

Using Cost Data from the Decision Support System (DSS) and HERC Average Costs

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Outline

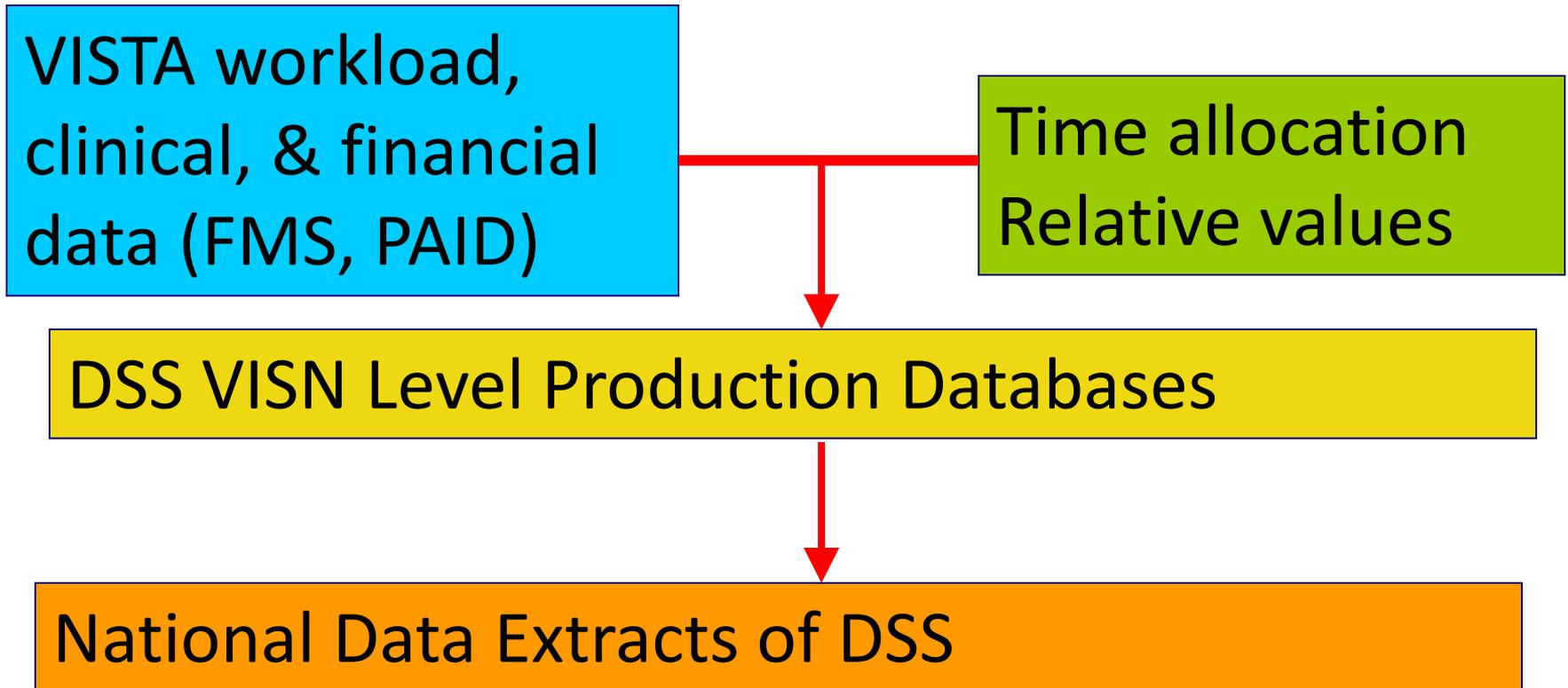
- DSS National Data Extracts
 - How DSS gets costs
 - Inpatient data
 - Outpatient data
 - Pharmacy data
 - Advantages of using DSS
 - HERC Average Costs
 - Methods for HERC-created files
 - Inpatient
 - Outpatient
 - Annual Summary
 - Using HERC or DSS
 - Data resources
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Poll: Is DSS (versus AC data) better for

- A. Comparing health care costs of patients receiving two different interventions at multiple VAMCs.
 - B. Budget impact of total costs for patients enrolled in a primary care program in one VAMC.
 - C. Prescription drug costs for patients filling VA prescriptions.
 - D. Measure health care costs to compare frequency of inpatient admissions of patients between two VAMCs.
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DSS National Data Extracts

How Does DSS Provide VHA Cost Data?



