

Highlights

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The DOPPS Report

Newsletter of the Dialysis Outcomes and Practice Patterns Study

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This issue of the DOPPS Report is dedicated to the memory of Prof. Dr. Erwin Hecking.

DOPPS Overview

The Dialysis Outcomes and Practice Patterns Study (DOPPS) is an international, longitudinal study that provides insight into the effects of clinical practice patterns in relation to patient outcomes. Practice patterns refer to details of treatments and health care structures that constitute the medical care provided to hemodialysis patients. Particularly valuable patient outcomes for this study include mortality, hospitalization, vascular access failure, and quality of life. The international scope of the DOPPS provides investigators with a unique opportunity to study broad variations in practice patterns.

Twelve countries are participating in Phase II of the DOPPS. Australia, Belgium, Canada, New Zealand,

and Sweden have joined the seven countries continuing from Phase I (France, Germany, Italy, Japan, Spain, United Kingdom, and the United States). Data collection in this broader range of countries will provide unique opportunities to assess practices and outcomes from widely varying sources with an eye to identifying treatment factors associated with better outcomes and improving patient care.

Data collection for Phase II of the DOPPS has been progressing since March 2002. Important research analyses with these preliminary data are under way and describe interesting differences in practice patterns across the DOPPS countries. Many additional research studies using DOPPS data are nearing completion and should result in important publications in the coming year.

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DOPPS is a worldwide hemodialysis study coordinated by the University Renal Research and Education Association (URREA).

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Worldwide Presentations

The DOPPS has earned an international reputation, and its continuation into Phase II has broad support from the worldwide renal community. DOPPS investigators continue to extend the research efforts of the study and have presented at a number of major scientific conferences in 2002, including the European Dialysis and Transplant Association (EDTA), the International Congress of the Transplantation Society (ICTS), and the American Society of Nephrology (ASN). This year alone, 12 DOPPS abstracts have been accepted for presentation at the 2002 congress of the ASN in Philadelphia, PA, USA. Four DOPPS abstracts were presented at the 2002 congress of the EDTA in Copenhagen, Denmark and one abstract was presented at the ICTS 2002 meeting in Miami, FL, USA. Table 1 shows a list of DOPPS abstracts presented in 2002 and Table 2 shows a list of scientific meetings where DOPPS data were presented in 2002.

Table 1: DOPPS Abstracts Presented in 2002

Forum	Abstract Title	Authors
ASN	Predictors of Family History of End-Stage Renal Disease, Hypertension and Diabetes Mellitus Among ESRD Patients in the DOPPS	R Burdick et al.
ASN	Comparative Study of Health-Related Quality of Life Among Hemodialysis Patients of Different Ethnic Groups in the US	A Lopes et al.
ASN	Predictors of Age of Onset of End-Stage Renal Disease in the DOPPS	R Burdick et al.
ASN	Use of Gastrointestinal Medications in Hemodialysis Patients from the DOPPS	G Bailie et al.
ASN	Diuretic Use Among Hemodialysis Patients in the DOPPS	J Bragg-Gresham et al.
ASN	Multivitamin Use in US Hemodialysis Patients: DOPPS	E Young et al.
ASN	Preventive Health Care Practices and Mortality in the DOPPS	R Saran et al.
ASN	Fistula Use and Outcomes Among Blacks and Women in the DOPPS	R Saran et al.
ASN	Hemodialysis (HD) Staffing and Patient Outcomes in the DOPPS	T Pifer et al.
ASN	Effects of Mineral Metabolism Management Practices on Hemoglobin Concentration Among Hemodialysis Patients in the DOPPS	T Akiba et al.
ASN	Effects of Mineral Metabolism Management Practices on Mortality and Parathyroidectomy Among Hemodialysis Patients in the DOPPS	S Satayathum et al.
ASN	Mortality and Dialysate Prescriptions in the DOPPS	E Young et al.
EDTA	Anaemia Management Practices in Europe: Results from the DOPPS	R Pisoni et al.
EDTA	Higher Hemoglobin Levels Are Associated with Lower Rates of Mortality and Hospitalization Among European Hemodialysis Patients, Results from the DOPPS	F Locatelli et al.
EDTA	Dialysis Dose and Compliance in 5 European Countries in the DOPPS	E Hecking et al.
EDTA	European Facility Practice Patterns Related to Mineral Metabolism in the DOPPS	E Young et al.
ICTS	Relative Rates of Kidney Transplantation Among the Seven Countries in the DOPPS	S Satayathum et al.

