VA to really focus on older Veterans who were having their diabetes managed within the VA.

There is not time for results, but the results basically is that there is a tremendous overuse of diabetes drugs in older patients with dementia about half of these older patients with diabetes and dementia had an A1C level of less than seven and most of those individuals were using a sulfonylurea or insulin with a high risk of hypoglycemia. But it is a nice example of how you can use some of this data, not specifically to look at drugs, but to try and identify individuals who are lucky to use VA for all their medication use.

Here is the last study I wanted to end, this is my study from last year looking at test strips and the objective here was to examine the patterns of glucose test strip received among older Veterans with diabetes and look at the association of dual health system use with overuse. This was really using both VA and Medicare data simultaneously. It was cross-sectional; we used National VA Administrative data linked to Medicare Parts A, B and D claims from Fiscal Years 2008 to 2009. In the end there were three hundred sixty-four thousand community dwelling Veterans over the age of sixty-five with diabetes. We used the VA system and received test strips in a particular Fiscal Year.

In this cohort we used VA Medicare data for everything, from identifying the cohort to identifying comorbidities, medication use and test strip use. The first step, we used PBM data, pharmacy data to search diabetes medication. In this case we looked by diabetes drug class and also generic names then we combined that with diagnosis codes from the meds desk to identify those who had Type 2 Diabetes. That was simply for identifying the cohort. Then we used PBM data and the Part D files and just an incidental note here that the Part D files are arranged in calendar years whereas typically when you get PBM data or other VA data it is in Fiscal Years you just have to reconcile those two time issues. We used PBM data and Part D files to classify patients based on the type of diabetes medication they used – whether they used no meds, oral meds only, long-acting or short-acting. For Part D medication we used NDC codes that we obtained from Medi-Span from the source of drugs with NDC codes to search in Medicare Part D. Then we used PBM data within VA to search for and quantify test strips which are actually dispensed products by the pharmacies within the VA. In Medicare we used the DME or durable medical equipment files to search for and quantify test strips in Medicare because test strips are a not in Part D data they are not dispensed in Part D they are sent as durable medical equipment in a different file.

What did we find? Just a quick summary of what we found. Overall there were two hundred and sixty thousand Veterans, seventy-one percent who got their test strips from VA only; twenty-two percent from Medicare only and there was about twenty thousand Veterans who got their test strips from both VA and Medicare in the same year.

This is a graph of the median number of test strips that they got in a year and these are the different medication groups. You can focus just on this group. This is the group that takes no medicine, they had diabetes but they are on no medicine, none from the VA and none from Medicare Part D. Then the results are stratified by where they got their test strips - VA only; Medicare only or VA and Medicare. You can see across these different categories individuals who got their test strips from both Medicare or Medicare and VA were more likely to get a vastly higher number of strips in each year. To do this really required searching across VA and Medicare files in order to find this.

Lastly, this was not in the paper but I thought it was real interesting to share. If you focus on the overall column right here, this is among all diabetics over the age of sixty-five in the VA. The rows give you the source of their diabetes medication. So sixty-seven/sixty-eight percent of all diabetics in the VA receive their diabetes medications from VA only; twenty percent are on no meds; but four and a half percent receive it from CMS only, about seven percent receive their medications from both VA and Medicare in the same year. In some of these groups for example the group that is on long-acting insulin or short-acting insulin it is more than one in ten that are going their diabetes drugs from more than one health system so just illustrating again the importance of being able to work with these datasets.

Let me end with just some information on where to go for more help. These really serve more as references for you when you come back or for others who are listening. There is a great VIReC website that focuses specifically on VA CMS data, Part D data that is available for Veterans. There is a lot of information on the VIReC webpage about pharmacy data and there is this user guide which is slightly old now, but it is still very, very useful for understanding the different data sources specifically at MCA versus PBM and it has information on every variable in each of those datasets and what they mean. They are very useful. ResDAC I put here is a very useful dataset for Medicare researchers. It is the VIReC I guess of the outside world it is a resource for researchers and others who are interested in Medicare data. And also I did not list here but the VINCI website itself has really good data and I had the link before in an earlier slide about CDW. There is the listserve as you probably all know and the message on listserve are searchable in case people want to look back. The VIReC help desk I will tell you from personal experience they are also very knowledgeable and very helpful.

That is all I have to present, I am on time and will be happy to take any questions.

Moderator: Thank you Dr. Gellad. We do have a lot of questions for you so I will get started with some of the general ones that we have. One of the first questions was – from someone who claims she is very new to VA data. Why would pharmacy data need to be used to identify a condition? Aren’t diagnosis conditions available in the medical record?

