



EHR Clinical Informatics Webinar Series

RPMS Reporting Tools: VGEN and PGEN



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VGEN and PGEN Review

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Presenter

CDR Nicholas Laughton, PharmD, MPH, BCPS

Area Informaticist

Phoenix Area Office



Learning Objectives

- Compare and contrast commonalities and differences between VGEN and PGEN
- Know when to use each of these tools
- Demonstrate how to use these tools
- Discuss best practices when using these tools for data extraction



Be a Good Data Steward

Take all necessary precautions to protect IHS information assets.



What Is VGEN?

VGEN and PGEN are report applications found in RPMS.

Visit General Retrieval (VGEN)

Shows a list of or counts visits

Patient General Retrieval (PGEN)

Shows a list of or counts patients

In both VGEN and PGEN, users are prompted, in three separate steps, for the following:

1. Selection criteria
2. Display fields
3. Sorting order

The logic used to produce the report can be saved for future use.



Which Application Is Better?

In my experience, VGEN is used more frequently, as most inquiries, even if interested in patient data, have a component that is related to visit criteria.

- How many patients had a visit in primary care last month ?
- What is the age distribution of patients seen in the ER in the last year?



Thoughts on Performing Data Queries

Before initiating any report, fully define the query, including detailed selection criteria, display fields, and what the data will be used for.

- What is missing from this query: How many patients were seen in the general clinic with a diagnosis of asthma?
 - Missing components:
 - What is the time frame of the visits?
 - What is the ICD code for asthma?
 - What fields are needed for the display—name, chart, age?



Reverse Engineer Searches

- It is often difficult to identify fields in VGEN/PGEN that align with data elements in EHR.
- When beginning new searches, it is often helpful to start with a known result and ensure your search can successfully identify that result.



VGEN Definition and Use

Visit General Retrieval (VGEN)

- Lists or counts visits based on selection criteria
- Use this tool for extracting data based on a visit
 - Example: How many patients within the last seven days received a COVID vaccination?
- For more information, refer to the PCC manual, page 79:
https://www.ihs.gov/rpms/packagedocs/BJPC/bjpc0200.11u_apcl.pdf



VGEN Menu Path

PCC | MAN | QA | VGEN

Patient Care Component

PCC Management Reports

Quality Assurance Reports

Visit General Retrieval



Using VGEN (1)

1. Select how criteria will display.

```
Select one of the following:
P      Predefined Order (the original ordering)
A      Alphabetical Order
G      Groups of Related Items
What order would you like the Items displayed in: P// █
```

2. Select what will be searched.

```
Select one of the following:
P      Search Template of Patients
V      Search Template of Visits
S      Search All Visits
R      CMS Register of Patients
Select Visit List from: S//
```



Using VGEN (2)

3. Select a time frame for the visits.

Enter Beginning Visit Date for search: T-10 (OCT 08, 2023)

Enter Ending Visit Date for search: T (OCT 18, 2023)



3 Separate and Unique Screens

When using VGEN, users are required to make choices under three separate screens:

- **Visit Selection Menu** (search)
- **Print Item Selection Menu** (output)
- **Sort Item Selection Menu** (only one sort criteria is accepted)

Note: The screens look very similar and can be confusing initially



Visit Selection Menu

```

GENERAL RETRIEVAL          oct 18, 2023 12:26:41          Page:    1 of    6
          VISIT Selection Menu
Visits can be selected based upon any of the following items.  Select
as many as you wish, in any order or combination.  An (*) asterisk indicates
items already selected.  To bypass screens and select all visits hit Q.
-----
1) Name/Chart #/SSN          76) Clinic Type          151) Measurements
2) Sex                      77) Visit Created By    152) Pain Measurement Valu
3) Date of Birth            78) User Last Update    153) Waist Circ Value
4) Birth Month              79) Chart Audit Status (vi 154) BMI (Last calculated)
5) Birth Weight (grams)     80) Visit Auditor       155) RX Ordering Provider
6) Birth Weight (Kgs)      81) VCN # Present       156) Dental ADA Codes
7) Race                    82) 3rd Party Billed?   157) Radiology Exam
8) Ethnicity               83) Hospital Location   158) Any Immunization Admi
9) Age                    84) Admitting Service    159) Immunization Provider
10) Age in Months          85) Admission Type       160) Immunization Lot #
11) Veteran Status Y/N     86) Admission Source-UB92 161) VFC Eligibility
12) Date of Death          87) Admitting Provider (In 162) Immunizations
13) Date Patient Establish 88) Discharge Service    163) Exams
14) Mlg Address-State      89) Date of Discharge    164) Nutritional Risk Scre
+      Enter ?? for more actions
S      Select Item(s)      +      Next Screen          Q      Quit Item Selection
R      Remove Item(s)     -      Previous Screen       E      Exit Report
Select Action: S//
  
```



Visit Selection Menu Details

There are currently 222 different selection criteria.

