Title

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Journal

Journal of the American Society of Nephrology : JASN, 23(8)

ISSN

1046-6673

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Publication Date

2012-08-01

DOI

10.1681/asn.2011111094

SPECIAL ARTICLE www.jasn.org

Reimbursement of Dialysis: A Comparison of Seven Countries

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ABSTRACT

Reimbursement for chronic dialysis consumes a substantial portion of healthcare costs for a relatively small proportion of the total population. Each country has a unique reimbursement system that attempts to control rising costs. Thus, comparing the reimbursement systems between countries might be helpful to find solutions to minimize costs to society without jeopardizing quality of treatment and outcomes. We conducted a survey of seven countries to compare crude reimbursement for various dialysis modalities and evaluated additional factors, such as inclusion of drugs or physician payments in the reimbursement package, adjustment in rates for specific patient subgroups, and pay for performance therapeutic thresholds. The comparison examines the United States, the province of Ontario in Canada, and five European countries (Belgium, France, Germany, The Netherlands, and the United Kingdom). Important differences between countries exist, resulting in as much as a 3.3-fold difference between highest and lowest reimbursement rates for chronic hemodialysis. Differences persist even when our data were adjusted for per capita gross domestic product. Reimbursement for peritoneal dialysis is lower in most countries except Germany and the United States. The United Kingdom is the only country that has implemented an incentive if patients use an arteriovenous fistula. Although home hemodialysis (prolonged or daily dialysis) allows greater flexibility and better patient outcomes, reimbursement is only incentivized in The Netherlands. Unfortunately, it is not yet clear that such differences save money or improve quality of care. Future research should focus on directly testing both outcomes.

J Am Soc Nephrol 23: 1291–1298, 2012. doi: 10.1681/ASN.2011111094

Medical support for ESRD consumes a substantial share of health expenditure for a very small proportion of the population.[1,2] High expenses are largely related to the expensive technology and intensity of labor in the delivery of the treatment. In addition, a shift in patient mix over time to progressively older subjects with greater comorbidity contributes to increasing costs. Chronic dialysis reimbursement is a timely issue because of the introduction of recent cost-control initiatives in multiple countries, including bundling multiple costs into a single payment[3–9] along with other measures.[10] Such bundling as a cost-containment model highlights the difficulty in making dialysis affordable while ensuring quality and access to care.[3–9] Some have raised additional concerns that such bundling might lead to a perverse incentive, and therefore, some dialysis facilities may refuse the most cost-intensive or least-adherent patients to maximize profits,[5,11] potentially compromising access to care for other patients. However, bundling service payments also has the potential to promote more rational use of resources,

Published online ahead of print. Publication date available at www.jasn.org.

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which was shown by the experience with anemia management in Japan.[12]

The continual evolution of reimbursement policies around the world indicates that all governments struggle to achieve the optimal balance of cost containment with high-quality care for all patients, regardless of socioeconomic status. Here, we examine the issue of reimbursement for chronic dialysis in seven countries around the world, including two countries in North America (Canada and the United States) and five countries in Europe (France, Germany, the United Kingdom, The Netherlands, and Belgium). All costs are normalized to US dollars (USD).

GLOBAL REIMBURSEMENT OF DIFFERENT DIALYSIS STRATEGIES

Substantial differences exist between countries with the lowest and highest reimbursements (Table 1): a factor of 3.3 for self-care hemodialysis, a factor of 3.2 for home hemodialysis, a factor of 2.5 for hospital hemodialysis, a factor of 2.2 for continuous ambulatory peritoneal dialysis (CAPD), and a factor of 1.8 for automated peritoneal dialysis (APD). In general, the United States and Ontario provide the lowest reimbursement, with the exception of reimbursement for CAPD; the reimbursement for CAPD is the lowest in the United Kingdom.

Peritoneal dialysis is generally reimbursed at a lower level than hemodialysis, with the exceptions of in the United States, which provides the same amount of reimbursement for all dialysis modalities, and Germany, where peritoneal dialysis is reimbursed at a higher rate than all hemodialysis strategies. Among maintenance hemodialysis strategies, payments for hospital hemodialysis are generally higher, except for in the United States and the United Kingdom (both provide a single flat rate for hemodialysis regardless of site of care) as well as The Netherlands. In The Netherlands, home hemodialysis is reimbursed at the highest level if performed with the help of a nursing assistant; if performed without an assistant, it is reimbursed more than the alternative strategies but lower than hospital hemodialysis.