Dr. Walid Gellad: Yes the diagnosis conditions are available in the medical records and some people just use diagnosis codes but there is tremendous under coding with the VA and I will tell you, you can identify individuals who have diabetes if you use a drug in addition to ICD-9 codes compared to if you just use ICD-9 codes. There have been a few papers talking about the best way to identify patients with diabetes. ICD-9 codes are there but they are not at all perfect, there is a lot of incentive outside the VA to code because of reimbursement issues. In the VA there is much less incentive and so sometimes codes do not show up when you think they should. Another great example is actually dementia where you will identify a lot more people with dementia. If you look than Medicare data they are just not coded with the VA.

Moderator: Okay thank you. Does PBM include both inpatient and outpatient dispensed medications?

Dr. Walid Gellad: Yes you can get both. I have only worked with outpatient so, I cannot speak personally about the inpatient but they are both available.

Moderator: Moving right along. I believe MCA data has a variable that denotes day supply, is that correct?

Dr. Walid Gellad: I do not honestly know the answer to that, my guess is yes. I would simply, I had the link, there is a link on the VIReC website for all the documentation about the MCA data and I would go there because I honestly do not know off hand.

Moderator: Alright. Is there a data field to show if drug was dispensed at pharmacy window versus mailed out?

Dr. Walid Gellad: There is and there is a CMOP indicator which I am fairly certain actually just means that the drug is available for dispensing through CMOP. You might have a Yes under a CMOP but it is still dispensed at the window. There is a separate variable for whether it is dispensed at the window. Yes.

Moderator: Okay. Is it correct that, no go on.

Dr. Walid Gellad: No I am keeping my responses short, I am happy to make them longer but I want to make sure to get it to everyone’s questions.

Moderator: Okay we still have a lot of questions and some more specific ones about which database or file to use. So I will get to those shortly. Is it correct that Medicare Advantage Plans submit prescription data to CMS even though they do not report other types of utilization?

Dr. Walid Gellad: Yes that is correct. So you can still access dispensed Part D drugs if an individual is in Medicare Advantage. What you cannot do then is access any of their A and B data or their ICD-9 codes from outpatient visits which is an issue if you want to do risk adjustment. If you just want to look at drugs that are dispensed, yes, that is all available even if they are in Medicare Advantage.

Moderator: Okay. Do Schedule II and III medications like opioids have the requirement that only one system, the VA or another Medicare or Medicaid be used?

Dr. Walid Gellad: No, that is not a requirement and that is the subject of the merit that I am currently funded to work on. I am happy, if anyone that asks that question wants to talk to me, I am happy to talk more.

Moderator: Okay. Has anyone looked into the viability of obtaining data from outside sources to integrate pharmacy fills from non-VA pharmacies? Or is security too much of a hindrance.

Dr. Walid Gellad: Yes so whoever asked that question I am happy to talk more about that. We did a lot of work to try and do that, it is very difficult for the reason that you mentioned, the privacy issues and then the data compatibility issues. I know that some people have done it in smaller scales not nationally but in small regions, so it is doable and people have definitely done it and I can think of some names that come to mind but it has not been done nationally other than the Medicare data. Again, when we talk about Medicare data we are talking about only those who are Medicare enrolled so there are a lot of individuals under the age of sixty-five who do not have Medicare who are receiving drugs from other places and they do not have Medicaid and we do not know what they are taking. The Medicaid data is also available through VIReC but it is much more outdated than the Medicare Part D data unfortunately.

Moderator: Okay. When reconciling \_\_\_\_\_ [00:49:45] [lost audio] product names what source did you use to determine that it was actually Viagra?

Dr. Walid Gellad: That was the FDA. The FDA has, I do not think I put the link here but there is a National Drug Code Directory at the FDA which you can just Google and that is the source that I used.

Moderator: Okay.

Dr. Walid Gellad: You can just Google NDC and then put the NDC code in and it will sometimes come up or you just go to the National Drug Code Directory and you can put in the NDC. When you have an eleven digit NDC you can sometimes guess where the leading zero is to go back to the ten digit NDC. But sometimes you cannot, so you can try different permutations, I think for this specific example I figured there were a lot of zeroes at the beginning, it is probably in a five/four/two format there is probably not that many zeroes’ at the beginning so the leading zero was added in the first segment so it is probably a four/four/two. That is how I looked it up, but it is much easier when you have a four/four/two NDC to then go to what the eleven digit is because you always add the leading zero to make the segments five digits/four digits/two digits.

Moderator: Okay. Do you know why in CDW are RxOutpat \_\_\_\_\_ [00:51:12] [lost audio] there are so many missing National Drug SIDs.

Dr. Walid Gellad: I do not k not.

Moderator: okay.

