Observational Study

Medicine®

OPEN

Readability of internet-sourced patient education material related to "labour analgesia"

Nilay Boztas, MD*, Dilek Omur, MD, Sule Ozbılgın, MD, Gözde Altuntas, MD, Ersan Piskin, MD, Sevda Ozkardesler, PhD, Volkan Hanci, MD

Abstract

We evaluated the readability of Internet-sourced patient education materials (PEMs) related to "labour analgesia." In addition to assessing the readability of websites, we aimed to compare commercial, personal, and academic websites.

We used the most popular search engine (http://www.google.com) in our study. The first 100 websites in English that resulted from a search for the key words "labour analgesia" were scanned. Websites that were not in English, graphs, pictures, videos, tables, figures and list formats in the text, all punctuation, the number of words in the text is less than 100 words, feedback forms not related to education, (*Uniform Resource Locator*) URL websites, author information, references, legal disclaimers, and addresses and telephone numbers were excluded.

The texts included in the study were assessed using the Flesch Reading Ease Score (FRES), Flesch-Kincaid Grade Level (FKGL), Simple Measure of Gobbledygook (SMOG), and Gunning Frequency of Gobbledygook (FOG) readability formulae. The number of Latin words within the text was determined.

Analysis of 300-word sections of the texts revealed that the mean FRES was 47.54 ± 12.54 (quite difficult), mean FKGL and SMOG were 11.92 ± 2.59 and 10.57 ± 1.88 years of education, respectively, and mean Gunning FOG was 14.71 ± 2.76 (very difficult). Within 300-word sections, the mean number of Latin words was identified as 16.56 ± 6.37.

In our study, the readability level of Internet-sourced PEM related to "labour analgesia" was identified to be quite high indicating poor readability.

Abbreviations: FKGL = Flesch–Kincaid Grade Level, FOG = frequency of Gobbledygook, FRES = Flesch Reading Ease Score, PEM = patient education material, SMOG = Simple Measure of Gobbledygook, URL = Uniform Resource Locator.

Keywords: Flesch Reading Ease Score (FRES), Flesch-Kincaid Grade Level (FKGL), Gunning FOG (Frequency of Gobbledygook), labor analgesia, Simple Measure of Gobbledygook (SMOG)

1. Introduction

In obstetric analgesia, neuraxial techniques are used to ensure that optimal analgesia has minimal depressant effects on the mother and the baby.[1] During birth, the most common neuraxial techniques are epidural, spinal, and combined spinal-epidural analgesia/anesthesia. Each technique has a variety of advantages and disadvantages and provides temporary pain blockage during birth.[2]

Medications used during neuraxial anesthesia include local anesthetics, opioids, and adrenergic agonists. When local anesthetics are combined with opioids, they provide effective analgesia and result in fewer side effects.[3] Of pregnant women, 60% choose neuraxial analgesia during birth.[4]

Many patients prefer to meet anesthesiologists face-to-face to obtain information; however, they also wish for written confirmation.[5] Patients may access medical information via Internet-sourced patient education materials (PEMs) and may be able to avoid anxiety and fear when meeting the doctor and save time.[6]

Currently, the Internet is one of the most important methods of easily accessing information on many topics including health-related PEMs. There are many articles, websites, and personal blogs with this aim available on the Internet.[7]

Many methods have been developed to assess health-related websites such as quality rates, accreditation, and filters of educational tools.[8]

Readability provides information on whether a text is easily understood by readers of a certain level by presenting quantitative data related to the text with characteristic properties.[9]

There are more than 40 readability analysis formulae, with the Flesch Reading Ease Score (FRES), Flesch-Kincaid Grade Level (FKGL), Simple Measure of Gobbledygook (SMOG), and Gunning (Frequency of Gobbledygook) FOG indices reported

Editor: Helen Gharaei.

Authorship: NB was responsible for study conception and design, data collection, data interpretation, and article writing. DO was responsible for collecting the data. SO was responsible for collecting the data. GA and EP were responsible for collecting the data. SO and VH were responsible for providing critical revisions that are important for the intellectual content. All the authors approved the final version of the article.

The authors reported no proprietary or commercial interest in any product mentioned or concept discussed in the article.

Abstract of this study was presented as an oral presentation at the 49. Turkish of Anesthesiology and Reanimation Congress 2015, Antalya, Turkey.

The authors have no conflicts of interest.

Dokuz Eylul University, School of Medicine, Department of Anesthesiology and Reanimation, Izmir, Turkey.

** Correspondence: Nilay Boztas, Dokuz Eylül Universitesi Tıp Fakültesi Hastanesi, Mithatpaşa Cad. No 1606, Balçova, İzmir 35340, Turkey (e-mail: nilayboztas@hotmail.com).*

Copyright © 2017 the Author(s). Published by Wolters Kluwer Health, Inc. This is an open access article distributed under the Creative Commons Attribution License 4.0 (CCBY), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Medicine (2017) 96:45(e8526)

Received: 22 July 2017 / Received in final form: 29 September 2017 / Accepted: 13 October 2017

http://dx.doi.org/10.1097/MD.0000000000008526

as the most commonly used.[10] For calculating these indices, tables, word lists, and figures are not included.

Reading level is generally related to a person's educational level.[11] A variety of health-related organizations (*American Medical Association, National Institute of Health*) have recommended a readability level of 6 or lower for PEM.[12] In America, the health literacy of nearly 80 million people is at the lowest standard.[13] The increase in mobile Internet use is expected to cause a rapid increase in this rate.[14]

PageRank is an algorithm developed by Google to rank websites in search engine results. To roughly estimate the importance of a website, the number of links to that page and quality are examined to determine PageRank. This algorithm used by Google to rate pages is not accessible to the public. According to Google, page rating may be classified by the role of key words in the document, the number of visits to the document, and the number and importance of other related websites.[15]

Our study aims to assess the readability of Internet-sourced PEM related to "labour analgesia." In addition to assessing the readability of websites, the authors aimed to compare commercial, personal, and academic websites. With this aim, we assessed the readability of Internet websites using English language.

2. Materials and methods

This study was performed in October to December 2013 after receiving permission from Dokuz Eylül University, Faculty of Medicine, Non-Interventional Research Ethics Committee (date: September 26, 2013, protocol no: 2013/35–05, President Dr. Banu Onvural).

The most popular search engine Google (http://www.google.com)[16] was used with the key words "labour analgesia." The first 100 internet websites related to "labour analgesia" were scanned by 2 independent researchers (Boztas N, Omur D). Commercial websites, personal websites, and official institution websites were noted in the first 100 websites.

Medical journals and websites addressing members of the medical profession were not included in the assessment. The first 100 words at the beginning of the text along with a total of 300 words from the beginning, middle, and end of the text were assessed. The rank values of all the websites were determined and recorded. The texts were copied and saved in Microsoft Office Word 2007 (Microsoft Corporation, Redmond, WA). To evaluate the consistency of results, the research was repeated 3 months later, and results were compared with the previous ones. The readability of the websites was assessed using the FRES, FKGL, SMOG, and Gunning FOG readability formulae obtained from "www.readibility–score.com."

The FRES formula is 206.835 - (1.015 × mean sentence length) - (84.6 × mean syllable count per word). The FRES score ranges between 0 and 100, with higher values indicating more readability or ease of reading. The scoring is as follows. Scores of 90 to 100: very easy, 80 to 89: quite easy, 70 to 79: easy, 60 to 69: standard, 50 to 59: quite difficult, 30 to 49: difficult and 0 to 29: very complicated.

The texts with scores between 90 and 100 are understood by those with mean 5 years of education, those between 60 and 70 may be understood by those with 8 to 9 years of education, and scores between 0 and 30 may be understood by college graduates.[15,17,18]

Although FRES indicates the readability of the text, FKGL is related to the educational level of the individual.[18] FKGL is one of the most commonly used methods for calculating readability; word and sentence length are important, and it indicates educational level. The FKGL formula is (0.39 × mean word count per sentence) + (11.8 × mean syllable count per word) – 15.39. For example, a score of 5 indicates that the text is understood by those with 5 years of education, while a score of 8.6 means the text is understood by those with 8 years of education.[19]

In the SMOG formula, a higher number of multi-syllabic words leads to a higher score. Ten consecutive sentences from the beginning, middle, and end of the text are taken, and the number of words with more than 3 syllables are determined. The results of the formula show the readability level of the text. The SMOG formula is 3.1291 + 1.043 × square root [number of multi-syllabic words × (30/ number of sentences)].[18]

For Gunning FOG, the sentence length and percentage of multi-syllabic words are important. The Gunning FOG formula is 0.4 × [mean number of words per sentence + 100 (number of multi-syllabic words/ number of words)].[15] The ideal FOG index score is 7 or 8, with a score above 12 accepted as very difficult for most people.[18]

The texts obtained from the websites were divided into commercial sites, personal websites, and official organization websites and compared in terms of readability indices, rank values, and number of Latin words within the text.[15,18]

A scoring matrix was used to assess the content of PEM. The topics mentioned in the 37 websites included in the study were assessed. The topics in the texts included the following: definition of epidural and spinal analgesia, explanation of how these procedures are performed, effect of neuraxial analgesia on the birth, risks and benefits of the procedure, contraindications, and alternative analgesia methods. Specific risks and side effects included postdural puncture headache, hypotension, dizziness, nausea-vomiting, back pain, lethargy, hemorrhage, infection, shivering, epidural fever, nerve damage, and paralysis.[20]

2.1. Exclusion criteria

Websites not in English, graphs, pictures, videos, tables, figures and list formats in the text, all punctuation, the number of words in the text is less than 100 words, feedback forms not related to education, URL websites, author information, references, legal disclaimers, and address and telephone numbers were excluded from the assessment to prevent erroneous results.[7,18]

2.2. Statistical analysis

For statistical analysis, data were uploaded to SPSS Windows 15.0 software (SPSS Inc., Chicago, IL). Continuous values are indicated as mean ± SD, while frequency variables are given as number (n) and percentage (%) (Table 1). For statistical analysis,

Table 1

Readability scores of English-language web-based education materials (the first 300 words).