Table 2: DOPPS Research Presentations at Major Renal Meetings in 2002

Meeting	Location	Date
Cleveland Clinic — Center for Medical Education, Research and Development	Cleveland, OH	January 4
International Conference on Dialysis IV	Phoenix, AZ	January 24
German Nephrology Congress	Berlin, Germany	February 2
Toronto City Wide Nephrology Rounds	Toronto, Canada	February 27
Annual Dialysis Conference	Tampa, FL	March 4
Canadian Society of Nephrology, AGM Session	Ottawa, Canada	March 18
National Kidney Foundation Spring Meeting	Chicago, IL	April 17
Renal Society of Australasia	Melbourne, Australia	April 19
Trends in Dialysis Outcomes	Heidelberg, Germany	April 20
American Nephrology Nurses' Association — Chicago Chapter	Chicago, IL	May 2
German Nephrology and Nursing conference	Erfurt, Germany	May 3
VA Surgeons Meeting	Palm Springs, FL	May 6
Renal Pharmacy Practice Symposium	Adelaide, Australia	May 19
American Nephrology Nurses' Association National Symposium	Orlando, FL	May 23
International Congress of Internal Medicine	Hakata, Japan	June 3
First International Course on Hemodialysis Technology	Vicenza, Italy	June 20
Kidney Research Association	Copenhagen, Denmark	July 14
European Dialysis and Transplant Association	Copenhagen, Denmark	July 14
International Federation of Renal Registries	Copenhagen, Denmark	July 14
International Federation of the Kidney Foundations	Prague, Czech Republic	July 18
International Congress of the Transplantation Society	Miami, FL	August 25
IX Budapest Nephrology School Conference	Budapest, Hungary	September 2
International Society of Blood Purification	Celle, Germany	September 4
European Dialysis and Transplant Nurses' Association	The Hague, Netherlands	September 14
Hospital Necker Nephrology Meeting	Limoges, France	September 19
German Society of Nephrology Conference	Düsseldorf, Germany	October 1
American Society of Nephrology	Philadelphia, PA	November 1
International Federation of Renal Registries	Philadelphia, PA	November 3
Regional Renal Symposium	Birmingham, UK	November 13
Royal Society of Medicine	Manchester, UK	November 19
Southwest Nephrology Conference	Scottsdale, AZ	November 22

Vascular Access Use in the DOPPS

Vascular access (VA) is an especially important aspect of hemodialysis (HD) care, as it is a major reason for patient hospitalization. VA-related procedures contribute substantially to total annual HD costs (1) and have been associated with increased mortality risk in some studies of catheter use (2). Given this clinical importance, VA use and survival are among the major outcomes studied in the DOPPS.

Vascular Access Use Among Prevalent and Incident Hemodialysis Patients

Across the seven countries that participated in Phase I of the DOPPS [France, Germany, Italy, Spain, the United Kingdom, Japan, and the United States (US)], substantial differences in VA use were seen between some countries (Figure 1). In Japan and Europe, 67%-93% of prevalent HD patients had native arteriovenous fistu-

lae (AVF) as their permanent access (3). In contrast, only 24% of HD patients in the US used an AVF, with synthetic grafts serving as the predominant access for 58% of US HD patients. The high use of AVF in Europe and Japan was seen consistently across patient groups, whereas AVF use in the US remained low, even among younger male patients without extensive comorbidities (Figure 2).