Dr. Walid Gellad: I do not and I have not used CDW extensively. I now people who have and I can point you to them, but it is I personally think it is more difficult to use if you do not have experience with CDW than PBM or MCA which are clean datasets which are put together for other uses. You can use them for research as wherewith the CDW you are getting things just as they are in the business file.

Moderator: Okay. I am going to move on to some questions that are more specific about what database or file to use. Someone asked – if you are trying to identify chemotherapy which is given both in outpatient clinics and dispensed as oral medications mailed to patients which VA file would you use to do so?

Dr. Walid Gellad: I have not done that myself, you could use whatever sources you want to use for outpatient dispensed drugs would be fine. The issue is identifying what is figuring out how an inpatient administration of chemotherapy is identified whether it is CPT code or HCPCS code. You can identify those in CDW \_\_\_\_\_ [00:52:34] [lost audio] files that are archived. But you would definitely have to use both some outpatient dispensed prescriptions and then the physician or clinician administered prescriptions and then you could use either any of the datasets really to look at inpatient medications. I cannot tell you necessarily which one is better when looking at inpatient dispensed meds.

Moderator: Okay. If your desire was to compare drugs dispensed and drug costs across VA and Medicare which VA file would you use?

Dr. Walid Gellad: I did that, we did that for diabetes drugs a few years ago and we used PBM data within the VA. It is really what you are familiar with, I am just very familiar with PBM data but both PBM, DSS, MCA you can figure out what drug is dispensed. The issue is if you want to compare costs and the issue with cost in VA PBM data is that it is ingredient cost only. In DSS data you have a lot of other cost variables available but they are not exactly analogous to what is in Medicare which is the cost of the drug, plus the dispensing fee, plus the co-pay that does not account for rebates that are typical Medicare data. For what drug is dispensed I think it is really not an issue, you can choose whatever you want. If it is really about cost I personally would get in touch with the HERC folks who think this is what they think about all the time, and ask them their advice on that.

Moderator: Okay.

Dr. Walid Gellad: The Health Economics Resource Center folks in Palo Alto who really know this stuff.

Moderator: Okay I think you might have already touched on this next question but I will say it again. I am working on a project examining opioid use, and I have not considered looking at Medicare Part D. Should I? Do patterns of VA versus non-VA medication use vary by type of medication?

Dr. Walid Gellad: Should you look at the Part D data if you are looking at opioids? I guess I would say yes and no. I would say yes because it is very important because there is some overlap in opioid use. I would say no because we are already doing it. It does not mean you cannot do it, but that is something we are actively looking at and will be coming out soon and it is a really important issue that there is overlap really between VA and Medicare. So yes and no, and I forgot what was the second part of the question.

Moderator: Do patterns of VA versus non-VA medication use vary by type of medication?

Dr. Walid Gellad: Yes they certainly vary. Looking at how drugs are used by folks who switch between systems is really at the beginning stages of research, there is really not a lot known. There are going to be some papers coming out but it definitely, definitely varies by drug class. It really depends on what is the reason why you are worried if they are using it in two different health systems. There are costs and financial and efficiency reasons, but there are also safety reasons and maybe even efficacy reasons that you might be interested in so all that comes to play in whether you look at a particular drug class across system.

Moderator: Okay. I know you said you do not have a lot of experience with the CDW but here is a question you might know – what is the difference between the local drug and national drug dimensions in the CDW?

Dr. Walid Gellad: Between what?

Moderator: Local drug and national drug dimension.

DR. Walid Gellad: I am sorry I do not know the answer to that.

Moderator: Okay.

Dr. Walid Gellad: But that was one of the questions that we had when we put together that slide and I did not have a chance to look into. If anyone knows I would be happy to find out. I mean there is a local drug file with a name and then there is a national drug file with a name, so you are connected to two different things. Whether you use one versus the other I do not know the answer.

Moderator: Okay I think that is all the time we have for questions today. Thank you so much for taking the time to present today’s session and answering all those questions.

Dr. Walid Gellad: My pleasure.

Moderator: Thank you. For members of the audience, please do contact the VIReC help desk at [VIReC@VA.gov](mailto:VIReC@VA.gov) if you have any additional questions. If we do not know the answer we will be sure to forward your questions to someone else who can help you. \_\_\_\_\_ [00:57:20] [lost audio] scheduled for Monday March 7th at 1:00 PM Eastern. This session is about applying \_\_\_\_\_ [00:57:25] [lost audio] we hope you can join us. Heidi can I turn this over to you?

Heidi: Thank you Hera. As we have been saying, please hold on for a few more minutes as I close out the session you will be prompted with a feedback form, we really do appreciate you taking the time to provide us feedback. Thank you everyone for joining us for today’s HSR&D Cyberseminar and we look forward to seeing you at a future session. Thank you.