Readability formulas	Readability score (Mean ± SD)	Comparison to sixth-grade reading level (*P*)
Mean FRES	47.54 ± 12.54 (quite difficult)	<.001
Mean FKGL	11.92 ± 2.59	<.001
Mean SMOG	10.57 ± 1.88	<.001
Mean Gunning FOG	14.71 ± 2.76 (very difficult)	<.001

FKGL = Flesch–Kincaid Grade Level, FOG = frequency of Gobbledygook, FRES = Flesch Reading Ease Score, SMOG = Simple Measure of Gobbledygook.

Table 2

The relationships of web sites between ranks, means of readability grade level, and number of Latin words (the first 300 words).

	Commercial websites (n = 22)	Personal websites (n = 4)	Official institution websites (n = 11)
Rank	1,470,737.68 ± 3,743,791.02	4,483,529.28 ± 8,945,451.71	571,261.00 ± 1,782,970.41[†]
Mean FRES	50.16 ± 11.32	33.80 ± 8.29[*]	47.29 ± 13.62
Mean FKGL	11.43 ± 2.30	14.87 ± 2.46[*,‡]	11.83 ± 2.69
Mean SMOG	10.17 ± 1.57	12.80 ± 1.75[*]	10.58 ± 2.05
Mean Gunning FOG	14.12 ± 2.43	17.92 ± 2.75[*]	14.73 ± 2.82
Number of Latin words	16.95 ± 5.69	20.75 ± 3.77[‡]	14.27 ± 7.81

FKGL = Flesch–Kincaid Grade Level, FOG = frequency of Gobbledygook, FRES = Flesch Reading Ease Score, SMOG = Simple Measure of Gobbledygook.

[*] $P < .05$; Personal sites when compared with commercial sites; Mann–Whitney *U* test.

[†] $P < .05$; Official institution websites when compared with commercial sites; Mann–Whitney *U* test.

[‡] $P < .05$; Official institution websites when compared with personal sites; Mann–Whitney *U* test.

the Mann–Whitney *U* test was used to compare groups with continuous values such as readability indices and sixth class level. For comparison of frequency variables, the Chi-square or Fisher exact test was used. A *P* value lower than .001 was accepted as a statistically significant difference.

3. Results

Of the first 100 websites included in the study, 37 were websites related to informing patients about "labour analgesia"; therefore, 63 websites were excluded. The websites included in the study were classified as commercial websites (n = 22), personal websites (n = 4), and organization websites (n = 11).

Mean readability level according to all readability formulae was identified to be much higher than Level 6 recommended by *American Medical Association* and *the National Institute of Health* ($P < .05$).

The analysis of the first 100 words in the text of the 37 websites revealed mean FRES of 45.80 ± 15.63 (quite difficult), mean FGKL and SMOG of 12.25 ± 3.19 and 12.1 ± 2.47 years of education, respectively, and mean Gunning FOG of 14.99 ± 3.51 (very difficult).

Analysis of the total of 300 words collected from the beginning, middle, and end of the text resulted in mean FRES of 47.54 ± 12.54 (quite difficult), mean FKGL and SMOG of 11.92 ± 2.59 and 10.57 ± 1.88, respectively, and mean Gunning FOG of 14.71 ± 2.76 (very difficult) (Table 1).

Within the sample of 300 words, the mean number of Latin words was identified as 16.56 ± 6.37. Texts from personal websites were found to have significantly higher numbers of Latin words than organization websites. The texts of personal websites were significantly less readable than the commercial websites (Table 2).

In our study, when the 300 word sections were investigated, the most common complications were identified as hypotension and postdural puncture headache; in addition, the benefits of epidural procedures and neuraxial analgesia were reported among common topics. Information on risks, side effects, and contra-indications of neuraxial analgesia was inadequate (Table 3).

When the correlations between the rank values of the websites; the mean FRES, FKGL, SMOG and Gunning FOG; and number of Latin words were analyzed, no significant correlation was found between any readability index and site rank value ($P > .05$).

4. Discussion

Of the first 100 websites in the study, 37 were websites related to patient information about "labour analgesia." All the websites had readability levels clearly above the recommended 6 years of education level, and our findings are similar to previous studies on the topic.[18] The texts on the personal sites were more difficult to read than the ones on the commercial sites. In our study, the rank values for organization websites were found to be significantly higher than commercial websites. This may indicate that Internet users trust organization websites more. In addition, no significant correlation was determined between rank values of websites and readability indices.

Table 3

Content analysis of 37 web-based education materials (the first 300 words).

Content items	Commercial websites (n = 22)	Personal websites (n = 4)	Official institution websites (n = 11)	Total (n = 37)
Definition of the epidural procedure	22 (100%)	4 (100%)	11 (100%)	37 (100%)
The benefits of neuraxial analgesia	18 (81,8%)	3 (75.0%)	9 (%81.8)	30 (81.1%)
Definition of the spinal procedure	5 (22.7%)	2 (50.0%)	2 (18,2%)	9 (24.3%)
Alternative analgesic modalities	6 (27,3%)	1 (25.0%)	5 (45.5%)	12 (32.4%)
Postdural puncture headache	13 (59.1%)	2 (50.0%)	8 (72.7%)	23 (62.2%)
Hypotension	16 (72.7%)	2 (50.0%)	10 (90.9%)	28 (75.7%)
Effect of epidural analgesia on labor	15 (68.2%)	3 (75.0%)	9 (81.8%)	27 (73.0%)
Nerve damage	10 (45.5%)	2 (50.0%)	7 (63.6%)	19 (51.4%)
Dizziness	4 (18.2%)	0 (0%)	3 (27.3%)	7 (18.9%)
Infection	5 (22.7%)	2 (50.0%)	4 (36.4%)	11 (29.7%)
Bleeding	4 (18.2%)	1 (25.0%)	5 (45.5%)	10 (27%)
Contraindications	9 (40.9%)	0 (0%)	4 (36.4%)	13 (35.1%)
Shivering	7 (31.8%)	1 (25.0%)	5 (45.5%)	13 (35.1%)
Paralysis	10 (45.5%)	2 (50.0%)	7 (63.6%)	19 (51.4%)

Readability is a very important factor in understanding PEMs. Complex sentences comprised of long words and long sentences may destroy the reader's confidence in learning about a medical situation. It is important to effectively and clearly present accurate information; however, surveys of online health literature have reported texts used thereinto be very technical and complex.[21]

For improving the readability of health information, it is reported that sentences should be limited to 8 to 10 words and that simple words should be used instead of complicated medical terminology.[22]

Medical terminology is one of the most important factors affecting the readability of a text. Even if the individual's educational level is high, long sentences and unfamiliar words may make the text more difficult to read. In our study, texts on personal websites were found to have significantly high numbers of Latin words compared with organization websites.

This difference may be linked to the medical background of the site authors and insufficient awareness of readability.

There are some disadvantages of using Internet-sourced PEM. Users generally research medical information online on their own initiative; however, those without academic education find it frequently difficult to read and understand medical information.[23] With written material, even if the individual's educational level is high, if they are not accustomed to medical literature, misunderstanding may occur and the individual may cease researching about basic medical care. Therefore, information aiming to educate patients should be clear and understandable.[17] Another disadvantage is that despite this being a consequential decision for the parturient, studies have shown that many patients' decisions may be driven by a lack of knowledge or by misinformation.[24,25]

The readers should be cautious about searching the Internet for information about their health. The readers should consider the possibility of obtaining false or incomplete information. In addition, we recommend that readers choose texts that are more readable. The readability levels of Internet-sourced PEMs and all related sources should be adapted using standard and objective criteria.

Health literacy is defined as the ability of a person to research, obtain, and understand health information and to make the most appropriate health decisions.[13] Low health literacy is correlated with bad health situation, increased hospitalization rates, bad treatment compliance, missed appointments, and increased health spending.[26] This situation was identified more in patients with low socioeconomic level and elderly patients.[13]

Cherla et al[18] scanned the first 100 websites belonging to professional organizations, clinical applications, and hospitals related to endoscopic sinus surgery and measured the readability levels of 31 internet-sourced PEM. Similar to our study, they found FKGL to be 10.7, SMOG to be 13.7, Gunning FOG to be 12.4, and FRES to be 47.1.

Svider et al[17] researched the readability levels of Internet websites of academic otolaryngology departments in states in the Central Atlantic region.

With this aim, they used the FKGL, FRES, SMOG, and Gunning FOG indices and identified readability levels of 11 or higher. Svider et al[17] reported the necessity of noncomplex sentences used in short sentences and use of familiar words.