A similar pattern was observed for the type of access used by patients newly diagnosed with end-stage renal disease (ESRD) when they started HD

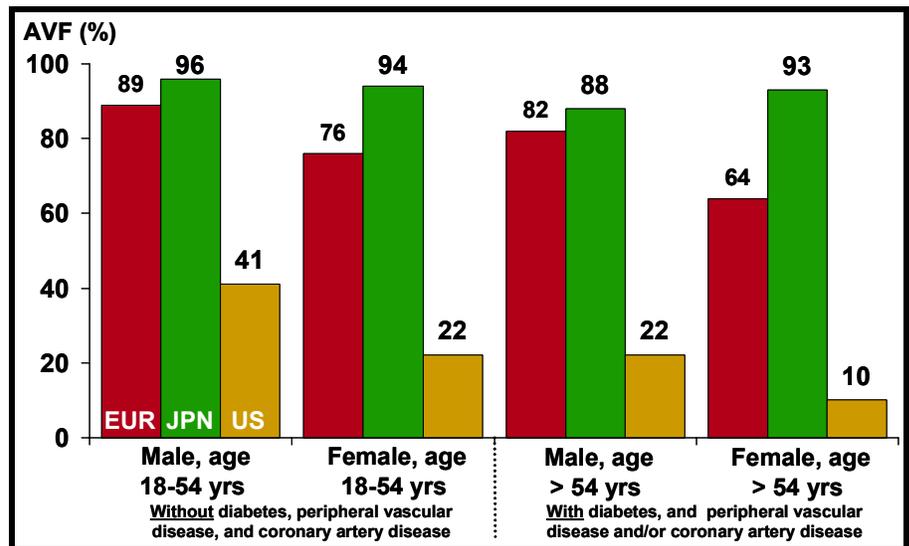


Figure 2: AVF Use for Different Prevalent Patient Subgroups in the DOPPS: Europe, Japan, and the United States

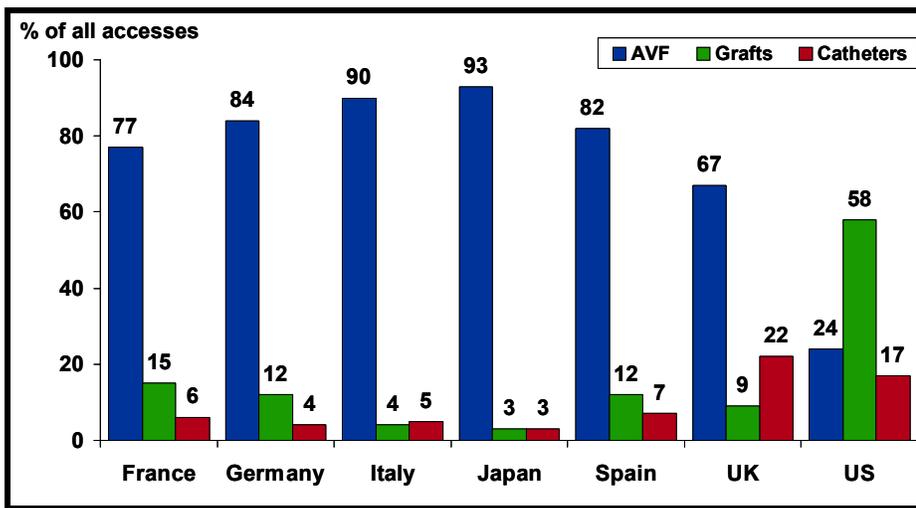


Figure 1: Vascular Access Use Among Prevalent HD Patients in the DOPPS: Europe, Japan, and the United States

Catheters include both temporary catheters and PermCaths; Europe (n=2455), Japan (n=2158), United States (n=3813).