Data may be sparse.

For example: If total household income is not recorded, a search of total household income will not return robust results.

Select as many as are needed, in any order or combination.

Typing SL allows users to search the 222 criteria.

```
+      Enter ?? for more actions
R      Remove Item(s)      -      Previous Screen      E      Exit Report
Select Action: S// SL      SL
Search for: visit//
```



Functionality of Visit Selection Criteria (1)

Like other applications (Q-Man), attributes are “and’ed” and values are “or’ed.”

```
VISIT Selection Criteria:  
  Encounter Date range:  OCT 08, 2023 to OCT 18, 2023  
  Sex:  MALE  
  Age:  100-120
```

To be included a visit would need to meet the following attributes:

Occur between 10/08/23–10/18/2023

and

Sex of patient = Male

and

Age of patient between 100–120



Functionality of Visit Selection Criteria (2)

Like other applications (Q-Man), attributes are “and’ed” and values are “or’ed.”

```
VISIT Selection Criteria:  
Encounter Date range:  OCT 08, 2023 to OCT 18, 2023  
Sex:  MALE  
Age:  100-120  
Tribe:  CHICKASAW NATION, OK ; PAWNEE NATION OF OKLAHOMA
```

To be included a visit would have to:

Occur between 10/08/23–10/18/2023

and

Sex of patient = Male

and

Age of patient between 100–120

and either

Tribe of patient = Chickasaw Nation or Pawnee Nation of Oklahoma



Output Selection (1)

After selecting visit selection criteria, users may choose several outputs

Select one of the following:

- T Total Count Only
- S Sub-counts and Total Count
- C Cohort/Template Save
- D Detailed Visit Listing
- F Flat file of Area Database formatted records
- P Unduplicated Patient Cohort/Template
- L Delimited File for use in Excel

Choose Type of Report: D//



Output Selection (2)

The **Total Count Only** report prints the total number of visits that match the selection

The **Sub-counts and Total Count** report lists the total number of matches, as well as the subtotal of each different category of the sort selected



Output Selection (3)

The **Cohort/Template Save** option saves the visits that match the selection criteria in a template.

Warning for re-using saved templates:

When reusing cohort/templates, users will be prompted to enter a beginning visit date for the search; this prompt will **not** supersede the dates originally entered in the creation of the template.



Output Selection (4)

- The **Unduplicated Patient Cohort/Template** option saves an unduplicated cohort of patients that match the selection criteria in a template.
- This option could be very useful for later use in PGEN.



Output Selection (5)

The Delimited Output File for use in Excel option will provide a list that

- Is often easier to open in Excel,
- Will remove blank cells that a detailed report might include, and
- Will automatically add the patient IEN and visit IEN to the output.



Detailed Output Selection

The **Detailed Visit Listing** option

- Is the system default,
- Allows users to indicate which items to print, and
- Allows users to specify the column width for each item.



Optimizing Detailed Outputs

Data may be sparse; just because a choice exists does not mean it will yield productive results (e.g., if total household income is not recorded, an output will not display robust results).

Needed data elements often must be balanced with the total width of the report; users may experience difficulty if the report output is wider than 180 characters.

The suggested column width is often sufficient but not always (e.g., Immunization/Series is often longer than 15 characters).

Typing **SL** to search the list can help in locating desired print items in the list.



Sort Item Selection Menu

- After selecting items to print, users can select a field by which to sort the printed items.
- An item does not need to be included in the printed fields to be used as the sort.
- If no item is selected for sorting, VGEN will sort output by visit date.

SORT ITEM SELECTION MENU

The visits displayed can be SORTED by ONLY ONE of the following items.
If you don't select a sort item, the report will be sorted by visit date.

