

EDITORIAL

The National Prosthetic Patient Database: A National Information Resource for Prosthetic Prescriptions Written in the VA

Until now, national comprehensive databases containing patient-specific information on the disabled population's use of prosthetic, orthotic, or sensory aids have not existed. I was disappointed to discover this fact when I became Director of the Veterans Health Administration's Prosthetic and Sensory Aids Service. It was then that I resolved to develop a data system that would provide the necessary tools to oversee and monitor the large complex VA Prosthetic Service and to provide a clinical review of prosthetic prescription information to clinicians.

In 1994 I established a Prosthetic Service Development group headed by senior developer, Helen Corkwell, to accomplish this task. The result was the Prosthetic Software Package, which became operational in 1997. One of its major products is the National Prosthetic Patient Database (NPPD), a national database with potential to enhance quality, reduce costs, and improve efficiency. My goal is to develop research partnerships to explore the NPPD and publish statistical results as well as clinical studies.

The NPPD is a roll-up of all prosthetic data recorded at each VHA facility, providing patient information by unique social security number about patient eligibility, prosthetic treatment, date of provision, cost, and vendor. This system provides reports on a monthly or a quarterly basis at the facility, VISN (regional), and national VA Health Care System level. It provides ad hoc reporting ability to conduct analysis and review of prescription practices. It provides a patient item history on main NPPD groups. These groups are based on Health Care Financing Administration's Common Procedures Coding System (HCPCS) and include, but are not limited to:

- Wheelchairs and accessories
- Artificial limbs
- Braces and orthotics
- Neurosensory aids



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- Oxygen and respiratory
- Durable medical equipment
- Surgical implants

The Department of Veterans Affairs, Prosthetic and Sensory Aids Service (PSAS) is unique; no other health care provider is organized similarly or is as thoroughly involved in the whole episode of care for the disabled. Once a disabled veteran enters the roles of the Prosthetic Service, the veteran will receive pros-

thetic care the rest of his/her life. Services include provision of any and all of the above.

A panorama of America's involvement in wars of the twentieth century, and the cost of those wars, can be seen in the disabled veterans served by the Prosthetic Service. Aging Mexican Border War Veterans are provided wheelchairs, canes, and crutches while newly disabled veterans returning from service in Bosnia are receiving first time prescriptions of prosthetic devices which will be replaced or repaired as required throughout their lives.

In 1999, VA Prosthetic Service provided this huge disabled population of approximately 800,000 disabled veterans with 4,750 motorized wheelchairs, 49,379 manual custom wheelchairs, 3,531 transtibial (below knee) artificial legs, 1,125 transfemoral (above knee) artificial legs, 274 transradial (below elbow) artificial arms, 27,642 ankle braces, 7008 spinal braces, 19,005 molded shoes, 407,777 pairs eyeglasses, 60,747 aids for the blind, 131,976 walking aids, plus thousands of other devices including surgical implants such as pacemakers, knee implants, hip implants, and heart stents.

A treasure house of information about prosthetic prescriptions exists in each NPPD file: a veteran's disability; type of prescribed device and reason for issue—new, repair, or replacement; manufacturer name, model, and type; accessories used with device, cost, date received; length of time owned; and number received.

In addition, personal information about the veteran can be obtained: name, address, social security number, age, occupation, length of time he has been disabled, cause of disability, and other information can be cross referenced from the CPRS.

The NPPD is now available to the VA clinical community and should prove a valuable research resource for evaluating prosthetic prescription practices. This database will enable researchers to drill down through broad categories to subcategories of disability, as well as conduct a review of prosthetic equipment at multiple levels of specificity. For example, broad conclusions can be drawn about manual custom wheelchair prescriptions, and then analysis can

be further refined by comparing the manual custom wheelchair prescriptions of individual veterans, reviewing prescription practices between clinical teams, facilities, and regions, or comparing prosthetic prescriptions to functionality of the patient.

This sort of analysis would increase the understanding of the effect of prosthetic devices on the disabled, develop a better understanding of the correlation of prescription practices and functionality, provide a better focus on training needs, provide real-time feedback to clinicians on changes to prescriptions, and define correlations between quality, functionality, and costs. This, in turn, would move the provision of prosthetic devices from the control of vendors, DM&E companies, medical salesmen, insurance companies, and other finance and administration mavens into the more appropriate control of clinicians and the medical needs of the patient.

Preliminary reviews of the data are interesting and indicate the NPPD will serve as an important resource for clinical review, research, and analysis. Dr. Thomas Garthwaite, VA Under Secretary for Health, commented after a NPPD briefing, "What is needed is an ongoing clinical review of the quality and effectiveness of the Prosthetic program. The development of the NPPD should allow this long-standing vision to become a reality."

To demonstrate the potential of the NPPD, I asked my staff to extract information on all lower extremity limbs provided by the Prosthetic Service in FY99 (10/1/98 – 9/30/00). **Table 1:** There were 2,921 transtibial prosthetic limbs provided by commercial sources. These broke down to 78 percent endoskeleton, 18 percent exoskeleton, and 4 percent thigh lacer (**Table 2**). Note that the numbers of transtibial in **Table 1** and **2** do not add up because of coding errors. These errors can be traced, brought to the attention of the facility, and corrected.