DSS Determines Costs of Products

- Products are components of encounter
 - Cost assigned to cost center (corresponding department)
 - Staff labor mapping and financial data
 - Cost of overhead distributed to direct care departments
 - Products in each department tabulated
 - Relative values assigned to products
 - Unit cost of each product determined
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DSS Assigns Cost to Encounters

$$\sum \text{Intermediate Product (IP)} \quad \times \quad \text{IP Cost} \quad = \quad \text{Total cost of encounter}$$

DSS National Data Extracts

- **Inpatient (Treating Specialty, Discharge)**
- **Outpatient Encounter**
- **Pharmacy**
- Intermediate Product Department
- Account Level Budget Cost Center
- Clinical

DSS Cost File: Inpatient Discharge File

- Care of patients discharged in each fiscal year
- One record per discharge
- May include cost incurred in prior fiscal years
- Data only in Discharge file:
 - Discharge day
 - Total days of stay
 - Discharge bedsection

Discharge example

Patient	ADMITDAY	DISDAY	FP	LOS	DBEDSECT	TOT
A	24SEP05	01OCT05	1	7	Gen Acute Med	9824.24
A	31OCT05	11NOV05	2	11	Gen Acute Med	4673.01
A	04AUG06	21SEP06	12	48	Rehab	81868.77

DSS Cost File:

Inpatient Treating Specialty File

- Treating specialty
- One record per treating specialty per month
 - More than one record in a month if more than one treating specialty in a month
 - All care provided during fiscal year
 - Include stays not yet over

DSS Data Only in Treating Specialty File

- Treating specialty
- Census indicator
- Date of entry and exit from treating specialty
 - No discharge date
- Treating specialty length of stay
 - No total length of stay

DSS Treating Specialty File Example

Patient	TRTIN	TRTOUT	TR SP	TR SP LOS	FP	TCST_TOT
A	01OCT05	01OCT05	15	1	1	350.01
A	31OCT05	11NOV05	15	1	1	544.24
A	31OCT05	11NOV05	15	10	2	23787.22

DSS Data in Both Inpatient Files

- Admit day
- Admitting diagnosis related group (DRG)
- Principal diagnosis
- Admitting diagnosis

DSS Cost Files: Outpatient Files

- One record per patient per day per clinic stop
 - National Patient Care Database (NPCD) events file allows more than 1 record per clinic stop per day
 - DSS includes care not in NPCD events file, e.g., prosthetics
 - Primary DX and CPT codes
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DSS Data Only in Outpatient Files

- Date of encounter
- DSS identifier (clinic stop)
 - DSS uses “pseudo stop” code for prosthetics, pharmacy, etc.
- Flag variables identifying data source
 - NPCD, pharmacy, prosthetics, Vast CBOC, etc

DSS Outpatient Example

Patient	VIZDAY	CLSTOP	OCST_TOT
A	20051018	411	34.10
A	20051018	108	24.33
A	20051018	306	25.20

DSS Cost Variables in All Files

- Fixed direct
- Fixed indirect
- Variable direct
- Variable supply
- Total
- Variable labor category 4 & 5

Additional Cost Variables in Inpatient Files

- Separate costs for lab, nursing, pharmacy, radiology, surgery, all other
 - Variable, fixed direct, fixed indirect, supply (where applicable)

DSS Pharmacy

- In the DSS Pharmacy Extract file
 - For outpatient records, there is one record
 - Per prescription or supply per person per day
 - For inpatient records, there is one record
 - Per person per day
- DSS sometimes groups two prescriptions into one record if they are for the same NDC and the same person on the same day

DSS Pharmacy Variables

- Medication: drug name, NDC, formulary indicators, VA drug class
- Dispensing: fill date, quantity dispensed, days supplied
- Patient: SCRSSN, date of birth, gender, age
- Ordering provider: provider ID, provider treating specialty
- Note: Clinical information on related visits/stays can be linked to Rx data using SCRSSN.
- Cost: VA cost including direct labor, indirect costs of the pharmacy department, and supplies
 - Total VA cost prescription = ACT_COST + DISPCOST
 - Costs can be negative, ex: return to pharmacy

Pharmacy Copayments

- VA charges some copayments.
 - Depends on income, disability percentage
 - Rules & eligibility levels change year to year
 - Rules available on VA internet
- DSS does not show copayments; they show VA's expense.
- Medical Care Cost Recovery (MCCR) files could show reimbursement from private insurance, if collected

Cost Outliers in DSS

- Users should look for cost estimates that are unexpectedly high given characteristics of care
- Mismatch of cost and utilization can result in unit costs that are very high cost, or negative
- DSS quality assurance efforts
 - Extremely high outliers are identified when DSS national data extracts (NDE) are built

Advantages of Using DSS

- DSS costs estimate reflect facility differences in productivity, efficiencies, economies of scale, etc
- DSS has pharmacy data
- DSS has community and state nursing home stays.
- DSS is an activity-based method and is the official cost managerial accounting system for the entire Department of VA

HERC Average Costs Datasets

Top Down, Bottom Up

- HERC data uses relative value weights to estimate cost per encounter (top down)
- DSS data are based on an activity based costing methodology (bottom up)



National approach
Experience based



Local approach
Activity based

HERC Method

- Acute medical surgical stays
 - Estimate of what stay would have cost in a Medicare hospital, based on a regression model
 - Other inpatient care
 - Length of stay
 - Outpatient care
 - Hypothetical Medicare payment based on procedure codes assigned to visit
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HERC: Medical/Surgical Stays