Reimbursement for hospital hemodialysis in Germany is based on a complex system with a wide range of reimbursement related to whether the patient is hospitalized; if the patient is not hospitalized, reimbursement is the same as for self-care hemodialysis. Reimbursement furthermore is also different depending on the regional state or "Bundesland," the type of dialysis (hemofiltration > hemodiafiltration > hemodialysis), and in the case of hospitalization, the reason for that hospitalization (if the patient is hospitalized for CKD or AKI and dialysis, the cost must be recovered from the reimbursement package for that specific indication). For the patients who are specifically hospitalized for the duration of the dialysis session, reimbursement includes all other comorbid costs. In France, the system for reimbursing hospital hemodialysis is also complex, and the sum in Table 1 is only valid for public hospitals; in private hospitals, this amount is \$1150+\$157 fee for the nephrologist (\$1307/wk total). A third level is so-called medicalized hemodialysis: hospital hemodialysis with only one doctor's visit per week that is reimbursed at \$1013/wk. Regional differences for reimbursement exist in Belgium, Germany, and Canada. In Belgium, slight differences in reimbursement for hospital hemodialysis also exist between hospitals, similar to the variation in reimbursement for hospitalization in general for the whole country.

Specific Elements Included in the Reimbursement

Two countries, The Netherlands and the United States, have an expanded bundled reimbursement package that includes all intravenous drugs (erythropoiesis-stimulating agents [ESAs], vitamin D, and iron) (Table 2). France and Ontario have bundled payments that include everything but ESAs. In most European countries and Ontario, intravenous vitamin D is not used systematically, and oral formulations are prescribed more frequently.

In the United States and Ontario, the reimbursement also encompasses laboratory tests. In Belgium and Germany, there are restrictions on the number of tests performed either per collected blood sample (Belgium) or per month (Germany). In France, biochemical analyses are only included in the package for public hospitals. None of the countries surveyed include oral medications in the payment bundle, although dialysis-specific oral drugs are scheduled to be included in the payment bundle in the United States starting in 2014.

In the United States, United Kingdom, Germany, and Ontario, Canada, nephrologists' fees are paid separately and therefore, not included in the bundled fee given in Table 1. In the United States, the payment to nephrologists is approximately \$200 for one visit per month, \$250 for two or three visits per month, and \$300 for four or more visits per month. In Germany, the nephrologist's fee is fixed at \$12.15 per visit. For in-hospital hemodialysis, one nephrologist visit per dialysis session is mandatory. In France, the fee is included in the package for hospital hemodialysis in public hospitals, but it is reimbursed separately in private hospitals (\$52 per session and \$157 per week for three sessions). In Ontario, the fee for all modalities of dialysis is \$134 per week.

Reimbursement Adjustments for Specific Patients and Conditions

Germany and the United Kingdom offer extra reimbursement for patients with hepatitis B or C and HIV infections (Tables 3 and 4). Germany offers additional reimbursement for carriers of methicillin-resistant *Staphylococcus aureus*, patients with diabetes, and patients over the age of 59 years. In the United Kingdom, reimbursement is decreased if patients have a central venous catheter for dialysis access. In the United States, case mix adjusters include age, body size, recent initiation of dialysis, and six comorbidities: three acute (gastrointestinal bleeding, bacterial pneumonia, and pericarditis) and three chronic (hereditary hemolytic or sickle cell anemia, monoclonal gammopathy, and myelodysplastic syndrome) comorbidities.

The United Kingdom and Ontario, Canada are the only locations that reimburse for as many dialysis sessions as

Table 1. Reimbursement per week for dialysis services in the different countries expressed in USD

	Belgium	Germany	The Netherlands	United Kingdom[a]	France	United States	Ontario, Canada[b]
Self-care hemodialysis	1045[c]	675	1668	744	909	689	502
Home hemodialysis	1045	675	1246/1905[c]	744	816	689	385
CAPD	985	1077	1126	502	718	689	636
APD	985	1077	1126	612	925	689	733
Hospital hemodialysis	1608	675–1131[d]	1668	744	1364[d]	689	745

[a]Reimbursement in the United Kingdom corresponds to standard treatment, no hepatitis B/C or HIV, and AVF as access in hemodialysis patients.
[b]Data refer to the province of Ontario only; in Canada, substantial regional differences exist.
[c]The cost is $1246 if hemodialysis is performed with patient's own partner and $1905 if performed with the help of a nursing assistant.
[d]These values are references; regulations for hospital hemodialysis in Germany and France are complex and more extensively explained in the text.

