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A Systematic Evaluation of Websites Offering Information on Chronic Kidney Disease

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Abstract

In this study, we described the content and characteristics of 40 non-proprietary websites offering information about chronic kidney disease (CKD) and evaluated their information quality using the DISCERN scale and readability using Flesch Reading Ease and Flesch-Kincaid grade level. The areas in which the websites scored the lowest on the DISCERN scale were whether the website discussed knowledge gaps, presented balanced information, and was clear about the information source. Websites that rated higher quality on the DISCERN scale were more difficult to read. The quality and readability of many websites about CKD to be used as meaningful educational

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resources for patients who desire to learn more about CKD and treatment options remain inadequate.

Keywords

Chronic kidney disease; Internet; health information

More than 20 million Americans are affected by chronic kidney disease (CKD) (Centers for Disease Control and Prevention [CDC], 2014). While the growth of the CKD population necessitates adequate and timely patient education for optimal self-care, slowing disease progression, and treatment decision-making (Campbell, Ash, & Bauer, 2008; Curtin, Mapes, Schatell, & Burrows-Hudson, 2005; Devins, Mendelssohn, Barre, Taub, & Binik, 2005), many patients with CKD and healthcare providers may turn to the Internet to meet those needs because of limited time for in-person education (Buettner & Fadem, 2008; Schatell, Wise, Klicko, & Becker, 2006; Trisolini et al., 2004). Indeed, the Internet has become one of the most common, important sources for the general public (Fox & Duggan, 2013; Law, Mintzes, & Morgan, 2011; Wang et al., 2012), as well as for patients with CKD and their families, to obtain information about health, disease, and treatment (Buettner & Fadem, 2008; Calderon, Zadshir, & Norris, 2004; Cargill & Watson, 2002; Jaffery & Becker, 2004; Kleinpeter & Krane, 2002; Schatell et al., 2006; Seto et al., 2007). Although it varies across studies, the most recent data available suggest that up to 58% of patients on dialysis have reported that they used the Internet for information about their medical conditions (Seto et al., 2007).

There have been, however, concerns about the quality, accuracy, and purposes of websites offering medical information, partly due to loose regulations to control online information quality (Buettner & Fadem, 2008; Henderson, Rosser, Keogh, & Eccleston, 2012; Morahan-Martin, 2004). Studies have shown that Internet use in the renal community has grown over the past 10 years (Buettner & Fadem, 2008; Calderon et al., 2004; Cargill & Watson, 2002; Fadem et al., 2011; Grubbs, Gregorich, Perez-Stable, & Hsu, 2009; Jaffery & Becker, 2004; Joo et al., 2012; Kleinpeter & Krane, 2002; Schatell et al., 2006; Seto et al., 2007).

However, systematic evaluations of websites offering medical information for patients with CKD and the public are rare. The most recent assessment of CKD websites was done nearly 10 years ago (Jaffery & Becker, 2004), in which 11 websites were evaluated for the level of compliance with the principles of the Health on the Net Foundation Code of Conduct (Health On the Net Foundation, 2013) and readability. To date, the contents, characteristics, and quality of CKD websites accessed by patients with CKD are largely unknown.

Therefore, the purposes of this study were to describe the content and characteristics of websites offering information about CKD and evaluate their quality using a valid assessment tool.

Methods

Website Identification

To identify search terms that might be used by patients with CKD, we asked a convenience sample of 24 patients with CKD enrolled in a pre-dialysis CKD program what words or phrases they would use to find information about kidney disease and treatment options online. They were purposefully selected to include both genders, Caucasians and African Americans, individuals below and above 65 years of age, those with less than high school completion and who had completed at least high school education, and individuals with experience in searching online and those with no experience.

There were 10 words and phrases obtained from these patients: kidney/renal disease, kidney/renal failure, kidney/renal function, kidney, kidney research, dialysis, kidney problems, chronic kidney disease, fluid retention, and swelling. Transplant was not mentioned by these patients. Because the terms fluid retention and swelling would result in websites on many conditions other than kidney disease, we excluded these terms from our search. Our final search terms were kidney disease, kidney failure, kidney function, and dialysis, used separately. We chose Google (<http://www.google.com>), Yahoo (<http://www.yahoo.com>) and Bing (<http://www.bing.com>) because they have been the top three U.S. search providers, accounting for over 95% of search traffic (comScore, 2013; Wang et al., 2012).