Wang et al[7] assessed the readability levels of 34 articles on the American Orthopedic Academy website and 49 articles on the American Hand Surgery website with the FKGL and Dale–Chall formula and found that the levels were very high, indicating poor readability for the public. They reported that all PEM should be reviewed for readability levels and adapted for public reading.

Sabharwal et al[19] reported that PEM on the American Orthopedic Surgeons Academy website had readability levels above the recommended level (FKGL $\leq$6). These findings revealed that the readability of the texts on the website needs to be improved. They reported that readability scores are not the only criteria for evaluation of PEM, but that simpler words should be used instead of complex medical language.

For medical knowledge to be understood at optimal levels, comprehension of the informed consent form for patients is an important step. Boztas et al[27] analyzed the readability level of the "anesthesia consent forms" used in universities, Department of Health Education, and research and state hospitals in Turkey. They assessed the first 100 words in the text on the first page of the anesthesia consent form using the Gunning FOG, Flesch-Kincaid, and Atesman Readability formulae. Boztas et al[27] reported that the readability indices of the "anesthesia consent forms" used in Turkish hospitals were very high, indicating low readability. The researchers emphasized that the mean educational level for males is 4 years and 3 years for females in Turkish society. While preparing the anesthesia consent forms, they reported that educational level in the country should be considered and clinicians should carefully handle this medically and legally binding topic.[27]

De Oliveira et al[15] used the key word "anesthesia" and evaluated the first 200 websites obtained as Google search results in terms of readability levels. They found that 13 years of education was required to understand the text or the readability was poor.

Patel et al[20] investigated the readability levels of PEMs from 72 English websites and 29 Spanish websites belonging to American medical centers and related to obstetric anesthetic departments. Similar to our study, Patel et al[20] identified that all readability levels according to FKGL, SMOG, and Gunning FOG formulae were well above Grade 6. As with the study by Patel et al,[20] our study reported the most common complications as hypotension and postdural puncture headache and found that the benefits of the epidural procedure and neuraxial anesthesia were the most commonly mentioned topics. Similar to our study, the study by Patel et al[20] found that insufficient information was presented in the texts about the risks, side effects, and contraindications of neuraxial anesthesia.

A limitation of our study is that education and health literacy levels of the patient population were not directly evaluated. The average level of education varies by country. Internet-sourced PEM should match the education level of the population. We used prior studies and comprehension skills of the general public to estimate the average reading skills of patient population seeking "Labour Analgesia."[20]

A second limitation is that the tools we used do not measure the contributions of pictures and diagrams to the comprehension of accompanying text. We can assess the effectiveness of pictures, diagrams, and written text with the Suitability Assessment of Materials.[28] However, this instrument is new, not well validated, and time-consuming.[29] Future studies can explore determining readability scores for large populations, taking into account the effort involved in assessing large populations.

Another limitation is that there is no consensus on the most suitable index for evaluation of readability of Internet-sourced PEM. Each readability index uses a different formula to calculate readability. In this study, the mean readability of PEM remained above the sixth-grade reading level, regardless of which index

was used. The FKGL formula can be accessed through Microsoft Office software. FKGL only identifies the number of words in sentences and the number of syllables in words.[30] Syllable counts may not fully indicate readability levels; even medical terms with low syllable counts such as "colon" and "lupus" may not be too readable for individuals who do not know medical terms.[31] The use of the FKGL method is easy; however, this method provides lower estimates of readability measurements than the SMOG and FRES formulae.[32] Understanding of material may be provided by explanatory figures, improved layout, appropriate font type, size, and use of color.[33] FKGL does not evaluate these properties.

In order to avoid this limitation, we used all the 4 indices and compared them. These indices are among the most commonly used formulae and produced results with means above the recommended level.

In conclusion, our study identified that the readability level of internet-sourced PEM related to "labour analgesia" was quite high, indicating poor readability. We recommend that material prepared for patient education and information should particularly be checked for readability indices and should have an appropriate readability level suited to the mean educational level in the relevant country or countries.

References

[1] Miller RD, Fleisher LA, Johns RA, et al. Regional Analgesia Techniques. Miller's Anesthesia. Sixth edition2005;Churchill Lıvıngstone, New york; Edinburg:p. 2319.

[2] Suelto MD, Shaw DB. Labor analgesia with paravertebral lumbar sympathetic block. Reg Anesth Pain Med 1999;24:179–81.

[3] Morgan GE, Mikhail MS, Murray MJ. Regional Anesthesia and Clinical Practice. Clinical Anesthesiology. 4th edition, Newyork, North America: The McGraw-Hill Companies; 2006; p. 310–314.

[4] Hawkins JL, Beaty BR, Gibbs CP. Update on U.S. OB anesthesia practice. American Society of Anesthesiologists 1999 Annual Meeting. Dallas, TX. October 9–13, 1999. Anesthesiology 1999;91(3A Suppl):A1060abstract.

[5] Ghulam AT, Kessler M, Bachmann LM, et al. Patients' satisfaction with the preoperative informed consent procedure: a multicenter questionnaire survey in Switzerland. Mayo Clin Proc 2006;81:307–12.

[6] Sulmasy DP, Lehmann LS, Levine DM, et al. Patients' perceptions of the quality of informed consent for common medical procedures. J Clin Ethics 1994;5:189–94.

[7] Wang SW, Capo JT, Orillaza N. Readability and comprehensibility of patient education material in hand-related web sites. J Hand Surg 2009;34A:1308–15.

[8] Wilson P. How to find the good and avoid the bad and ugly: a short guide to tools for rating quality of health information on the Internet. Br Med J 2002;324:598–602.

[9] Hedman AS. Using the SMOG Formula to revise a health. Am J Health Edu 2008;39:61–4.

[10] Walsh T, Volsko T. Readability assessment of internet-based consumer health information. Respir Care 2008;53:1310–5.

[11] Bluman EM, Foley RP, Chiodo CP. Readability of the patient education section of the AOFAS Website. Foot Ankle Int 2009;30:287–91.

[12] Cotugna N, Vickery CE, Carpenter-Haefele KM. Evaluation of literacy level of patient education pages in health-related journals. J Community Health 2005;30:213–9.

[13] Kutner M, Greenberg E, Jin Y, et al. The Health Literacy of America's Adults: Results from the 2003 National Assessment of Adult Literacy. Education USDo. Washington, DC: The National Center for Education Statistics; 2006.

[14] Beall MS, Greenfield ML, Biermann JS. Patient Internet use in a community outpatient orthopaedic practice. Iowa Orthop J 2002;22:103–7.

[15] De Oliveira GS, Jung M, Mccaffery KJ, et al. Readability evaluation of Internet-based patient education materials related to the anesthesiology field. J Clin Anesth 2015;27:401–5.

[16] Freeman DH. Searching for the Best Engine. Newsweek International Edition, 2007. Available at: http://www.newsweek.com/id/62254. Accessed October 16, 2008.

[17] Svider PF, Agarval N, Choudhry OJ, et al. Readability assessment of online patient education materials from academic otolaryngology–head and neck surgery departments. Am J Otolaryngol 2013;34:31–5.

[18] Cherla DV, Sanghvi S, Choudhry OJ, et al. Readability assessment of internet-based patient education materials related to endoscopic sinus surgery. Laryngoscope 2012;122:1649–54.

[19] Sameer B, Sanjeev S. Readability of patient education materials from the American Academy of Orthopaedic Surgeons and Pediatric Orthopaedic Society of North America web sites. J Bone Joint Surg Am 2008;90:199–204.

[20] Patel SK, Gordon EJ, Wong CA, et al. Readability, content, and quality assessment of web-based patient education materials addressing neuraxial labor analgesia. Anesth Analg 2015;121:1295–300.

[21] Fox S. Most Internet Users Start at a Search Engine When Looking for Health Information Online. Data from Pew Internet and American Life Project, Washington, DC. Available at: http://www.pewinternet.org/PPF/r/132/press_release.asp. Accessed July 31, 2008.

[22] Jackson RH, Davis TC, Bairnsfather LE, et al. Patient reading ability: an overlooked problem in health care. South Med J 1991;84:1172–5.

[23] Berland GK, Elliott MN, Morales LS, et al. Health information on the Internet: accessibility, quality, and readability in English and Spanish. J Am Med Assoc 2001;285:2612–21.

[24] Hargrave DR, Hargrave UA, Bouffet E. Quality of health information on the Internet in pediatric neuro-oncology. Neuro Oncol 2006;8:175–82.

[25] Toledo P, Sun J, Peralta F, et al. A qualitative analysis of parturients' perspectives on neuraxial labor analgesia. Int J Obstet Anesth 2013;22:119–23.

[26] Berkman ND, DeWalt DA, Pignone MP, et al. Literacy, Health Outcomes: Evidence Report. Rockville, MD: Agency for Healthcare Research and Quality/US Department of Health and Human Services; 2004.

[27] Boztas N, Ozbilgin S, Ocmen E, et al. Evaluating the readability of informed consent forms available before anaesthesia: a comparative study. Turk J Anaesth Reanim 2014;42:140–4.

[28] Wallace LS, Turner LW, Ballard JE, et al. Evaluation of web-based osteoporosis educational materials. J Womens Health (Larchmt) 2005;14:936–45.