Table 2. Specific elements included in the reimbursement package

	Belgium	Germany	The Netherlands	United Kingdom	France	United States	Ontario, Canada
ESAs	N	N	Y	N	N	Y	N
Intravenous iron	N	N	Y	Y/N[a]	Y	Y	Y
Intravenous vitamin D analogs	N	N	Y	Y	Y	Y	Y
Heparin	Y	Y	Y	Y	Y	Y	Y
Oral medications	N	N	N	N	N	N	N
Biochemical (laboratory) analysis	N[b]	N[b]	N	N	Y/N[c]	Y	Y
Nephrologist's fee	Y	N	Y	N	Y/N[d]	N	N

Y means no separate payment for this factor.
[a]Intravenous iron is included in the reimbursement package for hemodialysis but not peritoneal dialysis.
[b]Limited number of tests allowed per sample collected (Belgium) or per month (Germany).
[c]Y stands for public hospitals, and N stands for all other options.
[d]Y is for hospital hemodialysis; N is for other options.

Table 3. Reimbursement adjustments for alternative nonstandard dialysis strategies or specific patient groups

	Belgium	Germany	The Netherlands	United Kingdom	France	United States	Ontario, Canada
High-flux hemodialysis	N	N	N	N	N	N	N
On-line hemodiafiltration	N	N	N	N	N	N	N
Nocturnal hemodialysis	N	N	N	N	N	N	N
More than three sessions per week	Y/N[a]	Y/N[a]	N	Y	Y[b]	Y[c]	Y[d]
Patients with hepatitis B	N	40/35[e]	N	23£	N	N	N
Patients with hepatitis C	N	40/35[e]	N	23£	N	N	N
Patients with HIV	N	40/35[e]	N	23£	N	N	N
MRSA carriers	N	40/35[e]	N	N	N	N	N
Diabetes	N	35[f]	N	N	N	N	N
Age	N	21 if >59	N	N	N	Y[g]	N
Central venous catheter	N	N	N	−48[h]	N	N	N

N, no incentive or disincentive; MRSA, methicillin-resistant *S. aureus*.
[a]Y stands for hospital hemodialysis; N stands for other options.
[b]Any fourth session per week.
[c]A fourth session is reimbursed if medically justified.
[d]In-home hemodialysis is $385 for three times per week but $760 for five to six times per week.
[e]$40 in self-care and home hemodialysis, and $35 in peritoneal dialysis.
[f]Only in home hemodialysis and self-care.
[g]Several other adjusters are applied as well (more details in the text).
[h]$−56 if hepatitis B/C or HIV.

are performed during 1 week for all hemodialysis modalities. None of the other countries reimburse for more than three sessions per week, or if they do, it is not extended to all modalities or more than four sessions per week. In practice, the system in the United Kingdom is effectively applicable only to home hemodialysis, because in-center facilities cannot usually accommodate the extra sessions, thus favoring home dialysis. Beginning in 2012, The Netherlands will likely provide reimbursement for more than three dialysis sessions per week but only in the home hemodialysis setting. Belgium is the only country that provides a bonus if a certain number of patients per facility perform self-care or home hemodialysis, peritoneal dialysis, or transplantation: approximately $54 per hospital dialysis for 5%–10% of such patients, $80 for 10%–25% of such patients, and $87 for >25% of such patients.

Achieving targets for clinical measures or thresholds affect reimbursement only in Germany and the United States and at present, they are only for Kt/V (or

Table 4. Therapeutic thresholds affecting reimbursement

	Belgium	Germany	The Netherlands	United Kingdom	France	United States	Ontario, Canada
Kt/V	N	Y/N[a]	N	N	N	Y	N
Hb	N	Y/N[a]	N	N	N	Y	N
Phosphate	N	N	N	N	N	N	N
Iron levels	N	N	N	N	N	N	N
PTH	N	N	N	N	N	N	N

Hb, hemoglobin.
[a]Thresholds do not apply for hospitalized patients.

its surrogate) and hemoglobin (Table 4). No thresholds exist presently for levels of serum iron, phosphate, or parathyroid hormone (PTH) in any country. In Germany, the lower target for hemoglobin is 10 g/dl without an upper limit. The Kt/V parameter requested is equilibrated Kt/V, which should be at least 1.2 with two additional conditions: three hemodialysis sessions per week for at least 4 hours per session. All four conditions should be satisfied in at least 85% of patients in a facility. If not, a warning is given, and if the situation is not explained or solved, reimbursement is decreased. For hospitals, this rule is only applicable to ambulatory patients.