One author (K.C.) carried out searches over three consecutive weeks, once a week, twice daily (a.m. and p.m.), from September 2012 to October 2012. The author logged in at home to avoid institutional login that might result in websites being retrieved that people without institutional credentials could not view unless they paid for the content. She also signed off from her existing Google account before website search. After setting text size at default, she searched websites using each search term within each search engine at a time. Websites listed on the first page of each search result were included for review because people typically do not view results beyond the first page (Jansen & Spink, 2006).

Three authors (E.L., K.C., and M.S.) reviewed the search results to determine websites' eligibility. Websites were included for quality evaluation if they were written in English and if they were publicly accessible without a password or subscription. Websites were excluded if they were a sub-site of a website already collected (except websites such as Wikipedia in which separate articles are not sub-sites); solely aimed at marketing, selling, or advertising a product, jobs related to kidney disease, or therapy; news or video websites; scholarly journal websites; social networking websites (e.g., Facebook, Google Plus, or MySpace); or discussion groups or open forums. While websites that appeared in search results as sponsored links or banner advertisements were excluded for quality evaluation, their ownership types and topics were summarized separately because some patients and families might visit those sites for health information or treatment options without realizing they are advertisements (Fain & Pedersen, 2006) that could provide biased information.

Of the 84 websites retrieved and assessed for their study eligibility, after eliminating duplicates within each search term, 40 websites were included in the analysis. The selection

process is shown in Figure 1. Of the 46 advertisement websites retrieved for the search terms, 20 were reviewed after excluding 26 duplicates.

Website Quality Assessment

We used DISCERN, a standardized, valid tool for assessing the quality of health information written for the public (Charnock & Shepperd, 2004; Charnock, Shepperd, Needham, & Gann, 1999). DISCERN has been extensively used to appraise health information on the Internet (Ademiluyi, Rees, & Sheard, 2003; Batchelor & Ohya, 2009; Charnock et al., 1999; Kaicker, Debono, Dang, Buckley, & Thabane, 2010; Khazaal et al., 2009; Khazaal, Chatton, Zullino, & Khan, 2012); however, it has not been used to assess CKD websites. This 16-item scale includes subscales of reliability of the publication and quality of the information on treatment choices sections on a Likert scale from 1 (No) to 5 (Yes) and an overall quality rating from 1 (Low) to 5 (High). Internal consistency reported in a previous study was Cronbach's $\alpha = 0.78$, and an intra-class correlation coefficient (ICC) was 0.82 (Ademiluyi et al., 2003).

We used DISCERN without the seven-item subscale of the quality of the information on treatment choices (e.g., "Does it provide support for shared decision-making?") because of its lack of applicability to most websites retrieved (not every CKD website includes information about treatment options for CKD). Thus, our quality assessment was focused on clarity, match between the purposes and information, relevance, sources of information, balance without biases, suggestions for additional sources, and areas of uncertainty. Without the seven-item subscale, the possible total score range is from 8 to 40, excluding the overall rating, with higher scores indicating better quality. The internal consistency without the 7 items for this study remain good (Cronbach's $\alpha = 0.81$).

Calibration among Raters

Initially, six raters (consisting of master's prepared nephrology nurses, public health professionals, and an information scientist) independently evaluated three websites from a Google search for "chronic kidney failure" that met the inclusion criteria using DISCERN. There were large variations in ratings among the raters initially. Through monthly group discussions, each category and rating was clarified to improve variations among raters' interpretations of each rating. The second round of evaluating the same three websites resulted in good inter-rater reliability; ICCs for consistency ranged from 0.94 to 0.97 and ICCs for absolute agreement ranged from 0.74 to 0.91.

For the evaluation of the 40 websites meeting the inclusion criteria, three pairs of raters evaluated 13 to 14 websites each. The websites were randomly assigned to these pairs. Raters independently reviewed each website. If the website included multiple hyperlinks for additional information, only one additional hyperlink was included in the evaluation. Any discrepancies between two raters were resolved through group discussions.