[29] Doak CC, Doak LG, Root JH. Teaching Patients With Low Literacy Skills. Philadelphia, PA: J.B. Lippincott; 1996.

[30] Flesch RF. How to Write Plain English: A Book for Lawyers, Consumers. 1st ed. New York, NY: Barnes and Noble; 1981.

[31] Graber MA, Roller CM, Kaeble B. Readability levels of patient education material on the World Wide Web. J Fam Pract 1999;48:58–61.

[32] Wilson M. Readability and patient education materials used for lowincome populations. Clin Nurse Spec 2009;23:33–40. quiz 41–42.

[33] Alexander RE. Readability of published dental educational materials. J Am Dent Assoc 2000;131:937–42.

Advertisement



Journal Logo

(https://journals.lww.com/md-journal/pages/default.aspx)

Secondary Logo

Editorial Board - Medicine

Anatomy and Physiology

Barbara Buffoli, University of Brescia, ITALIA

David Burmeister, US Army Institute of Surgical Research, UNITED STATES

Stefano Delli Pizzi, Institute for Advanced Biomedical Technologies, ITALY

Zelena Dora, Hungarian Academy of Sciences, HUNGARY

Nicoletta Gagliano, University of Milan, ITALY

Nandu Goswami, Medizinische Universitat Graz, AUSTRIA

Jae-Ho Lee, Keimyung University, SOUTH KOREA

Diego Milani, University of Notre Dame Australia, AUSTRALIA

Myung-Geol Pang, Chung Ang University, KOREA, REPUBLIC OF

Tara Shankar Roy, All India Institute of Medical Sciences New Delhi, INDIA

Francine Smith, University of Calgary, CANADA

Wutian Wu, University of Hong Kong, CHINA

Anesthesiology

Naila Akhtar, King Edward Medical University, PAKISTAN

Jose Barbosa Neto, Universidade de Sao Paulo, BRAZIL

Steven Barna, University of South Florida, UNITED STATES

Somchai Amornyotin, Faculty of Medicine Siriraj Hospital, Mahidol University

Naila Asad, King Edward Medical University, Lahore, PAKISTAN

Tumul Chowdhury, University of Manitoba, CANADA

Pasquale De Negri, IRCCS Centro di Riferimento Oncologico della Basilicata OECI Clinical Cancer Center, ITALY

Ahmet Eroglu, Karadeniz Technical University, TURKEY

Amaya Fumimasa, Kyoto Prefectural University of Medicine, JAPAN

Helen Gharaei, Milad hospital, IRAN

Kazuo Hanaoka, JR Tokyo General Hospital, JAPAN

Young-Kug Kim, University of Ulsan College of Medicine, KOREA, REPUBLIC OF

Hiroyuki Kinoshita, Tokushima Daigaku Igakubu Daigakuin Ikgaku Kyoikubu, Japan

Felix Kork, University Hospital Rwth Aachen, GERMANY

Ashham Mansur, University Medical Center Goettingen, GERMANY

Wei Mei, Tongji Hospital, CHINA

Chien-Kun Ting, National Yang-Ming University, TAIWAN

Lili Xu, Second Affiliated Hospital, CHINA

Cardiovascular

Section Editor: Ovidiu Constantin Baltatu, Camilo Castelo Branco University, BRAZIL

Fabio Angeli, University Hospital S.M. della Misericordia, ITALY

Ahmet Çağrı Aykan, Trabzon Ahi Evren Chest Cardiovascular Surgery Education and Research Hospital, TURKEY

Jacek Bil, Central Clinical Hospital of the Ministry of Interior, POLAND

George E. Billman, The Ohio State University, UNITED STATES

Grzegorz Bilo, Università di Milano-Bicocca and Istituto Auxologico Italiano, Milan, ITALY

Luis Bras Rosario, Universidade de Lisboa, PORTUGAL

Miguel Camafort-Babkowski, University of Barcelona, SPAIN

Robert Chen, Buddhist Tzu Chi General Hospital, TAIWAN

Salvatore De Rosa, Magna Graecia University, ITALY

Alessandro Durante, Ospedale Valduce, ITALY

Mauro Feola, Ospedale SS Trinita' Fossano, ITALY

Cassandra Ford, The University of Alabama, UNITED STATES

Weimin Guo, Tufts University, UNITED STATES

Christopher L Hansen, Jefferson University, UNITED STATES

Hideki Hayashi, Shiga University of Medical Science, JAPAN

Frank R. Heinzel, Charité CVK Cardiology, GERMANY

Imo Hoefer, UMC Utrecht, NETHERLANDS

Xuwei Hou, Missouri University, UNITED STATES

Chin-Chou Huang, Taipei Veterans General Hospital, TAIWAN

Ignatios Ikonomidis, National and Kapodistrian University of Athens,Medical School, GREECE

Aaron James, Curtin University, AUSTRALIA

Thomas Kahan, Karolinska Institutet, SWEDEN

Takao Kato, Kyoto University, JAPAN

Fadi Khasawneh, Western University of Health Sciences, UNITED STATES

Miae Kim, Brigham and Women's Hospital, UNITED STATES

Masanari Kuwabara, Toranomon Hospital, JAPAN

Yen-Hung Lin, National Taiwan University Hospital, TAIWAN

Ou Liu, University of Pennsylvania, UNITED STATES

Anastasios Lymperopoulos, Nova Southeastern University, UNITED STATES

William G. Mayhan, The University of South Dakota, UNITED STATES

Wilhelm Mistiaen, University of Antwerp, BELGIUM

Stefano Omboni, Italian Institute of Telemedicine, ITALY

Antonio Palazón-Bru, Miguel Hernández University, SPAIN

Jose Zacarías Parra Carrillo, University of Guadalajara, MEXICO

Salvatore Patanè, Cardiologia Ospedale San Vincenzo, ITALY

Daniel Pineiro, Universidad De Buenos Aires, ARGENTINA

Davide Piraino, University Hospital of Palermo "Policlinico P.Giaccone", ITALY

Marwan Refaat, American University of Beirut Medical Center, LEBANON

Irbaz Bin Riaz, University of Arizona, UNITED STATES

Leonardo Roever, Federal University of Uberlândia, BRASIL

Gil Fernando Salles, Federal University of Rio de Janeiro, BRAZIL

Celestino Sardu, Second University of Naples, ITALY

Bernhard Schaller, Academic Medical Center, SWITZERLAND

Nicolas Sculthorpe, University of the West of Scotland, UNITED KINGDOM

Rosa Sicari, CNR, Institute of Clinical Physiology, ITALY

Kati Thieme, Philipps-Universitat Marburg, GERMANY

Joho Tokumine, Kyorin University School of Medicine, JAPAN

José Fernando Vilela-Martin, State Medical School in Sao Jose do Rio Preto / Sao Paulo , BRAZIL

Antonio Vitarelli, Sapienza University, ITALY

Hsueh Hwa Wang, Columbia University, UNITED STATES

Kelvin Wong, Western Sydney University, AUSTRALIA

Wuxiang Xie, Imperial College London, UNITED KINGDOM

Dai Yamanouchi, University of Wisconsin Madison, UNITED STATES

Li Yue-Chun, Second Affiliated Hospital of Wenzhou Medical University, CHINA

Yao-Jun Zhang, Nanjing First Hospital, CHINA

Clinical Genetics

Tianjian Chen, Tulane University School of Medicine, UNITED STATES

Vishal Lamba, University of Florida, UNITED STATES

Chaeyoung Lee, Soongsil University, REPUBLIC OF KOREA

Clévio Nobrega, Universidade do Algarve, PORTUGAL

Y-h Taguchi, Chuo University, JAPAN

Clinical Immunology

Section Editor: Vincent Vieillard, National Center For Scientific Research, FRANCE

Yung-Chang Chen, University of Louisville, UNITED STATES

Edwin Leeansyah, Karolinska Institutet, SWEDEN

James M. Mathew, Northwestern University Feinberg School of Medicine, UNITED STATES

Phil-Dong Moon, Kyung Hee University, KOREA, REPUBLIC OF

Esaki M. Shankar, University of Malaya, MALAYSIA

Woo-Jung Song, Seoul National University Hospital, KOREA, REPUBLIC OF

Yong Wang, Brigham and Women's Hospital, UNITED STATES

Shan Yu, California Institute for Biomedical Research, UNITED STATES

Yong Zhang, University of Alabama at Birmingham, UNITED STATES

Clinical Research Design

Section Editor: Chengwu Yang, New York University, UNITED STATES

Qi Gong, Gilead Sciences Inc, UNITED STATES

Complementary and Alternative Medicine

Section Editor: Myeong Soo Lee, Korea Institute of Oriental Medicine, REUPUBLIC OF KOREA

Dennis Enix, Logan University, UNITED STATES

Sarah Fogarty, University of Western Sydney, AUSTRALIA

Romy Lauche, University of Technology Sydney, AUSTRALIA

Masashi Mizuno, Kobe Daigaku, JAPAN

Yung-Song Lin, China Medical University, TAIWAN

Qinhong Zhang, Stanford University, UNITED STATES

Critical Care and Emergency Medicine

Section Editor: Abdelouahab Bellou, Beth Israel Deaconess Medical Center, UNITED STATES