1) Patient Name

51) Definitive EDD

101) Flag



VGEN Intermediate Concepts

If selecting multiple values for a criteria, users may find it helpful to create taxonomies if the criteria will be used again at a later date.

```
Code Range(s) Selected So Far =>
```

```
1) J41.0 - J41.8
```

```
Enter ANOTHER DX:
```

```
Want to save this DX group for future use? No// Y (Yes)
```

```
Group name: NDL_J_DIAGNOSIS
```

```
Are you adding 'NDL_J_DIAGNOSIS' as a new TAXONOMY (the 3308TH)? No// Y (Yes)
```

```
TAXONOMY BRIEF DESCRIPTION: DIAGNOSIS j41.0-41.8
```

```
EXTENDED DESCRIPTION:
```

```
No existing text
```

```
Edit? NO//
```



Using Taxonomies (1)

To reference a previously created taxonomy, type a bracket ([])
followed by the taxonomy name

```
106) Primary Dx (POV) selection.           DIAGNOSES
Enter DX: [NDL_J_DIAGNOSIS           DIAGNOSIS j41.0-41.8]
Members of NDL_J_DIAGNOSIS Taxonomy =>
J41.0 - J41.8
```



Using Taxonomies (2)

In addition to locally created taxonomies, there are multiple taxonomies that are part of other applications in RPMS. Users can reference those taxonomies.

The *Clinical Reporting System User Manual* is a good reference for some of the taxonomy definitions.

https://www.ihs.gov/rpms/packagedocs/BGP/bgp_1300.01u.pdf

Taxonomy Name	Description	Drugs
BGP CMS SMOKING CESSATION MEDS	All smoking cessation medications used in CRS measures	Prepopulated by NDC and with all drug names containing: "Nicotine Patch," "Nicotine Polacrilex," "Nicotine Inhaler," or "Nicotine Nasal Spray."

```

169) Medications selection.                MEDICATIONS
Enter RX: [BGP CMS SMOKING CESSATION MEDS      BGP CMS SMOKING CESSATION MEDS]
Members of BGP CMS SMOKING CESSATION MEDS Taxonomy =>
buPROPion HCL 100MG *PLAIN* TAB
NICOTINE TRANSDERMAL 21MG/DAY
NICOTINE TRANSDERMAL 14MG/DAY
NICOTINE TRANSDERMAL 7MG/DAY
buPROPion= HCL 150MG *SR* TAB
buPROPion= HCL 100MG *SR* TAB
BUPROPION SR 150MG TABS (ZYBAN)
buPROPion 100MG *PLAIN* TAB U/D
buPROPion 150MG *SR* TAB U/D
NICOTINE 2MG LOZENGE (72)
NICOTINE GUM 4MG (110)
NICOTINE GUM 2MG (110)
NICOTINE 4MG LOZENGE (72)
  
```



Saving Search/Print/Sort Logic

Users can save Search/Print/Sort logic to reuse at a later date.

```
would you like a custom title for this report? N// NO
Do you wish to SAVE this SEARCH/PRINT/SORT logic for future use? N// YES
Enter NAME for this REPORT DEFINITION: NDL_ELDERS

  select one of the following:

      I      Include ALL Patients
      E      Exclude DEMO Patients
      O      Include ONLY DEMO Patients

Demo Patient Inclusion/Exclusion: E//
```



Using Saved Search/Print/Sort Logic

Users can reuse saved Search/Print/Sort logic by referencing the name of the search at the “Do you want to use a PREVIOUSLY DEFINED REPORT?” prompt.

```
Enter Beginning Visit Date for search: T (OCT 20, 2023)
Enter Ending Visit Date for search: T (OCT 20, 2023)

Do you want to use a PREVIOUSLY DEFINED REPORT? N// YES
REPORT NAME: NDLELDERS ██████████-OCT 20, 2023@06:43:32 NDLELDERS
Would you like a custom title for this report? N// NO

    select one of the following:

        I      Include ALL Patients
        E      Exclude DEMO Patients
        O      Include ONLY DEMO Patients

Demo Patient Inclusion/Exclusion: E//
```

Updating the search dates when using a previously defined report will return updated results.



Patient General Retrieval (PGEN)



PGEN Definition and Use

Patient General Retrieval (PGEN)

- Lists or counts patients based on selection criteria entered by the user.
- Use this tool for extracting data based on patient demographic or clinical data.
 - Example: How many of our patients are veterans?
- For more information refer to the PCC manual, page 11
https://www.ihs.gov/rpms/packagedocs/BJPC/bjpc0200.11u_apcl.pdf



Where Is PGEN?