Readability

Readability was measured using Flesch Reading Ease (FRE) and Flesch-Kincaid (FK) grade level scores (Flesch, 1948; Graber, Roller, & Kaeble, 1999) after importing first 300 to 400

words (approximately three to five paragraphs) from each website into Microsoft Word™ 2010. These two scores are computed based on the average number of syllables per word and words for sentence. FRE scores range from 0 to 100 with higher scores indicating greater readability. A score of 60 to 70 is considered “standard” and is written approximately at the high school level (Finn, 1985). FK grade level scores indicate U.S. school grade levels converted from FRE scores. An FK score corresponds with a grade level; for example, a score of 8.0 indicates that the document is expected to be understandable by an average student in eighth grade in the U.S. We did not making any judgment about what reading level would be appropriate for the CKD population.

Descriptive statistics (means, standard deviations, frequencies) were used to summarize the characteristics of the retrieved websites, DISCERN scores, and readability scores. Pearson correlation coefficients and ANOVA were used to assess associations among website characteristics, DISCERN scores, and readability scores.

Results

Characteristics of the Sample Of Websites

The types, primary target audience, and topics of the 40 websites evaluated are summarized in Table 1. A majority of the websites (85%) were operated by either a not-for-profit organization or a for-profit commercial company. Thirty-seven (92.5%) websites targeted patients and family members who would be interested in information about CKD. Roughly half of the sample provided an overview of CKD, including causes, risk factors, common symptoms, and diagnostic tests. Of those, two websites offered information about coping with CKD or prevention, and one website addressed common questions that might be raised by patients who have been newly diagnosed with CKD. There were only three websites providing information about specific dialysis type, and of those, only one website was focused on peritoneal dialysis. Of the 20 sponsored links or banner advertisements that appeared on the top or on the side of the search result page, 13 were for-profit-commercial companies and seven were not-for-profit organizations. The topics of the advertisement websites are presented in Table 2.

Website Content Quality and Readability Assessment

The mean (*SD*) of the DISCERN scores was 22.9 (7.5). Table 3 presents contents of the DISCERN items and means (*SD*). Of the 40 websites, 10 were not clear about their aims. Most websites with identifiable aims presented information consistent with the aims ($M = 4.2$, $SD = 0.7$). The items scored the lowest (items scored below 3 out of 5) were whether the website discussed areas of uncertainty or knowledge gaps, whether the website’s information was balanced, and whether the website was clear about the source of information.

The overall mean (*SD*) FRE score was 51.4 (14.6) with range 23.4 to 78.9, which could be described as “Fairly Difficult (scores between 51 and 60).” Readability of nearly half of the websites (47.5%) was “Difficult” or “Very Difficult” (scores less than 51). Only three website were written at a level that was “Fairly Easy” to read for the public (see Table 3).

The mean (*SD*) FK level of the sample was 10.2 (2.9) with a range of 5.1 to 16.5. The correlation (*r*) between FRE and FK scores was -0.97 ($p < 0.001$).

There were significant, but weak, correlations between DISCERN total scores and FRE scores ($r = -0.34$, $p = 0.03$), and between DISCERN total scores and FK scores ($r = 0.38$, $p = 0.02$), which means that websites rated as higher quality tend to be more difficult to read and understand. DISCERN scores and both readability scores did not differ by type of website ownership (government agency, organization, vs. commercial company). All 40 websites reviewed and their DISCERN and readability scores are shown in Table 4.

Discussion

Because of the accessibility and potential utility of e-health information, the Internet has been widely promoted as an educational resource for patients with CKD and their families (Buettner & Fadem, 2008). Although nearly 10 years have passed since the quality and limited utility of the CKD websites have been described (Calderon et al., 2004; Jaffery & Becker, 2004), we found the quality and readability of many websites offering CKD information remain far less than ideal for the general public. Most websites did not provide a clear source of information, such as whether it was research-based evidence or an expert opinion. No websites in the sample were written at a level most adults could easily understand.