In the United States, a pay for performance program initiated in 2012 called the Quality Incentive Program (QIP) will financially incentivize dialysis facilities to target hemoglobin between 10 and 12 g/dl. The surrogate of Kt/V applied is urea removal rate (URR), which roughly corresponds to single-pool Kt/V and should be greater than 65%. Assessment is made on averages over a 12-month period. The data are converted into a score with a maximum of 30 points. With a score below 26, a percentage of the reimbursement is withheld for all patients of that facility, with a maximum reduction of 2% if the facility achieves 10 points or fewer. Additional changes in the threshold system in the United States have been announced. In 2013, the lower threshold for hemoglobin (>10 g/dl) is slated for elimination, leaving only the maximum of 12 g/dl. In 2014, the QIP will include six quality measures, with adjustments for improvements from previous years in specific parameters in each facility.

Normalization of Overall Reimbursement for Per Capita Gross Domestic Product

To correct for living standard, we normalized the crude reimbursement data from Table 1 for per capita gross domestic product (GDP). This calculation resulted in only minimal relative changes overall, except for in the data from the United States (Table 5). In general, the gap between countries with a lower per capita GDP (France and the United Kingdom) and those countries with a high (the United States and The Netherlands) or intermediate per capita GDP (Germany, Canada, and Belgium) tended to decrease; more importantly, the high per capita GDP of the United States further accentuated the relatively low reimbursement for chronic dialysis in that country. As a consequence, the United States descended to the lowest level in the ranking for APD and hospital hemodialysis, passing below the United Kingdom and Germany, respectively, which were at the lowest level before correction for per capita GDP.

DISCUSSION

Our observations compare reimbursement strategies for maintenance dialysis in seven countries. We made eight important conclusions. (*1*) Important differences among countries in monetary reimbursement and regulations governing reimbursement for maintenance dialysis services exist. (*2*) Except for the United States, hospital hemodialysis is reimbursed more than home dialysis strategies (hemodialysis and/or peritoneal dialysis). (*3*) Reimbursement for peritoneal dialysis is lower in all countries except the United States and Germany and to a certain extent, Ontario, Canada. (*4*) Only Germany and the United States adjust reimbursement for patients who may consume more resources because of comorbidities. (*5*) The United Kingdom is the only country that currently offers a financial incentive for having an arteriovenous fistula (AVF) or graft for vascular access for every hemodialysis modality (although the United States will include such a vascular access measure in the 2014 QIP). (*6*) The United Kingdom is also the only country favoring frequent hemodialysis in all settings. (*7*) Reimbursement is adjusted based on a proportion of patients achieving therapeutic thresholds only in Germany and the United States. (*8*) Adjusting for differences in per capita GDP further accentuates the low reimbursement rates in the United States. These data indicate that governments around the world are all using various reimbursement strategies to both contain costs and ensure quality care. The variety of such policies also suggests

Table 5. Reimbursement per week for dialysis services normalized for national per capita GDP and multiplied by 1000

	Belgium	Germany	The Netherlands	United Kingdom	France	United States	Ontario, Canada
Self-care hemodialysis	27.65	17.97	39.27	20.71	26.87	14.65	12.9
Home hemodialysis	27.65	17.97	29.33/44.85	20.71	24.12	14.65	9.89
CAPD	26.07	28.67	26.51	13.98	21.22	14.65	16.34
APD	26.07	28.67	26.51	17.04	27.34	14.65	18.84
Hospital hemodialysis	42.55	17.97–30.11	39.27	20.71	40.31	14.65	19.14

that governments struggle to balance these two goals.