(Figure 3). In Europe and Japan, 62%-66% of new ESRD patients initiated HD with an AVF, compared with 15% in the US. In contrast, synthetic grafts accounted for only 2%-3% of the accesses used by new ESRD patients in Europe and Japan when initiating HD, compared with 24% in the US. Large differences in permanent access use between the US and the six other Phase I DOPPS countries remained, even after adjustment for

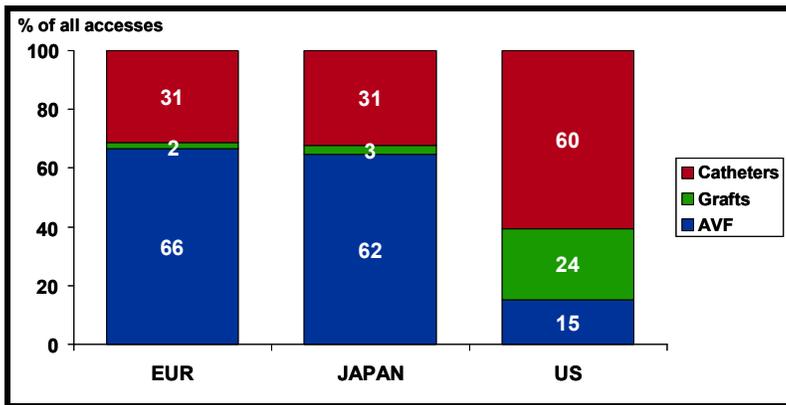


Figure 3: Large Differences in Access Use at Start of Hemodialysis: Europe, Japan, and United States

Catheters include both temporary catheters and PermCaths; Incident patients entering the DOPPS within 5 days of first ever dialysis session.

patient characteristics (3, 4).

Furthermore, Young et al. (5) recently reported that 21% of US medical directors and 38% of US study coordinators identified synthetic grafts as the preferred permanent access for their patients. This stands in striking contrast to Europe and Japan, where 100% of the DOPPS facilities indicated AVF as the preferred permanent access. DOPPS findings showed that, although access use was associated with particular patient characteristics, facility preferences and practices appear to be very important determinants of the type of VA given to patients.

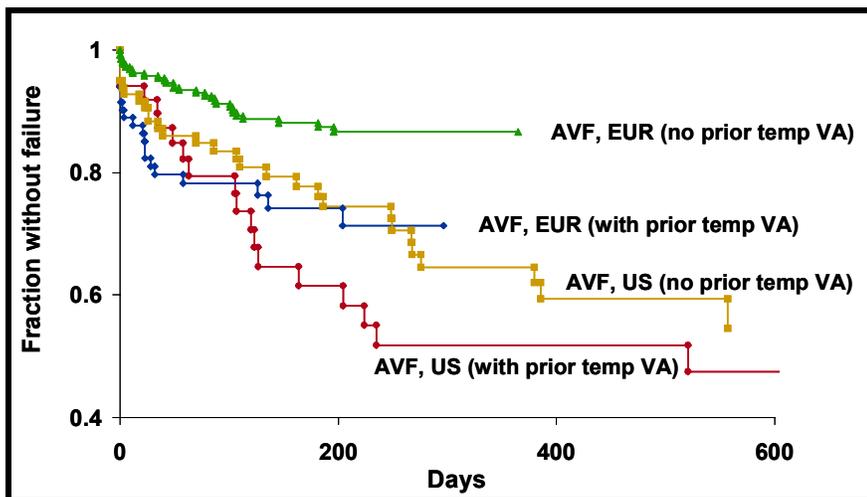


Figure 4: Survival of First AVF in Incident Patients With or Without a prior Temporary VA

Adjusted for differences in age, gender, diabetes, peripheral vascular disease, and body mass index.