Path: **PCC** | **MAN** | **PLST** | **PGEN**

PCC: Patient Care Component

MAN: PCC Management Reports

PLST: Patient Listing

PGEN: Patient General Retrieval



Using PGEN

1. Select how criteria will display.

```
Select one of the following:  
  
P      Predefined Order (the original ordering)  
A      Alphabetical Order  
G      Groups of Related Items  
  
What order would you like the Items displayed in: P// █
```

2. Select what will be searched.

```
Select one of the following:  
  
S      Search Template of Patients  
P      Search All Patients  
Q      QMAN Search  
R      CMS Register of Patients  
  
Select Patient List from:
```



Search Options in PGEN (1)

When using a search template of patients, the system prompts for the template name. After typing the template name, a print item selection list displays.

If the **Search All Patients** option is selected, the system searches all patients in the database and provides the option of using report logic saved from a previous report generated with PGEN.

Select one of the following:

S	Search Template of Patients
P	Search All Patients
Q	QMAN Search
R	CMS Register of Patients

Select Patient List from:



Search Options in PGEN (2)

Selecting the **QMAN Search** option transfers the user to Q-Man to create a search template. After creating the template, the user is returned to PGEN to select the type of report to be created.

The **CMS Register of Patients** option allows access to the Case Management System's register system.

Select one of the following:

S	Search Template of Patients
P	Search All Patients
Q	QMAN Search
R	CMS Register of Patients

Select Patient List from:



PGEN: 3 Separate and Unique Screens

When using PGEN, users are required to make choices under three separate screens:

- **Patient Selection Menu** (search)
- **Print Item Selection Menu** (output)
- **Sort Item Selection Menu** (only one sort criteria is accepted)

Note: The screens look very similar and can be initially confusing



Patient Selection Menu

PATIENT Selection Menu

Patients can be selected based upon any of the following items. Select as many as you wish, in any order or combination. An (*) asterisk indicates items already selected. To bypass screens and select all patients hit Q.

1) Name/Chart #/SSN	46) Date PCP Updated	91) Most Recent ALCOHOL HF
2) Sex	47) Other Specialty Prov (92) Most Recent STAGED DM
3) Date of Birth	48) Date Oth Spec Prv Upd	93) Most Recent Barriers H
4) Birth Month	49) Oth Spec Prv User Upd	94) Most Recent LEARNING P
5) Birth Weight (grams)	50) EDD (ANY/ALL TYPES)	95) Most Recent RUBELLA HF
6) Birth Weight (Kgs)	51) Definitive EDD	96) Most Recent ACTIVITY L
7) Race	52) EDD (LMP)	97) Date Last Alcohol Scre
8) Ethnicity	53) EDD (ULTRASOUND)	98) Date Last Depression S
9) Age	54) EDD (CLINICAL PARAMETE	99) Date Last IPV/DV Scree
10) Age in Months	55) EDD (METHOD UNKNOWN)	100) Date Last Colonoscopy
11) Veteran Status Y/N	56) EDD (Last Documented)	101) Date Last Flex Sig
12) Date of Death	57) Contraception Method	102) Date Last Mammogram
13) Date Patient Establish	58) Last Menstrual Period	103) Date Last PAP Smear
14) Mlg Address-State	59) PHR Handout Given	104) Date Last Tobacco Scr

+ Enter ?? for more actions

S	Select Item(s)	+	Next Screen	Q	Quit Item Selection
R	Remove Item(s)	-	Previous Screen	E	Exit Report

Select Action: S//



Functionality of Patient Selection Criteria (1)

Like other applications (Q-Man), attributes are “and’ed” and values are “or’ed.”

```
PATIENT Selection Criteria:  
Sex: MALE  
Age: 100-119
```

To be included, a patient would need the following attributes:

Sex of patient = Male

and

Age of patient between 100–119



Functionality of Patient Selection Criteria (2)

Like other applications (Q-Man), attributes are “and’ed” and values are “or’ed”

```
PATIENT Selection Criteria:  
Sex: MALE  
Age: 100-119  
Tribe: CHICKASAW NATION, OK ; PAWNEE NATION OF OKLAHOMA
```

To be included, a patient would need the following attributes:

Sex of patient = Male

and

Age of patient between 100–119

and either

Tribe of patient = Chickasaw Nation or Pawnee Nation of Oklahoma



Patient Selection Menu Details

There are currently 133 different selection criteria.