Two- to threefold differences in reimbursement levels for maintenance dialysis exist across the seven countries compared in this study. Germany, Ontario, Canada, and the United States have the lowest reimbursement. However, it is important to emphasize that it is difficult to make clear statements on the overall financial cost of dialysis across countries. First, there are substantial differences in the number of dialysis patients per 1,000,000 population among countries,[13] and there are differences in patient mix, comorbidities, transplantation rate and policy, and number of available in-center positions. Second, in some countries, the average age is substantially higher,[14] and health expenditures are higher in older dialysis patients.[15] Third, the proportion of patients receiving different modalities differs by country, with a larger proportion of patients treated with peritoneal dialysis in some countries (the United Kingdom and The Netherlands). Even within these countries, there are regional differences. Fourth, some countries offer additional reimbursement for specific conditions such as hepatitis (Table 3) or include specific dialysis-related drugs within the payment bundle (Table 2).

Normalization for per capita GDP did not alter the results substantially, with the exception of the results for the United States, which had by far the highest per capita GDP; this calculation took the United States farther down the ranking and actually drove it below the United Kingdom for APD and Germany for hospital hemodialysis (Table 5) to reach the very lowest level of all.

One should, however, be careful with any interpretation; although the reimbursement data are from 2011, the most recent data for the GDPs were only from 2010. In periods of financial crisis (like 2011, of which the GDP, thus, could not be included), GDPs tend to decrease or stagnate, and the crisis has not necessarily affected each individual country similarly; thus, the 2010 data might not be entirely applicable to the year of data collection, which was 2011. We show only the normalized data for the global reimbursement sum as illustrated in Table 1 and not data for the subtle corrections for specific conditions applied in some but not all countries, which is shown in Table 3, to avoid extremely complicated comparisons. Additionally, there are different ways for calculating GDP, which may result in divergent figures; in this case, the official Organization for Economic Co-operation and Development score was used.

It is also critical to emphasize that the exchange rate influences the comparison across countries. Indeed, the results would have been dramatically different if the conversion rates between USD and other currencies applicable early in this millennium were used. Even in May of 2011, the difference between the United States and the European countries would have been 7% greater than the present data based on exchange rates of October 1, 2011. Thus, an impression of lower reimbursement rates is given for the countries with a relatively low exchange rate (for example, the United States and the United Kingdom). Importantly, such gaps in reimbursement rates would not have a significant impact at the local level unless dialysis products were purchased outside of those countries (therefore, they would be proportionally more expensive).

In several countries, reimbursement for peritoneal dialysis and home hemodialysis has now been equalized, which is a positive incentive, because it eliminates disadvantages to peritoneal dialysis, which is less expensive.[16] Germany is the only country where peritoneal dialysis is now even better reimbursed than home hemodialysis, self-care hemodialysis, and most hospital hemodialysis. In Ontario, peritoneal dialysis versus home and self-care hemodialysis is also more favorably reimbursed. Notably, this approach has not increased use of peritoneal dialysis in German dialysis centers.[17] Likewise, in Ontario, increasing the nephrologist's fee for peritoneal dialysis (the so-called capitation fee, which is modality-independent) did not increase the use of peritoneal dialysis.[18] Thus, the ability of reimbursement policies to affect use of different dialysis therapies seems limited.

Despite literature favorable to more frequent and longer hemodialysis,[19–22] reimbursement strategies do not incentivize use of modalities that enable it. Extra dialysis, in excess of the standard three sessions per week, is only reimbursed in some countries and often only in an in-hospital setting, and even longer dialysis in excess of the standard 4 hours is not reimbursed. For home hemodialysis, which is the preferred setting for these options because of its flexibility,[23] reimbursement is often insufficient to carry the costs for the extra dialyzers and tubing or longer dialysis times, which might imply higher water and electricity consumption. The only country favoring frequent dialysis for all hemodialysis modalities is the United Kingdom (Table 3). The United Kingdom is also the only country that presently offers incentives for AVF as an access and discourages central vein catheters (Table 3), despite evidence favoring better outcomes compared with catheters.[24,25] In the 2014 QIP for the United States, rules will attempt to incentivize the use of AVF. Whereas some systems require that physician visits take place at every dialysis session (Germany), others reimburse from one visit per month and include no extra incentive after the number of visits exceeds four (the United States).