These findings have significant implications given the importance of patient education for optimal self-care to improve health outcomes yet the high prevalence of limited health literacy (up to 32%) in patients with CKD (Fraser et al., 2013). Evaluating information for credibility and quality is one skill necessary for health literacy (Fraser et al., 2013; Grubbs et al., 2009; Lora et al., 2011; Wright, Wallston, Elasy, Ikizler, & Cavanaugh, 2011). To use health information on the Internet for educational resources, it is important that renal healthcare providers are aware of websites that provide reliable information to direct patients to those sites. Healthcare providers should also be aware that websites with higher quality might be written at too high a level of most adults.

In general, the scope and depth of information offered by the websites in this study were limited. A majority of websites presented a brief overview of CKD, with little information about lifestyle changes to delay CKD progression or how to cope with the illness. Similarly, websites providing information about dialysis were primarily focused on medical procedures and technical aspects. These websites did not offer sufficient information or refer to other sources to help patients who face dialysis decision-making or information about how to cope with life on dialysis. This suggests that a majority of current CKD websites offer little utility or benefit to serve as meaningful educational resources for the general public. Further, sponsored links or banner advertisements promoting herbals and dietary supplements for patients with CKD raise safety concerns because many Internet users may not know the difference between main search results and advertisements on search result pages (Fain & Pedersen, 2006). Thus, some patients with CKD may visit these advertisements and try the advertised products without or before consulting with their healthcare providers.

Several well-recognized public websites offer CKD and dialysis information, such as the National Kidney Foundation website and the National Kidney Disease Education Program website. While these websites are viewed as reliable resources useful for patients and renal professionals (Buettner & Fadem, 2008), they were not included in the top-ranked websites based on DISCERN scores because of their lack of clear source of information presented (research-based evidence or an expert opinion), dates of the source of information, and discussions about areas of uncertainty.

Limitations

Our study has several limitations. Information seeking is contextual in that people use a variety of different strategies to select search terms that are refined throughout the process based on their information needs, the environment of the search, and the intended outcomes (Marchionini, 1997). The process is also iterative with modifications to the search strategy depending on the results that have already been obtained. However, in our study, we assumed users were using only a single search term and then terminating their search. Understanding the exact search process in context would require direct observation. Thus, our study only looked at the results of a preliminary search for information about CKD and/or treatment options for CKD. Second, DISCERN evaluates what information the website provides and whether it is reliable; it does not assess presentation style, which can be an important element of quality educational materials. Third, we focused on the quality of website information and readability and did not classify websites by level of patients' knowledge of CKD (e.g., websites suitable for patients newly diagnosed with CKD vs. websites for patients who are familiar with the disease and management). Finally, our study did not include proprietary, fee-based, or password protected websites. These websites may offer more relevant, higher-quality, more readable information although research is needed to confirm this.

Our study also has several strengths. Our search strategy was informed by patients with CKD who have used or may use the Internet to search for health information. Therefore, the search terms we used are fairly close to what actual patients may be using. Our clear and careful search process can also be useful for future studies. Lastly, we evaluated the quality of websites offering CKD information using a standardized, valid instrument.

Summary

Our study findings suggest that the quality and readability of many publicly available websites offering CKD information to be used as meaningful educational resources for patients who desire to learn more about CKD and treatment options remain inadequate. To meet the needs of fast-growing Internet users in the renal community, development of websites offering high-quality information without compromising readability is sorely needed. These websites should go beyond what is currently available online, offering more detailed, evidence-based information about CKD, including how to prevent complications, coping with CKD and dialysis, and how to choose a dialysis modality. Finally, healthcare providers may want to explain to their patients that web resources for patients with CKD are currently limited in scope and may be difficult to read and interpret.