Barbara Adamik, Wroclaw Medical University, POLAND

Adebowale Adesina, University Hospital Lewisham, UNITED KINGDOM

Michelangelo Bortolin, Beth Israel Deaconess Medical Center, ITALY

Morten Breindahl, Copenhagen University Hospital, DENMARK

Tudor Codreanu, Busselton Health Campus, AUSTRALIA

Tomasz Czarnik, PS ZOZ Wojewodzkie Centrum Medyczne w Opolu, POLAND

Abhijit Duggal, Cleveland Clinic Lerner College of Medicine of Case Western Reserve University, UNITED STATES

Mazen El Sayed, American University of Beirut, LEBANON

Ahmed El Shamy, Icahn School of Medicine at Mount Sinai, UNITED STATES

Vincent François, GHIC Le-Raincy Montfermeil, FRANCE

Mohan Gurjar, Sanjay Gandhi Postgraduate Institute of Medical Sciences, INDIA

Derek Heng, National University Hospital Singapore, SINGAPORE

Kwok Ming Ho, University of Western Australia, AUSTRALIA

Jae-Ho Lee, University of Ulsan, KOREA, REPUBLIC OF

Nan Liu, SingHealth, SINGAPORE

Jihad Mallat, Hospital of Lens, FRANCE

Erik Su, Johns Hopkins University, UNITED STATES

Baltasar Sanchez Gonzalez, Hospital Universitari MutuaTerrassa, SPAIN

Tamas Szakmany, Cardiff University School of Medicine, UNITED KINGDOM

Łukasz Szarpak, Medical University of Warsaw, POLAND

Andreas Ziegler, Emergency Medical Service, City of Vienna, AUSTRIA

Dermatology

Section Editor: Dan Lipsker, Université de Strasbourg, FRANCE

Mauro Alaibac, University of Padua, ITALY

Ali Alikhan, University of Cincinnati, UNITED STATES

Jeffrey P. Callen, University of Louisville, UNITED STATES

Mahmood S. Choudhery, King Edward Medical University, PAKISTAN

Sergio Gonzalez Bombardiere, Pontificia Universidad Catolica de Chile, CHILE

Ismaël Maatouk, Private Practice, LEBANON

Ricardo Macarenco, Hospital Israelita Albert Einstein, BRAZIL

Tobias Sinnberg, University Medical Center of Tuebingen, GERMANY

Cheng Tan, Affiliated Hospital of Nanjing University of Chinese Medicine, CHINA

Diagnostic Medicine and Pathology

Section Editor: Lanjing Zhang, Rutgers University, UNITED STATES

Farid Azmoudeh-Ardalan, Tehran University of Medical Sciences, IRAN

Adel Gouri, Badji Mokhtar University, ALGÉRIE

Jesper Kers, University of Amsterdam, NETHERLANDS

Hironori Kusano, Kurume University School of Medicine, JAPAN

Yuan Li, Fudan University, CHINA

Meixia Lu, Tongi Medical College, CHINA

Deqin Ma, University of Iowa, UNITED STATES

Alireza Mashaghi, Harvard University, UNITED STATES

Michael Masoomi, Farwaniya , KUWAIT

Kristina Matkowskyj, University of Wisconsin, UNITED STATES

Jeff Medeiros, University of Texas MD Anderson Cancer Center, UNITED STATES

Hisashi Oshiro, Jichi Medical University, JAPAN

Parag Parekh, University of Texas MD Anderson Cancer Center, UNITED STATES

He Wang, Temple University, UNITED STATES

Lanjing Zhang, Rutgers University, UNITED STATES

Drugs and Devices

Section Editor: Lindsay Calderon, Eastern Kentucky University, UNITED STATES

Robert L. Barkin, Northshore Unitervisty and Rush Medical College, UNITED STATES

Ganesh Cherala, CONRAD, Eastern Virginia Medical School, UNITED STATES

Konstantinos Dimas, UNIVERSITY OF THESSALY, GREECE

Jianxun Ding, Chinese Academy of Sciences, CHINA

Yuzhen Jiang, Jilin University, CHINA

Kai Liu, Virginia Commonwealth University, UNITED STATES

Igho Onakpoya, University of Oxford, UNITED KINGDOM

David Ranganathan, RadioMedix Inc, UNITED STATES

Cigdem Sayil, Istanbul University, TURKEY

Durga Tripathi, Texas A&M University, UNITED STATES

Ming-hui Wu, University of Florida, UNITED STATES

Min Xie, The Gladstone Institutes, UNITED STATES

Endocrinology

Section Editor: Gaurav Malhotra, Bhabha Atomic Research Centre, INDIA

Marco G. Alves, University of Beira Interior, PORTUGAL

Joshua Barzilay, Kaiser Permanente, UNITED STATES

Federico Bertuzzi, Niguarda Hospital, ITALY

Enrico Brignardello, AOU Città della Salute e della Scienza di Torino, ITALY

Xiwen Cheng, Salk Institute for Biological Studies, UNITED STATES

Fabio Comim, Universidade Federal de Santa Maria, BRAZIL

Undurti N. Das, UND Life Sciences, UNITED STATES

Maria Vittoria Davi, Medicina Generale e Malattie Aterotrombotiche e Degenerative, ITALY

Eva Feigerlova, Centre Hospitalier Universitaire de Poitiers, FRANCE

Hidetaka Hamasaki, Hamasaki Clinic, JAPAN

Sheyu Li, Sichuan University, CHINA

Ming Liu, The University of Michigan, UNITED STATES

Simin Liu, Brown University, UNITED STATES

Kei Nakajima, Kanagawa University of Human Services, JAPAN

Mustafa Noor, Ipsen, UNITED STATES

Paul Davis, Albany Medical College, UNITED STATES

Yoshifumi Saisho, Keio University School of Medicine, JAPAN

Jiaqing Shao, Jinling Hospital, School of Medicine, Nanjing University, CHINA

Suman Srinivasa, Massachusetts General Hospital, UNITED STATES

Chenggong Tian, Drum Tower Hospital, CHINA

Yuanzhong Wang, University of Georgia, UNITED STATES

Yujie Wen, City of Hope National Medical Center and Beckman Research Institute, UNITED STATES

Yanqing Zhang, Tulane University, UNITED STATES

Wen Zhou, University of Miami Miller School of Medicine, UNITED STATES

Epidemiology

Section Editor: Jimmy T. Efird, East Carolina Heart Institute, UNITED STATES

Amegah Adeladza Kofi, University of Cape Coast, GHANA

Tomi Akinyemiju, University of Alabama, UNITED STATES

Alvaro Castillo-Carniglia, UC Davis, UNITED STATE OF AMERICA

Yoram Chaiter, Recruitment Center Medical Corps IDF, ISRAEL

Chi-Jung Chung, China Medical University, TAIWAN

Peter Congdon, Queen Mary University of London, UNITED KINGDOM

Belinda Gabbe, Monash University, AUSTRALIA

Amede Gogovor, McGill University, CANADA

Bing-Fang Hwang, China Medical University, TAIWAN

Khatereh Isazadehfar, Ardabil University of Medical Sciences, IRAN

Ryuichi Kawamoto, Ehime Daigaku Daigakuin Igakukei Kenkyuka Igakubu, JAPAN

Scott Langevin, University of Cincinnati, UNITED STATES

Quang Le, Western University of Health Sciences, UNITED STATES

Daisuke Onozuka, Kyushu University, JAPAN

Orestis Panagiotou, National Cancer Institute, UNITED STATES

Dimitrios Paraskevis, National and Kapodistrian University of Athens, GREECE

Ryan Richard Ruff, New York University College of Dentistry, UNITED STATES

Stephanie Shiau, Columbia University, UNITED STATES

Virginie Supervie, INSERM, FRANCE

Anish Thachangattuthodi, Baylor College Of Medicine, UNITED STATES

Jianbing Wang, School of Public Health, Zhejiang University , CHINA

Pat Zrelak, University of California Davis, UNITED STATES

Gastroenterology and Hepatology

Abd Elrazek Abd Elrazek, Aswan School of Medicine, EGYPT

Ludovico Abenavoli, University Magna Graecia of Catanzaro, ITALY

Luigi Elio Adinolfi, Second University of Naples, ITALY

Akash Ajmera, Marshall University, UNITED STATES

Canbay Ali, University Hospital Essen, GERMANY

Sreekanth Appasani, Continental Hospitals, INDIA

Ingrid Arijs, Katholieke Universiteit Leuven, BELGIUM

Heiko Aselmann, Kiel University Hospital, GERMANY

Samy A. Azer, King Saud University, SAUDI ARABIA

Daniel Vasile Balaban, "Carol Davila" University of Medicine and Pharmacy, Bucharest , ROMANIA