Imposing therapeutic thresholds (Table 4) is one tool currently employed to promote optimal therapy adequacy. However, aside from the administrative burden that the thresholds impose on both the facilities and the regulatory agencies, there are concerns associated with this approach. The rules are based on clinical practice guidelines that may change over time. Furthermore, many guidelines are also insufficiently based on evidence.[26] For instance, the nephrology community has revised its opinion regarding optimal anemia management multiple times in the past decade.[27,28] Other therapeutic thresholds, Kt/V and URR, are also subject to criticism. Because of the multicompartmental kinetics of urea, calculated URR increases as treatment time per session decreases, thereby producing an overestimated value.[29] Furthermore, the concept of urea kinetics has not shown an association with hard outcomes in randomized

clinical trials[30,31] and was developed in the era when mainly low-flux dialyzers were used for short treatment times. The concept has not been tested (and is potentially irrelevant) for dialysis with large-flux membranes or extended dialysis, which all have been associated with better outcomes.[22,32–34]

The current analysis allows an overview of the differences in the complex reimbursement schemes around the world for multiple dialysis treatment options. We not only focused on the reimbursement for the dialysis treatment but also the components of bundled reimbursement and adjustments. However, our results should be interpreted with caution, because we only included crude reimbursement, which may not reflect true costs. In addition, the frequent differences among regions and even hospitals within a country and the continuous changes that are introduced in these systems may alter the results presented. Finally, the questions asked were of limited scope, although they provided general trends, and were limited to the seven countries surveyed. Eastern Europe, Brazil, Russia, India, China, Asia Minor, Australia/New Zealand, and the emerging world countries would also be of interest. Nevertheless, our approach was sufficient to point out the striking differences in reimbursement in countries of similar economic development.

SUMMARY

There is significant variation among countries regarding reimbursement policies for dialysis. These data show the complexity and variety of the different reimbursement systems that all governments struggle with in the optimization of a reimbursement system to balance cost containment and quality care. Unfortunately, there is insufficient data that any of the approaches favor better quality of life or patient outcomes. The friction between targeting high-quality medicine and the disproportionate expenses that might result will lead to continual evolution of the reimbursement strategies. Identifying the appropriate balance remains a challenge for policymakers and caregivers alike, and research to ensure that reimbursement policies do not adversely affect quality is needed. Nephrologists should continue to advocate for high-quality treatment for all patients while working with policy makers to identify cost-effective options.

Specific challenges that governments are confronted with concerning the problems discussed in this article are the risk that cost containment will weigh on quality of care, and therefore, survival and quality of life are degraded to secondary aims; the risk that, with restraints on hospital or unit incomes, health management becomes more ruled by economics than medical reasoning; the risk that linear measures would penalize caregivers delivering appropriate and cost-conscious care more than those caregivers who do not; the risk that patients with the lowest resources are excluded from treatment or at least, quality treatment; and the risk that thresholds imposed for financial incentives/penalties may be insufficiently based on evidence.

Multiple solutions to this conundrum include but are not limited to a thorough exchange of ideas between administration and the medical community, guidance bodies, and patient representatives; establishment of discussion among groups in which partners with financial interests are banned as much as possible; organization of a dialogue among countries about their ways of problem solving, leading to more international harmonization; implementation of screening and preventive programs and randomized trials to solidify the evidence base for therapeutic decisions; implementation of both financial and educational incentives to propagate the less-expensive dialysis strategies, such as peritoneal dialysis, home hemodialysis, and self-care; and better instruction of the general population and nonrenal medical community.

CONCISE METHODS

A survey of reimbursement policies for maintenance dialysis of adults was obtained from seven different countries: two countries in North America (the United States and Canada) and five in Europe (France, Germany, The Netherlands, the United Kingdom, and Belgium). The Canadian data refer only to Ontario, the largest province in the country. In Ontario, a new funding model has been proposed, and if accepted, it will be implemented in 2012. Similarly, new funding rules are likely to be implemented in The Netherlands in 2012. This publication, however, describes the current systems for Ontario and The Netherlands. However, the manuscript describes the newly implemented system in the United States and the United Kingdom; the latter will be fully implemented by April of 2012. The questionnaire sought information on global reimbursement of different dialysis strategies, including self-care hemodialysis, home hemodialysis, hospital hemodialysis or hemodialysis in free-standing dialysis facilities, CAPD, and APD. Hospital hemodialysis refers to hospital-based facilities that treat hospitalized patients or chronically ill ambulatory patients, in whom medical supervision is more intensive. Self-care hemodialysis refers to in-center dialysis without maximal medical assistance, whether located in hospitals or free-standing facilities. The term self-care dialysis also implies variable degrees of self-treatment (sometimes including needling of the vascular access), depending on the country and the facility.