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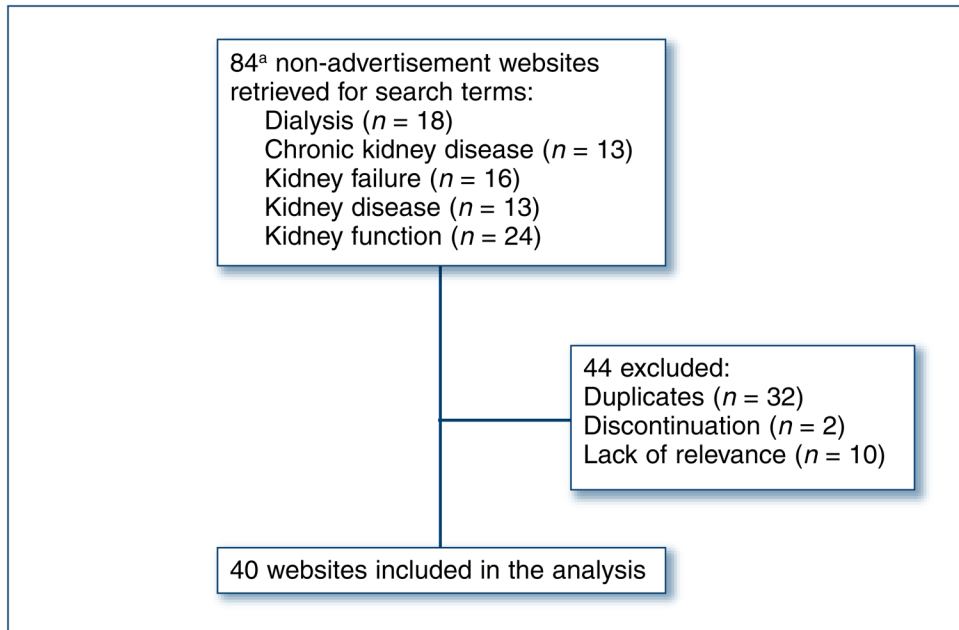


Figure 1. Selection Process of CKD Websites for Quality Evaluation

^aAfter excluding duplicates within each search term.

Table 1Characteristics of the Websites Evaluated ($N = 40$)

| Characteristics | <i>n</i> (%) |
|---|---------------------|
| <i>Type</i> | |
| Not-for-profit government agency | 5 (12.5) |
| Not-for-profit academic institution | 0 |
| Not-for-profit organization | 15 (37.5) |
| For-profit commercial company | 19 (47.5) |
| Unknown | 1 (2.5) |
| <i>Target audience</i> | |
| Patients and families (lay public) | 37 (92.5) |
| Health care professionals | 2 (5.0) |
| Unclear | 1 (2.5) |
| <i>Primary topic^a</i> | |
| CKD overview (causes, risk factors, symptoms, diagnostic tests) | 25 (51.0) |
| Anatomy and functions of kidneys | 6 (12.2) |
| CKD treatment options | 8 (16.3) |
| Dialysis overview (types and process) | 7 (14.3) |
| Focused on hemodialysis | 2 (4.1) |
| Focused on peritoneal dialysis | 1 (2.0) |

^a Multiple responses.

Table 2

Types and Topics of the Advertisement Websites

| Type | Topic |
|--|---|
| Not-for-profit organization (<i>n</i> = 7) | AARP member resource: CKD overview CKD overview (<i>n</i> = 2) Donation for polycystic kidney disease Home dialysis programs CKD overview and treatment options |
| For-profit commercial company (<i>n</i> = 13) | “Environmentally friendly” dialysis Kidney cancer overview Kidney functions and causes of kidney disease Herbals and dietary supplements for kidney functions (<i>n</i> =2) Dietary supplements to slow progression of CKD, treatment to cure kidney disease New surgery options for kidney cancer Overview of Fabry disease Promotion of amino acid formulation products CKD overview and dialysis care “Secretes” of kidney diet Benefits of home hemodialysis Specific dialysis center promotion |

Note: AARP = American Association of Retired Persons.

Table 3Websites' Content Quality and Readability Scores ($N = 40$)

| Assessment | M (SD) |
|---|---------------|
| <i>DISCERN Item content</i> | |
| 1. Aims are clear. | 3.2 (1.4) |
| 2. It achieves the aims ^a . | 4.2 (0.7) |
| 3. Contents are relevant. | 3.8 (1.0) |
| 4. Source of information is clear (e.g., research evidence or expert opinion). | 2.5 (1.5) |
| 5. Dates of the source of information are clear. | 3.1 (1.5) |
| 6. Information is balanced in terms of a range of information sources and evidence of an external review. | 2.2 (1.1) |
| 7. Details of additional sources for information are provided. | 3.1 (1.8) |
| 8. Areas of uncertainty are discussed (e.g., gaps in knowledge). | 1.7 (0.9) |
| Overall Quality Rating | 2.9 (1.0) |
| <i>Readability level by Flesch Reading Ease scores</i> | |
| 100 to 91 = Very Easy | 0 |
| 90 to 81 = Easy | 0 |
| 80 to 71 = Fairly Easy | 3 (7.5%) |
| 70 to 61 = Standard | 11 (27.5%) |
| 60 to 51 = Fairly Difficult | 7 (17.5%) |
| 50 to 31 = Difficult | 15 (37.5%) |
| 0 to 30 = Very Difficult | 4 (10.0%) |