Bulent Baran, Koç University Hospital, TURKEY

Gabrio Bassotti, University of Perugia Medical School, ITALIA

Marco Biolato, Fondazione Policlinico Gemelli , ITALIA

Brian Borg, University of Mississippi Medical Center, UNITED STATES

Mohamed Bouattour, Beaujon University Hospital, FRANCE

Jorge Manuel Tavares Canena, University Center of Gastroenterology, PORTUGAL

Agustin Castiella, Mendaro Hospital, SPAIN

Jae Hyuck Chang, The Catholic University of Korea, REPUBLIC OF KOREA

Saurabh Chawla, Emory University School of Medicine, UNITED STATES

Weina Chen, Tulane University School of Medicine, UNITED STATES

Ana J Coito, UCLA, UNITED STATES

Maneesh Dave, Case Western Reserve University, UNITED STATES

Mohammad Derakhshan, University of Glasgow, UNITED KINGDOM

Hirayuki Enomoto, Hyogo College of Medicine, JAPAN

Huitao Fan, The University of North Carolina at Chapel Hill, UNITED STATES

Alexandre Ferreira, Hospital Beatriz Ângelo, PORTUGAL

Pedro Figueiredo, University of Coimbra, PORTUGAL

Natale Figura, University of Siena, ITALY

Chun Gao, China-Japan Friendship Hospital, Ministry of Health, CHINA

Ricardo Gehrau, University of Virginia, UNITED STATES

Joseph George, Kanazawa Medical University, JAPAN

Carlo Girelli, Hospital Of Busto Arsizio, ITALY

Luisa Guidi, Università Cattolica del Sacro Cuore, Roma, ITALY

Vivek Gumaste, Montefiore Medical Center/Albert Einstein School of Medicine, UNITED STATES

Simona Gurzu, University of Medicine and Pharmacy Tirgu-Mures, ROMANIA

Goran Hauser, Clinical Hospital Centre, CROATIA

Ching-Sheng Hsu, Taipei Tzu Chi Hospital, TAIWAN

Okasha Hussein, Cairo University, EGYPT

Takafumi Ichida, Shona-East General Hospital, JAPAN

Mohamad Imam, University Of North Dakota, UNITED STATES

Yusheng Jiang, Harvard Medical School, UNITED STATES

Bülent Kantarçeken, Sütçü Imam University, TURKEY

Shigeyuki Kawa, Shinshu University, JAPAN

Martin Keuchel, Bethesda Krankenhaus Bergedorf, GERMANY

Seungtaek Kim, Yonsei University College of Medicine, KOREA, REPUBLIC OF

Akiyoshi Kinoshita, Jikei University Daisan Hospital, JAPAN

Spiros Ladas, Medical School, Athens University, GREECE

Yean Lim, County Durham and Darlington Foundation Trust, UNITED KINGDOM

Wenyu Lin, Massachusetts General Hospital and Harvard Medical School, UNITED STATES

Andrea Lisotti, University of Bologna, ITALY

Tobias Meister, University of Göttingen, GERMANY

Robert Moran, Johns Hopkins University, UNITED STATES

Fadi Mourad, American University of Beirut Medical Center, LEBANON

Ugo Nzeako, Watson Clinic LLP, UNITED STATES

Shuskue Ohnishi, Hokkaido University, JAPAN

Abderrahim Oussalah, University of Lorraine, FRANCE

Jen-Jung Pan, The University of Texas Medical School at Houston, UNITED STATES

Jun Yong Park, Yonsei University College of medicine, KOREA

Raffaele Pezzilli, Sant'Orsola-Malpighi Hospital, ITALIA

Christine Pocha, University of Bern, SWITZERLAND

Chandrasekharan Rajasekharan, Government Medical College,Thiruvananthapuram, INDIA

Tuomo Rantanen, Kuopio University Hospital, FINLAND

Giuseppe Scalisi, Gastroenterology Unit M. Raymond Hospital, ITALY

Dong Hyun Sinn, Samsung Medical Center, Sungkyunkwan University School of Medicine, KOREA

Mostafa Sira, Menofiya University, EGYPT

Vishwas Vanar, University of Illinois College of Medicine at Peoria, UNITED STATES

Pamela Schitz Von Reisswitz, Hospital Nossa Senhora da Conceição , BRAZIL

Sunny Wong, The Chinese University of Hong Kong, HONG KONG

Harry Hua-Xiang Xia, Novartis Pharmaceuticals Corporation, UNITED STATES

Hua Yang, Peking University, CHINA

Eva Zapata, Hospital de Mendaro, SPAIN

Babić Žarko, Zagreb University Medical School, CROATIA

Deqiang Zhang, University of Michigan, UNITED STATES

Genetics

Yusheng Jiang, Harvard Medical School, UNITED STATES

Hui Li, University of Virginia, UNITED STATES

Han Zhang, National Cancer Institute (NCI), UNITED STATES

Geriatrics

Maria Giné-Garriga, Universitat Ramon Llull, SPAIN

Doris Leung, Chinese University of Hong Kong, HONG KONG

Tuck Yean Yong, Flinders Private Hospital, AUSTRALIA

Yiqiang Zhan, Karolinska Institutet, SWEDEN

Global Health

Kathryn Schnippel, University of Cape Town, SOUTH AFRICA

Zhonghua Sun, Huazhong University of Science & Technolgy, CHINA

Karen S. Fernandez, University of Illinois College of Medicine, UNITED STATES

Hematology

Section Editor: Ahmet Emre Eskazan, Istanbul University, TURKEY

Minoo Ahmadinejad, Iranian Blood Transfusion Research Center, IRAN

Wael Alkhiary, Mansoura University, EGYPT

Anser Azim, Chicago State University, UNITED STATES

ZhiJun Duan, University of Washington, UNITED STATES

Lydia Eccersley, Imperial College London, UNITED KINGDOM

Ravi Kumar Gutti, University of Hyderabad, INDIA

Amir Hamdi, The University of Texas MD Anderson Cancer Center, UNITED STATES

Gaurav Jain, University of Pittsburgh School of Medicine, UNITED STATES

Yuxuan Liu, Columbia University Medical Center, UNITED STATES

Rita Marchi, Instituto Venezolano de Investigaciones Científicas, VENEZUELA

Colin Phipps, Singapore General Hospital, SINGAPORE

Qing Wang, University of Michigan, UNITED STATES

Immunology

Ramzi Gupta, University of Texas at San Antonio, UNITED STATES

Changzheng Li, Southern Medical University, CHINA

Yan Li, Cleveland Clinic, UNITED STATES

Yuan Lin, La Jolla Institute of Allergy and Immunology, UNITED STATES

Sung Jae Shin, Yonsei University College of Medicine, KOREA, REPUBLIC OF

Ming Zhang, State University of New York Downstate Medical Center, UNITED STATES

Infectious Diseases

Section Editor: Duane R. Hospenthal, University of Texas Health Science Center at San Antonio, UNITED STATES

Section Editor: Oliver Schildgen, Klinken der Stadt Köln gGmbH, GERMANY

Sharilyn Almodovar, University of Colorado, UNITED STATES

Ramzi Alsallaq, New York University, UNITED STATES

Angela M Amedee, Louisiana State University, UNITED STATES

Victor Asensi, Hospital Universitario Central De Asturias; Oviedo University School Of Medicine, SPAIN

Mehmet Bakir, Cumhuriyet Universitesi Tip Fakultesi, TURKEY

Anna Bonjoch, Germans Trias i Pujol University Hospital, SPAIN

Grant R. Campbell, UC San Diego, UNITED STATES

Joseph Cervia, Hofstra Northwell School of Medicine, UNITED STATES

Akhilanand Chaurasia, King George'S Medical University, INDIA

Rodrigue Dessein, Lille University Teaching Hospital , FRANCE

Martin Herbas Ekat, Ministère de la Santé, REPUBLIC OF CONGO

Rana El Feghaly, University of Mississippi Medical Center, UNITED STATES

Mohamed G. Elfaki, Alfaisal University College of Medicine, SAUDI ARABIA

Susanna Esposito, Institute of Pediatrics, ITALY

Chia-Kwung Fan, Taipei Medical University, TAIWAN

Cassiano Felippe Gonçalves de Albuquerque, Universidade Federal do Estado do Rio de Janeiro, BRAZIL

Qiushui He, University of Turku, FINLAND

Abrar Hussain, Balochistan University of Information Technology, Engineering and Management Sciences, PAKISTAN

Ewa Janczewska, ID Clinic, POLAND

Mohammad-Ali Jenabian, Université du Québec à Montréal, CANADA

Eric Lau, University of Hong Kong, CHINA

Shui Shan Lee, Chinese University of Hong Kong, HONG KONG

Liang Jin, Monash University, AUSTRALIA

Eduard Karamov, Gamaleya Center(Ivanovsky Institute of Virology), RUSSIA

Naveed Ahmed Khan, Sunway University, MALAYSIA

M. Scott Killian, University of South Dakota Sanford School of Medicine, UNITED STATES

Kersten Koelsch, The Kirby Institute, AUSTRALIA

Jason Leider, Albert Einstein College Of Medicine, UNITED STATES

Anna S. Levin, University Of São Paulo, BRAZIL

Hao Kim Lu, Peter Doherty Institute, University of Melbourne, AUSTRALIA

Gary Maartens, University of Cape Town, SOUTH AFRICA

Barry Margulies, Towson University, UNITED STATES

Claudio Mastroianni, Mastroianni, ITALY

Seiho Nagafuchi, Saga University, Medical School, JAPAN

Vivek Naranbhai, University of Oxford and Centre for the AIDS Programme of Research in South Africa, UNITED KINGDOM