Reimbursement was reported per week, allowing comparison between hemodialysis and peritoneal dialysis. In Tables 1–5 and the text, amounts are expressed in USD. Conversion factors were applied per October 1, 2011, on a web-based converter (http://www.xe.com/ucc/): $\times 1.34$ for Euro to USD, $\times 0.95$ for Canadian dollar to USD, and $\times 1.56$ for pound sterling to USD. *Vice versa*, for converting USD back to Euros, Canadian dollars, and pounds sterling, factors of $\times 0.75$, $\times 1.05$, and $\times 0.64$, respectively, were used.

Specific elements included in reimbursement were the administration of medications (consisting of ESAs, intravenous iron, calcitriol/vitamin D analogs, heparin, and oral medications), the costs of biochemical/laboratory analyses, and the nephrologist's fee. Transportation, meals, and other consultative services (physical therapy and psychologist visits) were not taken into consideration.

Reimbursement adjustments, whether incentives or disincentives, for specific patients,

specific forms of dialysis access, and different treatment strategies, such as hemodiafiltration, nocturnal dialysis, or strategies in excess of the standard three time per week treatment, were also considered. This question also covers adjustments based on the achievement of specific therapeutic thresholds, so-called quality or pay for performance programs. Specific thresholds including Kt/V, hemoglobin, serum phosphate, iron, and PTH levels were noted.

It is important to mention that the data reported concern reimbursement provided by each government and do not consider the actual cost to the facilities.

Normalization of global reimbursement for GDP was applied to compare net reimbursement as a function of the living standard per country. For that reason, global reimbursement per week (as illustrated in Table 1) was divided by the GDP per capita (expressed as purchase power parities in USD) for the last available year, which was 2010, as listed by the Organization for Economic Co-operation and Development. Applied GDP values per country were 37,787 (Belgium), 37,567 (Germany), 42,468 (The Netherlands), 35,917 (the United Kingdom), 33,835 (France), 47,024 (the United States), and 38,914 (Canada). For reasons of convenience and to avoid figures below unity, the obtained values were multiplied by 1000.

ACKNOWLEDGMENTS

The opinions expressed in this manuscript are the opinions of the authors. The manuscript was approved by members of the Dialysis Advisory Group of the American Society of Nephrology and does not necessarily reflect the opinions of their institutions or the entire membership.

The following people are the members of the Dialysis Advisory Group at the time of writing this publication: Michael Allon (Birmingham, AL), Michel Chonchol (Denver, CO), Paul Eggers (Bethesda, MD; National Institute of Diabetes and Digestive and Kidney Diseases liaison), Jula Inrig (Dallas, TX), Kamyar Kalantar-Zadeh (Torrance, CA), Rajnish Mehrotra (Torrance, CA; Advisory Group Chair), Sharon Moe (Indianapolis, IN; American Society of Nephrology Council liaison), Subodh Saggi (Brooklyn, NY), Rachel Shaffer (Washington, DC; American Society of Nephrology staff), Raymond Vanholder (Ghent, Belgium), Suzanne Watnick (Portland, OR), Daniel Weiner (Boston, MA), and Bessie Young (Seattle, WA).

DISCLOSURES

R.V. has received grant support and/or honoraria from Fresenius Medical Care, Baxter Healthcare, Bellco, Amgen, Hofman-Laroche, Amgen, and Nipro. A.D., T.H., J.K., A.K., N.L., G.L., P.M., S.J.S., W.V.B., and F.v.d.S. have reported no conflicts of interest. D.M. has received grant support and/or honoraria from Amgen, Janssen, Genzyme, Shire, Baxter, Takeda, Leo, Merck, Novartis, and Ortho Biotech. R.S. is an employee of the American Society of Nephrology. S.M.M. has received grant support and/or honoraria from Shire, Genzyme, Vifor, Amgen, Litholink, and KAI. R.M. has received grant support and/or honoraria from Amgen, Baxter Healthcare, DaVita, Genzyme, Mitsubishi Tanabe, Novashunt, Reata, Shire, and Vifor.

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