^a $n = 30$, excluding 10 websites with unclear aims.

Table 4

Forty Websites Reviewed and Their DISCERN and Readability Scores

| Title | URL and archived URL^a | DISCERN^b | FRE^c |
|---|--|----------------------------|------------------------|
| American Kidney Fund | http://www.kidneyfund.org/kidney-health/kidney-failure http://www.webcitation.org/6O3CCzxN9 | 13 | 76.7 |
| Avantus Renal Therapy | http://www.avantusrenaltherapy.com/ http://www.webcitation.org/6O3Ap9n4M | 7 | 43.3 |
| DaVita | http://www.davita.com http://www.webcitation.org/6O3BOFQOr | 28 | 56.6 |
| Diabetes.org | http://www.diabetes.org/living-with-diabetes/complications/kidney-disease-nephropathy.html http://www.webcitation.org/6O31nHZ7W | 14 | 59.5 |
| Emedicine Health | http://www.emedicinehealth.com/chronic_kidney_disease/article_em.htm http://www.webcitation.org/6O3Bs1o8G | 20 | 49.4 |
| Fresenius Medical Care | http://www.fmcna.com/fmcna/index.htm http://www.webcitation.org/6O3C1Qmn2 | 18 | 66.0 |
| Health Scout | http://www.healthscout.com/ency/1/55/main.html http://www.webcitation.org/6O3C59kl7 | 18 | 50.9 |
| Healthy People | http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=6 http://www.webcitation.org/6O3C9ReZU | 26 | 34.9 |
| Kidney Trust | http://kidneytrust.org/learn/calculate-kidney-function | 27 | 76.7 |
| Life Options | http://lifeoptions.org/kidneyinfo/ckdinfo.php?page=4 http://www.webcitation.org/6O30tGib1 | 22 | 78.9 |
| Livestrong | http://www.livestrong.com/kidney-function http://www.webcitation.org/6O3CQTfH | 23 | 48.2 |
| Mayo Clinic | http://www.mayoclinic.com/health/kidney-failure/DS00682 http://www.webcitation.org/6O3CWDJri | 33 | 43.8 |
| Medical News Today – Chronic kidney failure | http://www.medicalnewstoday.com/articles/172179.php http://www.webcitation.org/6O3CZjFje | 20 | 40.1 |
| Medical News Today – Dialysis | http://www.medicalnewstoday.com/articles/152902.php http://www.webcitation.org/6O3Cdev4S | 9 | 41.4 |
| MedicineNet – Dialysis | http://www.medicinenet.com/dialysis/article.htm http://www.webcitation.org/6O3ChXQOP | 11 | 59.1 |
| MedicineNet – Kidney disease | http://www.medicinenet.com/kidney_disease_hypertension-related/article.htm http://www.webcitation.org/6O3CmsLSd | 25 | 59.9 |
| MedicineNet – Kidney failure | http://www.medicinenet.com/kidney_failure/article.htm http://www.webcitation.org/6O3CsoDYq | 23 | 49.8 |
| Medscape | http://emedicine.medscape.com/article/238798-overview http://www.webcitation.org/6O2y4ysA3 | 35 | 26.3 |
| National Kidney Foundation – CKD | http://www.kidney.org/kidneyDisease/ http://www.webcitation.org/6O3CKDfAs | 19 | 53.1 |
| National Kidney Foundation – Dialysis | http://www.kidney.org/atoz/content/dialysisinfo.cfm http://www.webcitation.org/6O3Cx95sb | 20 | 61.6 |
| National Library of Medicine – CKD | http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0001503 http://www.webcitation.org/6O3D3Kkef | 22 | 66.3 |
| New York Times Health | http://health.nytimes.com/health/guides/test/dialysis/overview.html | 13 | 49.0 |
| National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) – Hemodialysis | http://kidney.niddk.nih.gov/kudiseases/pubs/hemodialysis http://www.webcitation.org/6O3D6H4rr | 26 | 52.4 |
| NIDDK – Peritoneal dialysis | http://kidney.niddk.nih.gov/kudiseases/pubs/peritoneal http://www.webcitation.org/6O3DCRPIR | 26 | 60.9 |