Peter Nyasulu, Monash Univesity, SOUTH AFRICA

Clovis Palmer, Burnet Institute, AUSTRALIA

Fateh Rahimi, University of Isfahan, IRAN

Sasirekha Ramani, Baylor College of Medicine, UNITED STATES

Giuliano Rizzardini, Luigi Sacco University Hospital, ITALY

Erle Robertson, Penn Medicine, UNITED STATES

Ken S. Rosenthal, Roseman University of Health Sciences College of Medicine, UNITED STATES

Oliver Schildgen, Klinken der Stadt Köln gGmbH, GERMANY

Liang Shang, University of Minnesota, UNITED STATES

Shmuel Shoham, Johns Hopkins University, UNITED STATES

Haseeb A. Siddiqi, State University of New York Downstate Medical Center, UNITED STATES

Jessica Snowden, University of Nebraska Medical Center, UNITED STATES

Leonard Sowah, Chase Brexton Health Services, UNITED STATES

Lionel Tan, Imperial College London, UNITED KINGDOM

Ramon Teira Cobo, Hospital de Sierrallana, SPAIN

Carlo Torti, University "Magna Graecia", ITALY

Alejandro Vallejo, Hospital Ramón Y Cajal, Madrid, ESPAÑA

Shih-Min Wang, National Cheng Kung University and Hospital, TAIWAN

Richard R. Watkins, Cleveland Clinic Akron General Medical Center, UNITED STATES

Signe Worm, Rigshospitalet, DENMARK

Pablo Yagupsky, Soroka University Medical Center, ISRAEL

Chiyu Zhang, Institut Pasteur of Shanghai, CHINA

Ping Zhong, Shanghai Municipal CDC, CHINA

Mental Health

Yong-hui Dang, Xi'an Jiaotong University, CHINAMichele Fornaro, Columbia University, UNITED STATES

Roger Gibson, University of the West Indies, JAMAICA

Chang-Bing Huang, Institute of Psychology Chinese Academy, CHINA

Numan Konuk, Istanbul University, TURKEY

Mirko Manchia, University of Cagliari/ Dalhousie University, ITALY/CANADA

Thomas Polak, University Clinic Wuerzburg, GERMANY

Massimo Tusconi, University of Texas Health Science Center at Houston, UNITED STATES

Metabolic Disorders

Section Editor: Giovanni Tarantino, Federico II University Medical School of Naples, ITALY

María–Luz Couce, Universitario de Santiago de Compostela, SPAIN

Giovanni Li Volti, University of Catania, ITALY

Bin Xu, Virginia Polytechnic Institute and State University, UNITED STATES

Liang-Jun Yan, University of North Texas Health Science Center, UNITED STATES

Nephrology

Section Editor: Dominik Steubl, Klinikum rechts der Isar der Technischen Universität München, GERMANY

Mohamed Atta, Johns Hopkins University, UNITED STATES

Erika I. Boesen, University of Nebraska Medical Center, UNITED STATES

Yung-Hsiang Chen, Chang Gung Memorial Hospital, TAIWAN

Darshika Chhabra, Advocate Christ Medical Center, UNITED STATES

Rowena Delos Santos, Washington University, UNITED STATES

Carlo Donadio, University Of Pisa, ITALY

Costas Fourtounas, University of Thessaly, GREECE

Vanja Ivkovic, University Hospital Centre Zagreb, CROATIA

Gur Kaushal, University of Arkansas, UNITED STATES

Jui-Hsiang Lin, Taoyuan General Hospital, TAIWAN

Muhammed Mubarak, Sindh Institute of Urology and Transplantation, PAKISTAN

Tibor Nadasdy, The Ohio State Unuversity, UNITED STATES

Ikechi Okpechi, University of Cape Town, SOUTH AFRICA

Sanket Patel, University of Houston College of Pharmacy, UNITED STATES

Malindretos Pavlos, Achillopouleion General Hospital, GREECE

Tuncay Sahutoglu, Sisli Hamidiye Etfal Education and Research Hospital, TURKEY

Alfonso H. Santos, University Of Florida, UNITED STATES

Jinxian Xu, Medical College of Georgia in Augusta University, UNITED STATES

Eun Young Lee, Soonchunhyang University Hospital Cheonan, KOREA, REPUBLIC OF

Xu-Jie Zhou, Peking University Institute of Nephrology, CHINA

Neurology

Section Editor: Marco Onofrj, University Chieti-Pescara, ITALY

Thorleif Etgen, kbo-Inn-Salzach-Klinikum, GERMANY

Ravindra Kumar Garg, King George Medical University, INDIA

Chaur-Jong Hu, Taipei Medical University, TAIWAN

Han – Hwa Hu, Taipei Medical University, TAIWAN

Faik Ilik, Baskent University, TURKEY

Steven Levine, State University of New York Downstate Medical Center, UNITED STATES

Yong Liu, Loma Linda University Medical Center, UNITED STATES

Thomas Müller, St. Joseph Hospital, GERMANY

Bappaditya Ray, University of Oklahoma Health Sciences Center, UNITED STATES

Richard Rison, Neurology Consultants Medical Group, UNITED STATES

Raymond L. Rosales, University of Santo Tomas, PHILIPPINES

Elena Cecilia Rosca, University of Medicine and Pharmacy Victor Babes Timisoara, ROMANIA

Anwen Shao, Zhejiang University, CHINA

Mark Stecker, Winthrop-University Hospital, UNITED STATES

Lucy Troup, Colorado State University, UNITED STATES

Dana Turcotte, University of Manitoba, CANADA

Kai Wu, South China University of Technology, CHINA

Wanqing Wu, Shenzhen Institutes of Advanced Technology, CHINA

Jingyun Yang, Rush University Medical Center, UNITED STATES

Tzong-Shiue Yu, Columbia University Medical School, UNITED STATES

Non-Clinical Medicine

Suzanne Morse Buhrow, Banner Health, UNITED STATES

Pricivel Carrera, University of Twente, NETHERLANDS

Oguzhan Ekizoglu, Tepecik Training and Research Hospital, TURKEY

Vijayaprasad Gopichandran, ESIC Medical College and PGIMSR, INDIA

Boyko Gueorguiev, AO Research Institute Davos, SWITZERLAND

Alfons Lawen, Monash University, AUSTRALIA

Phil Phan, Johns Hopkins University, UNITED STATES

Kyoungho Suk, Kyungpook National University School of Medicine, REPUBLIC OF KOREA

Wilson Tam, National University of Singapore, SINGAPORE

Nutrition

Section Editor: Marcello Iriti, Milan State University, ITALIA

Danny Jacobs, University of Texas Medical Branch at Galveston, UNITED STATES

Nenad Naumovski, University of Canberra, AUSTRALIA

Yoshihiro Shidoji, University of Nagasaki, JAPAN

Daryle Wane, Pasco Hernando State College, UNITED STATES

Obstetrics and Gynecology

Kimon Chatzistamatiou, Aristotle University of Thessaloniki, GREECE

Oncology

Section Editor: Martin S. Staege, Martin Luther University Halle-Wittenberg, GERMANY

Thomas E. Adrian, United Arab Emirates University, UNITED ARAB EMIRATES

Saeed Alzghari, Gulfstream Diagnostics, UNITED STATES

Sumit Arora, University of South Alabama, UNITED STATES

Lalit Banswal, Tata Medical Center Kolkata, INDIA

Eugeniu Banu, Saint Constantin Hospital, ROMANIA

Xuhui Bao, Duke University School of Medicine, UNITED STATES

Arun Bhardwaj, University of South Alabama, UNITED STATES

Laszlo Geza Boros, University of California- Los Angeles, UNITED STATES

Gouri Shankar Bhattacharyya, Fortis Hospital, Anandapur, Kolkata, INDIA

Chunxia Cao, University of Florida, UNITED STATES

Sayed S. Daoud, Washington State University, UNITED STATES

Giuseppe Di Lorenzo, Medical Oncology Federico II University, ITALY

Barthelemy Diouf, St Jude Children's Research Hospital, UNITED STATES

Tamer Fouad, National Cancer Institute Cairo University, EGYPT

Gilbert Fruhwirth, King's College London, UNITED KINGDOM

Gaurav Goel, University of Pittsburgh Cancer Institute, UNITED STATES

Hao Guo, Dana Farber Cancer Institute, UNITED STATES

Shihan He, University of Michigan, UNITED STATES

Lei Huang, Deutsches Krebsforschungszentrum, GERMANY

Ravishankar Jayadevappa, University of Pennsylvania, UNITED STATES

Raj Kumar, Harvard Medical School , UNITED STATES

Ninh M. La-Beck, Texas Tech University Health Sciences Center, UNITED STATES

Jong Hoon Lee, College of Medicine, The Catholic University of Korea, SOUTH KOREA

Bo Li, University of Pennsylvania Perelman School of Medicine, UNITED STATES

Jianfeng Li, University of South Alabama Mitchell Cancer Institute, UNITED STATES

Zhentian Li, Emory University, UNITED STATES

Shizhang Ling, Johns Hopkins University, UNITED STATES

Chong Liu, Zhejiang University School of Medicine, CHINA

Frank Xiaoqing Liu, Merck & Co., Inc., UNITED STATES

Jian Liu, National Institute of Environmental Health Sciences, UNITED STATES

Tao Liu, Emory University, UNITED STATES

Zhiyong Liu, UC San Francisco, UNITED STATES

Yan Liu, Vanderbilt University School of Medicine, UNITED STATES

Weiwen Long, Wright State University, UNITED STATES

Devin B. Lowe, Texas Tech University Health Sciences Center, UNITED STATES

Min Lu, Duke University, UNITED STATES

Peng Luo, Southern Medical University, CHINA

Yongjie Ma, AntiCancer Inc., UNITED STATES

Parth Mehta, Baylor College of Medicne/Texas Children's Cancer Center, UNITED STATES