Data may be sparse.

For example: If total household income is not recorded, a search of total household income will not return robust results.

Select as many as are needed, in any order or combination.

Typing **SL** allows users to search the 133 criteria.

```
+      Enter ?? for more actions
R      Remove Item(s)      -      Previous Screen      E      Exit Report
Select Action: S// SL      SL
Search for: visit//
```



PGEN Output Selection (1)

After selecting patient selection criteria, users may choose several outputs.

Select one of the following:

- T Total Count Only
- S Sub-counts and Total Count
- C Cohort/Template Save
- D Detailed Visit Listing
- L Delimited File for use in Excel

Choose Type of Report: D//



PGEN Output Selection (2)

The **Total Count** report prints the total number of patients that match the selection.

The **Sub-counts and Total Count** report lists the total number of matches, as well as the subtotal of each different category of the sort selected.



PGEN Output Selection (3)

The **Cohort/Template Save** option saves the visits that match the selection criteria in a template.

The **Delimited Output File for use in Excel** option will provide a list that

1. Is often easier to open in Excel, and
2. Will automatically add the patient IEN to the output.



PGEN: Detailed Output Selection

The **Detailed Visit Listing** option

- Is the system default,
- Allows users to indicate which items to print, and
- Allows users to specify the column width for each item.



Optimizing Detailed PGEN Outputs

Data may be sparse; just because a choice exists does not mean it will yield productive results (e.g., if total household income is not recorded, an output will not display robust results)

Needed data elements often must be balanced with the total width of the report; users may experience difficulty if the report output is wider than 180 characters.

The suggested column width is often sufficient but not always (e.g., Immunization/Series is often longer than 15 characters).

Typing **SL** to search the list can help in locating desired print items in the list.



PGEN Sort Item Selection Menu

- After selecting items to print, users can select a field by which to sort the printed items.
- An item does not need to be included in the printed fields to be used as the sort.
- If no item is selected for sorting, PGEN will sort output by patient name.

SORT ITEM SELECTION MENU

The patients displayed can be SORTED by ONLY ONE of the following items.
If you don't select a sort item, the report will be sorted by patient name.



PGEN: Saving Search/Print/Sort Logic

Users can save Search/Print/Sort logic to reuse at a later date.

```
Do you want a separate page for each Patient Name? N// NO
Would you like a custom title for this report? N// NO
Do you wish to SAVE this SEARCH/PRINT/SORT logic for future use? N// YES
Enter NAME for this REPORT DEFINITION: NDL_ELDERS_PGEN
```

select one of the following:

I	Include ALL Patients
E	Exclude DEMO Patients
O	Include ONLY DEMO Patients

```
Demo Patient Inclusion/Exclusion: E// █
```



PGEN: Using Saved Search/Print/Sort Logic

Users can reuse saved Search/Print/Sort logic by referencing the name of the search at the “Do you want to use a PREVIOUSLY DEFINED REPORT?” prompt.

```
Do you want to use a PREVIOUSLY DEFINED REPORT? N// YES
REPORT NAME:  NDL_ELDERS_PGEN ██████████-OCT 20, 2023@09:30:49      NDL_E
LDERS_PGEN
Would you like a custom title for this report? N// 0

  select one of the following:

      I      Include ALL Patients
      E      Exclude DEMO Patients
      O      Include ONLY DEMO Patients

Demo Patient Inclusion/Exclusion: E//
```



Knowledge Questions

1. What does PGEN count?
2. What does VGEN count?
3. What is the value of typing **SL** when using PGEN or VGEN ?
4. What character is used to reference a taxonomy?
5. True or false: Users can only reference taxonomies they created in PGEN/VGEN.



Biographical Sketch

Nicholas Laughton **Area Informaticist Phoenix Area Office**

- CDR Nicholas Laughton has served the Indian Health Service for 14 years. CDR Laughton currently serves as a clinical informatics officer at the Phoenix Area Office. Before serving at the Phoenix Area Office, CDR Laughton served as a pharmacy informaticist at the Phoenix Indian Medical Center. Prior to Phoenix Indian Medical Center CDR Laughton served as Chief Pharmacist of the Pyramid Lake Tribal Health Clinic. CDR Laughton earned both his Doctor of Pharmacy and Masters of Public Health degrees from the University of Maryland in 2010. CDR Laughton's work focuses on data management, software development, and leveraging technologies to improve workflow efficiencies.



Questions and Discussion