| Title | URL and archived URL ^a | DISCERN ^b | FRE ^c |
|--|--|----------------------|------------------|
| NIDDK – Kidneys and how they work | http://kidney.niddk.nih.gov/kudiseases/pubs/yourkidneys/ http://www.webcitation.org/6O3DGN43O | 25 | 63.6 |
| Baxter Renal Info | http://www.renalinfo.com/us/how_kidneys_work_and_fail/kidney_functions/index.html http://www.webcitation.org/6O3DLAKNE | 25 | 68.8 |
| The Medical Dictionary | http://medical-dictionary.thefreedictionary.com/Kidney+Function+Tests | 22 | 39.5 |
| Ultracare Dialysis | http://www.ultracare-dialysis.com http://www.webcitation.org/6O3DOTbkz | 21 | 66.0 |
| Up To Date | http://www.uptodate.com/contents/dialysis-or-kidney-transplantation-which-is-right-for-me-beyond-the-basics http://www.webcitation.org/6O2zWFyaY | 29 | 38.3 |
| WebMD – CKD | http://www.webmd.com/a-to-z-guides/chronic-kidney-disease-topic-overview http://www.webcitation.org/6O2z8i7UR | 32 | 69.2 |
| WebMD – Kidney dialysis | http://www.webmd.com/a-to-z-guides/kidney-dialysis http://www.webcitation.org/6O3DSsDyv | 10 | 58.1 |
| WebMD – Your kidneys and how they work | http://www.webmd.com/a-to-z-guides/function-kidneys http://www.webcitation.org/6O3DZiY4Z | 24 | 63.2 |
| WebMD – Understanding kidney disease | http://www.webmd.com/a-to-z-guides/understanding-kidney-disease-basic-information http://www.webcitation.org/6O3DdE3jY | 21 | 49.1 |
| Wikipedia – CKD | http://en.wikipedia.org/wiki/Chronic_kidney_disease http://www.webcitation.org/6O3Dgeffu | 24 | 34.6 |
| Wikipedia – Dialysis | http://en.wikipedia.org/wiki/Dialysis http://www.webcitation.org/6O3DiWFMC | 33 | 23.4 |
| Wikipedia – Hemodialysis | http://en.wikipedia.org/wiki/Hemodialysis http://www.webcitation.org/6O3DkHZvj | 35 | 23.8 |
| Wikipedia – Kidney | http://en.wikipedia.org/wiki/Kidney http://www.webcitation.org/6O3DmR6dl | 24 | 29.0 |
| Wikipedia – Renal Function | http://en.wikipedia.org/wiki/Kidney_function http://www.webcitation.org/6O3Doqvvg | 33 | 37.6 |
| Wikipedia – Renal Failure | http://en.wikipedia.org/wiki/Renal_failure http://www.webcitation.org/6O3DregVg | 32 | 39.1 |
| Yahoo! Health | http://health.yahoo.net/health/chronic-kidney-disease http://www.webcitation.org/6O2zwm9Qk | 21 | 49.0 |

^aWebsites checked and archived using WebCitation.org on March 13, 2014.

^bThe possible total DISCERN score ranges from 8 to 40, with higher scores indicating better quality.

^cFRE scores range from 0 to 100, with higher scores indicating greater readability. Scores between 0 and 30 are considered complex and at the graduate level; texts scoring between 30 and 60 are difficult and above-average. A score of 60–70 is considered standard and is written at approximately the high-school level. Scores between 70 and 90 are below-average reading level, and a score between 90 and 100 indicates easy text (Finn, 1985).