An observation at this point: the endoskeleton system is considered to be a higher quality limb than the older type exoskeleton system. Both are superior to the thigh lacer. This begs the question, Why were there still 18 percent exoskeleton and 4 percent thigh lacers pre-

Table 1.
Artificial Limbs FY 1999.

Item Description	VA	COM	Cost
Leg ipop	386	116	\$65,773.23
Leg tem	483	688	\$2,395,492.03
Leg part foot	160	471	\$314,371.63
Leg symes	43	246	\$851,554.43
Leg transtib.	610	2,921	\$15,475,438.48
Leg A/O	19	113	\$589,918.20
Leg transfem.	141	984	\$8,140,019.70
Total	1,842	5,539	\$27,832,567.70

Table 2.
Medicare's three codes to describe basic transtibial permanent prosthesis.

	VA	%	Ave\$
L5300: - Transtibial, molded socket, SACH foot, endoskeletal system, including soft cover and finishing	2228	78%	\$5,763
L5100: - Transtibial, molded socket, shin, SACH foot, exoskeletal system	512	18%	\$3,861
L5105: - Transtibial, plastic socket, joints and thigh lacer, SACH foot	115	4%	\$4,420

scribed? The answer, without more data, could be that the patient prefers them. But with the NPPD, we have the ability to validate that assumption.

Table 3 shows a breakout of the three types of transtibials as prescribed by VISN. The difference in percentages between VISNs is interesting. What was more interesting was the further breakdown of these percentages at the facility level (not shown here). The prescription practices of facility amputee clinical teams were different. Since the NPPD allows analysis at all these levels plus by individual patient, it is possible to conduct an "in-depth" review of these differences and begin to determine the "whys" behind them.

To illustrate another facet of the NPPD, we searched for any patient who had received transtibial prescriptions from more than one

Table 3.
Percent age of Type of Transtibial by VISN.

VISN	L5300% of total	L5100% of total	L5105% of total
1	75%	19%	6%
2	76%	18%	6%
3	83%	14%	3%
4	83%	14%	4%
5	92%	5%	3%
6	65%	27%	8%
7	88%	11%	2%
8	68%	30%	3%
9	67%	22%	10%
10	88%	6%	0%
11	79%	17%	3%
12	57%	26%	16%
13	90%	8%	2%
14	82%	15%	3%
15	80%	14%	6%
16	73%	25%	3%
17	70%	28%	2%
18	86%	10%	4%
19	85%	12%	2%
20	75%	22%	4%
21	73%	23%	4%
22	91%	8%	1%
National Average	77.8%	17.9%	4.0%

VHA facility in FY99. We wanted to display how it could be used to compare the prescriptions.

Table 4 shows a unilateral transtibial amputee who received a transtibial limb in Tampa, FL in Nov 1998 and another transtibial limb from Louisville, KY in June 1999, 7 months later. The first question was, Why two limbs so close together? A review of the veteran's medical record indicated the veteran had lost 68 pounds.

In another instance (**Table 5**) a bilateral transtibial patient received a pair of limbs in Honolulu in December of 1998 and another set 8 months later in Augusta, GA. A review of his medical record indicated the limbs were loose and another pair were justified by the amputee clinic team.

Both patients have received high quality, state-of-the-art technology components from the

Table 4.

Example of NPPD patient tracking.

VISN	Station	Pt. ID	HCPC Code	L Code Description		Number
8	TAMPA/FL:	117748	L5300	BK, endo sys	17-Nov-98	1
8	TAMPA/FL:	117748	L5620	Test socket	17-Nov-98	1
8	TAMPA/FL:	117748	L5629	Acrylic socket	17-Nov-98	1
8	TAMPA/FL:	117748	L5637	Total contact	17-Nov-98	1
8	TAMPA/FL:	117748	L5662	Socket insert, silicone gel	17-Nov-98	1
8	TAMPA/FL:	117748	L5667	Suction suspen with locking pin	17-Nov-98	1
8	TAMPA/FL:	117748	L5910	Alignable system	17-Nov-98	1
8	TAMPA/FL:	117748	L5940	Ultra-light material	17-Nov-98	1
8	TAMPA/FL:	117748	L5962	Protective outer cover	17-Nov-98	1
8	TAMPA/FL:	117748	L5981	Flex walk system	17-Nov-98	1
9	LOUISVILLE/KY	117748	L5300	BK, endo sys	21-Jun-99	1
9	LOUISVILLE/KY	117748	L5620	Test socket	21-Jun-99	1
9	LOUISVILLE/KY	117748	L5629	Acrylic socket	21-Jun-99	1
9	LOUISVILLE/KY	117748	L5637	Total contact	21-Jun-99	1
9	LOUISVILLE/KY	117748	L5667	Suction suspen with locking pin	21-Jun-99	1
9	LOUISVILLE/KY	117748	L5669	Suction suspen w/o locking pin	21-Jun-99	1
9	LOUISVILLE/KY	117748	L5910	Alignable system	21-Jun-99	1
9	LOUISVILLE/KY	117748	L5940	Ultra-light material	21-Jun-99	1
9	LOUISVILLE/KY	117748	L5962	Flex walk system	21-Jun-99	1

Table 5.