Vascular Access Survival

The DOPPS has examined VA survival in new ESRD patients who used either an AVF or a synthetic graft for their first HD treatment (3). In these analyses, VA survival was defined as the length of time that an access functioned until its first failure. Failure was defined as any reported event (such as thrombosis) that prevented the access from working for HD treatments. The survival analyses, which were adjusted for

patient age, gender, diabetes, peripheral vascular disease, body mass index, and continent of residence, demonstrated a nearly twofold higher rate of failure for synthetic grafts compared with AVF. For this patient population, survival distributions indicated that 68% of AVF survived for one year compared with 49% of synthetic grafts. Across facilities, AVF failure rate was twice as great in the US compared with Europe (Figure 4). In addition, prior catheter use was associated with a nearly doubled failure rate for AVF (Figure 4). A similar detrimental effect was seen regarding survival of synthetic grafts in patients who had a prior catheter.

VA survival analyses that include results for Japan using DOPPS data have been described in a manuscript recently submitted by Saran et al.

Use of Catheters for Vascular Access

Given the negative role catheters appear to play in subsequent survival of fistulae and grafts, DOPPS researchers have focused considerable attention on catheter use.

Among prevalent patients in the DOPPS, tunneled and untunneled catheters were used by 17% of HD patients in the US, 8% in Europe, and less than 3%

with patients who first saw a nephrologist less than one month prior to ESRD onset. The percentage of patients seeing a nephrologist during the pre-ESRD

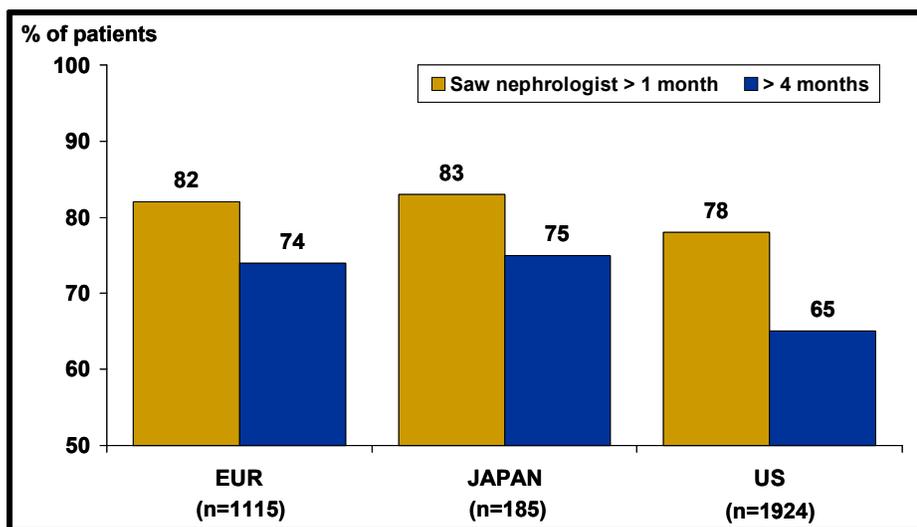


Figure 5: Moderate Country Differences in Pre-dialysis Care: Europe, Japan, and the United States

Incident patients entering DOPPS within 90 days of first dialysis treatment.

in Japan (Figure 1). However, among new ESRD patients starting HD, catheters accounted for 60% of all accesses in the US and 31% in Japan and Europe (country range 15% to 50%) (Figure 2). Table 3 presents some considerations that enable new ESRD patients to start HD with a permanent access (8). DOPPS data have shown that patients who saw a nephrologist more than one month prior to the onset of ESRD had six times the odds of starting HD with a permanent access compared

with patients who first saw a nephrologist less than one month prior to ESRD onset. The percentage of patients seeing a nephrologist during the pre-ESRD period did not greatly differ across continents and countries (Figure 5). Two other practices were relevant regarding whether patients were able to start HD with a permanent access: (1) the amount of time from referral until access placement and (2) the amount of time required before a newly created access could first be cannulated. For those HD facilities in which the time from referral until access creation was typically two weeks or less, patients had nearly twice the chance of starting HD with a permanent access. Facility practice patterns regarding the time from referral until access placement and time until first cannulation of AVF varied considerably across countries. These results will be described in an upcoming paper by Rayner et al. (6). The effects of facilities' first cannulation timing and blood flow practices on VA survival also have been described in a manuscript recently submitted by Saran et al.