- Cost regression estimated using Medicare data
 - Length of stay
 - Days of intensive care
 - Diagnosis Related Group (MS-DRG)
 - Stay is assigned to one of DRG groups based on diagnosis and procedures
 - Medicare relative value weights for DRG
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HERC: Medical/Surgical Stays

- HERC identifies acute medical surgical components of stays in the VA Patient Treatment File (PTF)
 - Consistent with non-VA hospital definition
 - Contiguous medical-surgical bed section segments

HERC: Medical/Surgical Stays

- HERC applies regression parameters to VA stays to estimate what stay would have cost in a Medicare hospital
- Estimates adjusted to reflect actual VA expenditures from DSS

HERC: Other Inpatient Stays

- Costs assumed to be proportional to length of stay
 - Rehabilitation
 - Blind rehabilitation
 - Spinal cord injury
 - Psychiatry
 - Substance abuse
 - Intermediate medicine
 - Domiciliary
 - Psychosocial residential rehabilitation
 - Long-Term Care

HERC: Inpatient Discharge Data

- Cost of each VA hospital discharge reported in Patient Treatment File (PTF)
 - Stays ending in discharge in Fiscal Year
 - Excludes stays that began before FY98
- Subtotals of days and costs in 10 categories:

Medicine and surgery	Rehabilitation
Blind rehabilitation	Spinal cord injury
Psychiatry	Substance abuse
Intermediate medicine	Domiciliary
Psych. residential rehab.	Nursing home

HERC: Outpatient costs

- HERC assigns hypothetical payment
 - based on Current Procedure Terminology (CPT) and HCPCS codes, up to 20 per visit
 - Physician reimbursement rates from Medicare and other payers
 - Facility reimbursement rates from Medicare
 - Adjusted to reflect expenditures in the category of outpatient care, defined using clinic stop (DSS identifier)
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HERC Cost File:

Person-Level Annual Cost

- One person per record
- Total VA cost and costs of five inpatient and five outpatient categories, LOS for inpatient care
- Includes DSS outpatient pharmacy
- Stays that cross fiscal years are assigned cost in proportion to the days in fiscal year.

DSS or HERC

Which to Choose

- We are often asked which to use.
- Criteria
 - Is costing method consistent with study goals?
 - Precision and Accuracy

Is costing method consistent with study goals?

- Study to determine cost-effectiveness for U.S. health care system
 - HERC uses non-VA relative values, HERC costs more like costs typical of non-VA health care settings
- Study to determine efficiency of different VA providers
 - DSS costs estimate reflect differences in productivity, efficiencies, economies of scale, etc.
 - Strong assumptions make HERC estimates inappropriate for this type of study

Precision and Accuracy

- Precision
 - Bottom up approaches, such as DSS can be very precise.
 - HERC data are less precise than DSS given costing method
 - If you use DSS data, you need to control for geographic wage differentials
- Accuracy
 - Bottom up approaches can lead to rare irregularities
- Recommendation: use both; one as primary and one as sensitivity analysis

Chapko, M. K., Liu, C. F., Perkins, M., Li, Y. F., Fortney, J. C., & Maciejewski, M. L. (2008). Equivalence of two healthcare costing methods: bottom-up and top-down. *Health Economics*.

Data Resources

DSS Data Access

- Access to DSS data should be requested through CDW/VINCI and National Data Systems (NDS).
- MCA Program Office Web Site (VA Intranet MCAO web site)
- All DSS files were removed from AITC in 2013, but FY2001-FY2012 DSS SAS 'legacy' files are on CDW/VINCI servers.
- DSS NDE SQL data are available in CDW from FY05 to current year.
 - Accessed through CDW Raw server 'VHACDWA06.vha.med.va.gov'
- DSS data also available in VHA Managerial Cost Accounting (MCA) reports from MCA intranet site.

HERC Data Access

- Access to HERC data should be requested through CDW/VINCI and National Data Systems (NDS).
- All historical files 2001-2012 are available from AITC.
- FY2012 files on CDW/VINCI servers accessible to operations.

HERC DSS Guidebooks

<http://www.herc.research.va.gov/publications/guidebooks.asp>

- Research Guide to Decision Support System National Cost Extracts” to incorporate transition to CDW.
- Guidebooks for HERC's datasets

DSS Pharmacy Resources

■ VIREC's Pharmacy Prescription Data Guide

- VIREC research user guide on DSS and PBM pharmacy prescription data

<http://www.virec.research.va.gov>

■ HERC Technical Report:

- Comparing Outpatient Cost Data in the DSS National Pharmacy Extract and the Pharmacy Benefits Management V3.0 Database

<http://www.herc.research.va.gov/data/dss.asp>

Next Classes

5/14	Introduction to Effectiveness, Patient Preferences, and Utilities	Patsi Sinnott
5/28	Medical Decision Making and Decision Analysis	Jeremy Goldhaber- Fiebert