Example of NPPD Patient Tracking.

VISN	Station	Pt. ID	HCPC Code	L Code Description		Number
21	HONOLULU	55355	L5300	BK, endo sys	16-Dec-98	2
21	HONOLULU	55355	L5620	Test socket	16-Dec-98	4
21	HONOLULU	55355	L5667	Suction suspen with locking pin	16-Dec-98	2
21	HONOLULU	55355	L5910	Alignable system	16-Dec-98	2
21	HONOLULU	55355	L5940	Ultra-light material	16-Dec-98	2
21	HONOLULU	55355	L5962	Protective outer cover	16-Dec-98	2
21	HONOLULU	55355	L5976	Energy storing foot	16-Dec-98	2
21	HONOLULU	55355	L8420	Stump socks, multiple ply, each	16-Dec-98	12
21	HONOLULU	55355	L8470	Stump socks, single ply, each	16-Dec-98	12
7	AUGUSTA/GA	55355	L5300	BK, endo sys	20-Jul-99	2
7	AUGUSTA/GA	55355	L5620	Test socket	20-Jul-99	2
7	AUGUSTA/GA	55355	L5629	Acrylic socket	20-Jul-99	2
7	AUGUSTA/GA	55355	L5637	Total contact	20-Jul-99	2
7	AUGUSTA/GA	55355	L5667	Suction suspen with locking pin	20-Jul-99	2
7	AUGUSTA/GA	55355	L5668	Molded distal cushion	20-Jul-99	2
7	AUGUSTA/GA	55355	L5669	Suction suspen w/o locking pin	20-Jul-99	1
7	AUGUSTA/GA	55355	L5704	Replacement-protective cover	20-Jul-99	2
7	AUGUSTA/GA	55355	L5962	Protective outer cover	20-Jul-99	2

four facilities. But we shouldn't be satisfied with that knowledge. Even the small amount of information provided in these tables shows differences that may or may not be important. And key questions are raised. Are these appropriate prescriptions? Have they improved function?

How often are they replaced or repaired? What are the physical characteristics of the patient? What caused the disability? Has the aging process had an effect on his ability to use his prostheses? Is there a correlation of transtibial prescriptions provided to patients with similar

physical characteristics? Can there be a comparison of functional ability and outcome based on type of transtibial prescribed? What are the prescription practices at facilities? How do these prescriptions compare? Are there prescription criteria? Are there outcome measures to prove the efficacy of prescribing the device?

The use of TENS units offers another example of a prosthetic service where collected data may be useful in generating meaningful conclusions about appropriate prescription practices. **Table 6** is a breakout of the TENS units provided in VISN 7 for FY99. The two major types are 4-lead and 2-lead TENS units. About half the facilities prescribe 4-lead (average price \$200) and half prescribe 2-lead (average price \$50). Again, key questions are raised. Which TENS unit is better, the 2-lead or 4-lead? If one is better than the other, it stands to reason that all facilities in the VISN would consistently prescribe the best one. On the other hand, if both types gave the same results, it would make sense to prescribe the least expensive type. Is there a prescription criteria for TENS units? Should there be one? What are the outcome measurements to determine if 2-lead or 4-lead TENS units perform to expectations?

Accurate, consistence, and meaningful data are critical to decision making, performance

measurement, and outcomes assessment. These are necessary to achieve the goal of VHA's performance as a benchmark for quality health-care.

These examples and questions only scratch the surface of the NPPD and are presented here to stimulate thought about practices that can be validated with data. The full extent of the depth and value of the NPPD will be realized by a partnership with clinical researchers who are interested in prosthetic prescriptions, patient outcomes, or management tools.

The NPPD is a dynamic database with information added to it daily. The quality of the data is constantly monitored and upgraded through feedback by my office to the field using satellite broadcasts and quarterly meetings of the Prosthetic Data Validation Workgroup. It is being enhanced on a continuous basis. It has errors, but they are being corrected. It is my desire that the NPPD be fully used as an asset to improve the quality of care to the disabled.

If anyone is interested in working with the NPPD, please contact me via the Rehabilitation Research and Development Service at 202-408-3670.

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Table 6.
VISN 7 TENS unit summary FY99.

STATION	HCPCS		COUNT
Atlanta	E0720	2 lead	111
Atlanta	E0730	4 lead	4
Augusta	E0720	2 lead	77
Augusta	E0730	4 lead	3
Birmingham	E0720	2 lead	3
Birmingham	E0730	4 lead	342
CAVHCS	E0720	2 lead	194
CAVHCS	E0730	4 lead	None
Charleston	E0720	2 lead	1
Charleston	E0730	4 lead	188
COLUMBIA	E0720	2 lead	None
COLUMBIA	E0730	4 lead	154
Dublin	E0720	2 lead	21
Dublin	E0730	4 lead	7
Tuscaloosa	E0720	2 lead	12
Tuscaloosa	E0730	4 lead	None