In another DOPPS investigation, Combe et al. (7) described the use of tunneled and untunneled catheters in HD patients. When new ESRD patients initi-

Table 3: Factors affecting the ability of dialysis units to increase the proportion of new ESRD patients starting hemodialysis with a native arteriovenous fistula (AVF)

- Proportion of patients seen by a nephrologist > 4 months prior to ESRD
- Early referral of patients for access surgery
- Creation of AVF soon after referral for surgery (e.g., < 2 weeks)
- Availability of skill among dialysis staff to successfully needle AVF in a relatively short time period (e.g., 25-60 days)
- Surgical technique and success rate: fraction of first AVF placements that successfully mature into functioning accesses

ated HD with an untunneled catheter, very few of these patients were still using this catheter two months later. In contrast, when new ESRD patients started HD with a tunneled catheter, approximately 50% of these patients were still using a tunneled catheter nine months later. These results indicate that untunneled catheters were used for only short periods of time, whereas tunneled catheters were used for extensive periods in some patients. Furthermore, compared with synthetic grafts and AVF, the rate of VA infection was five times higher for tunneled catheters and eight times higher for untunneled catheters.

Recent DOPPS analyses have focused on the relationship between catheter use and mortality and morbidity. New ESRD patients initiating HD with a

tunneled catheter had a 25%-30% higher adjusted mortality rate than patients using a permanent access when initiating HD (7). These analyses were adjusted for numerous patient characteristics and comorbidities. In facilities where 28% or more of patients used catheters, patient risk of hospitalization because of serious infection was 60% higher and mortality risk was also increased (8).

In summary, the analyses of data from Phase I of the DOPPS have provided insight into many facets of VA use and survival among HD patients. Efforts to examine the many relationships between facility practices and outcomes are continuing, as this is a clinically highly relevant area of research for HD patients. The DOPPS Phase II will collect further information that will expand our understanding of VA,

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Questions & Answers

Frequently Asked Questions from Participating DOPPS Facilities

Q: Now that I have completed forms for prevalent patients in this initial facility round, I am supposed to select incident patients from my facility for participation in the study. What is the definition of an incident patient and why is it important to select these patients for the study?

A: An incident patient refers to a patient who is both new to your facility and was first diagnosed as having chronic End-Stage Renal Disease within the last 30 days prior to entering your facility. Information on incident patients is essential for DOPPS researchers, as it provides a “snapshot” of a patient’s health at the beginning of dialysis treatment. From incident patient information, our DOPPS researchers can examine pre-ESRD care at facilities and can also account for comorbidity factors (non-ESRD related health conditions) in their analyses of dialysis outcomes and facility practices.

Q: On the top right corner of the patient medical questionnaire (MQ), I am asked to provide the “enrollment date.” Which date does this reference?

A: The enrollment date refers to the day a specific patient began participating in the DOPPS. For prevalent patients, the date to record on the MQ is the date your initial CHC was completed. For incident patients, record the date on which the patient received the first dialysis treatment at the facility and was added to the CHC.

Q: I recall in DOPPS Phase I not having to record on the census the date of a patient’s first dialysis ever received. In DOPPS Phase II, is it necessary to provide this information on the patient census?

A: Yes! It is necessary. While this item of information for a patient can sometimes be difficult to find, recording the date a patient first received dialysis provides DOPPS researchers with essential information for calculating representative patient mortality rates in facilities and countries. Previous research suggests a substantial relationship between the length of time a patient is on dialysis and mortality risk.

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