Yabing Mu, Umeå University, SWEDEN

Yuzuru Niibe, Toho University, JAPAN

Atish Patel, National Institute of Health, UNITED STATES

Sethuramasundaram Pitchiaya, University of Michigan, UNITED STATES

Lars Rönnstrand, Lund University, SWEDEN

Giandomenico Roviello, University of Brescia, ITALY

Mario Scartozzi, University of Cagliari, ITALY

Masaharu Seno, Okayama University, JAPAN

Hirotomo Shibaguchi, Fukuoka University, JAPAN

Yi Shu, University of Kentucky, UNITED STATES

Xianzhou Song, Baylor College of Medicine, UNITED STATES

Sanjeev K. Srivastava, Mitchell Cancer Institute, UNITED STATES

Nilesh Talele, Massachusetts General Hospital, UNITED STATES

Prashant Thakkar, Cornell University Joan and Sanford I Weill Medical College, UNITED STATES

Huaizhi Wang, Third Military Medical University, CHINA

Lei Wang, City of Hope Cancer Center, UNITED STATES

Wei Wang, University of Tennessee Health Science Center, THE UNITED STATES

Weidong Wang, Sichuan Cancer Hospital, CHINA

Yutang Wang, University of Florida, UNITED STATES

Shun-Fa Yang, Institute of Medicine, Chung Shan Medical University, TAIWAN

Haseeb Zubair, University of South Alabama Mitchell Cancer Institute, UNITED STATES

Ophthalmology

Section Editor: Stela Vujosevic, University of Padova, ITALY

Khaled Ahmed Abdelrahman, Magrabi Eye Center, Riyadh, SAUDI ARABIA

Melissa Barnett, University of California Davis, UNITED STATES

Mehmet Borazan, Mevlana University School of Medicine, TURKEY

Robert Chang, University of Illinois at Chicago College of Medicine, UNITED STATES

Zhengshan Chen, Moorfields Eye Hospital & UCL Institute of Ophthalmology, UNITED KINGDOM

Jaime Etxebarria, University Hospital Cruces, SPAIN

Dinesh Garg, Advanced Centre For Eyes, Ludhiana, INDIA

Jack Greiner, Harvard University, UNITED STATES

Lawrence Iu, University of Hong Kong, HONG KONG

Vishal Jhanji, The Chinese University of Hong Kong, HONG KONG

Bartlomiej Kaluzny, Collegium Medicum NCU, POLAND

Jui-Yang Lai, Chang Gung University, TAIWAN

Jacky Lee, Caritas Medical Centre, HONG KONG

Marcella Nebbioso, Sapienza University of Rome, ITALY

Iok-Hou Pang, University of North Texas Health Science Center, UNITED STATES

Choul Yong Park, Dongguk Universiy Ilsan Hospital, KOREA, REPUBLIC OF

Alparslan Şahin, Dicle University School Of Medicine, TURKEY

Michael Smolek, U. S. Army Aeromedical Research Laboratory, UNITED STATES

Fatih Turkcu, Dicle University School of Medicine, TURKEY

Edoardo Villani, University of Milan, ITALY

Kaili Wu, Sun Yat-Sen University, CHINA

Oral Medicine

Section Editor: Li Wu Zheng, University of Hong Kong, CHINA

Tomoyuki Kawase, Niigata University, JAPAN

Mustafa Rasid Toksoz, Yildirim Beyazit University, TURKEY

Priscila Lie Tobouti, Universidade Ibirapuera, BRAZIL

Otorhinolaryngology

Shih-Han Hung, Taipei Medical University, TAIWAN

Yike Li, Vanderbilt University, UNITED STATES

Bülent Serbetcioglu, Istanbul Medipol University , TURKEY

Jagdeep Thakur, Indira Gandhi Medical College, INDIA

Wen-Hung Wang, Cathay General Hospital and Fu Jen Catholic University Hospital, TAIWAN

Yushan Zhang, Taipei Medical University, TAIWAN

Palliative Care

Section Editor: Eric Bush, Frederick Memorial Hospital, UNITED STATES

Pediatrics

Section Editor: Vasile Valeriu Lupu, Gr. T. Popa University of Medicine and Pharmacy, ROMANIA

Babak Abdinia, Tabriz University, IRAN

Girish Chandra Bhatt, All India Institute of Medical Sciences, INDIA

Maria Jose Carbonero Celis, Hospital Universitario Virgen Macarena, SEVILLA

Elaine Alvaraenga De Almeida Carvalho, Universidade Federal de Minas Gerais, BRAZIL

Anderson Collier, University of Mississippi Medical Center, UNITED STATES

Kirsty Donald, University of Cape Town, SOUTH AFRICA

Manal Elshmaa, National Research Centre, EGYPT

Mohamed Fahmy, Al Azher University, EGYPT

Tamer Hassan, Zagazig University, EGYPT

Jing Liu, The Army General Hospital of the Chinese PLA, CHINA

Alexandros Makis, University Of Ioannina, GREECE

Oana Marginean, University of Medicine and Pharmacy Tirgu Mures, ROMANIA

Marsha Medows, NYU School of Medicine, UNITED STATES

Miguel Muñoz, Virgen del Rocio University Hospital, SPAIN

Stefano Nobile, Ospedale "G. Salesi" di Ancona, ITALY

Peter Olbrich, Hospital virgen del Rocio Seville, SPAIN

Stuart Polisner, Retired, UNITED STATES

Bernhard Resch, Medical University of Graz, AUSTRIA

Stefano Sartori, Universita degli Studi di Padova Dipartimento di Salute della Donna e del Bambino, ITALY

Umang G. Thakkar, Institute of Kidney Diseases & Research Centre , INDIA

Physiotherapy and Rehabilitation

Silvana Alves Pereira, Universidade Federal do Rio Grande do Norte, BRAZIL

Li-Wei Chou, China Medical University Hospital, TAIWAN

Ilke Coskun Benlidayi, Cukurova University, TURKEY

Daniel López López, Universidade da Coruña, SPAIN

Yvonne Lucero, Hines VA Hospital, UNITED STATES

Rong Luo, Sichuan University, CHINA

Shamekh Mohamed El-Shamy, Cairo University, EGYPT

Shirley S.M. Fong, University of Hong Kong, HONG KONG

Anis Jellad, University of Monastir, TUNISIA

Vijai Prakash Sharma, King George Medical University Lucknow, INDIA

Konstantinos Volaklis, Technical University of Munich, GERMANY

Chueh-Hung Wu, National Taiwan University Hospital, TAIWAN

Guang Yue, Kessler Foundation, UNITED STATES

Primary Care

Mahesh Gajendran, Texas Tech University, UNITED STATES

Leonardo Gilardi, OSECAC, ARGENTINA

Kukuh Noertjojo, Evidence-Based Practice Group, Clinical Services, WorkSafeBC, CANADA

Psychology

Carolina Diaz-Piedra, University of Granada, SPAIN

Kevin R. Harris, Austin Peay State University, UNITED STATES

Reema Harrison, University of Sydney, AUSTRALIA

Peter J. Mclaughlin, Edinboro University of Pennsylvania, UNITED STATES

Urs Nater, University of Marburg, GERMANY

Whitney Scott, King's College London, UNITED KINGDOM

Trudie Somberg, Albert Einstein Medical Center, UNITED STATES

James H. Waters, Clinical & Forensic Psychology & Neuropsychology, UNITED STATES

Public Health

Section Editor: Shahrzad Bazargan-Hejazi, Charles R. Drew University of Medicine and Science & UCLA, UNITED STATES

Vincent Barba, Rutgers University, UNITED STATES

Jongwha Chang, University of Texas, UNITED STATES

Ediriweera Desapriya, The University of British Columbia, CANADA

Keshab Deuba, Karolinska Institutet, SWEDEN

Lars Hagander, Lund University, SWEDEN

Jinhai Huo, The University of Texas MD Anderson Cancer Center, UNITED STATES

Angela N Johnson, Texas Tech University, UNITED STATES

Roman Leischik, University Witten/Herdecke, GERMANY

Yulan Liang, University System of Maryland, UNITED STATES

Yungang Liu, Southern Medical University, CHINA

Luis Mauricio Pinet Peralta, University of Maryland Baltimore County, UNITED STATES

Qing Wu, University of Nevada, Las Vegas, UNITED STATES

Feng Qiong Zhou, Ottawa Hospital Research Institution, CANADA

Ziyuan Zhou, Third Military Medical University, CHINA

Pulmonology

Section Editor: Giuseppe Insalaco, Italian National Research Council, ITALY

Mariusz Adamek, Medical Iniversity of Silesia, POLAND

Fu-Tsai Chung, Chang Gung Memorial Hospital Linkou Branch, TAIWAN

Levent Dalar, Istanbul Bilim University, TURKEY

Esteban Gabazza, Mie University, JAPAN

Takeshi Saraya, Kyorin University School of Medicine, JAPAN

Radiology

Section Editor: Neeraj Lalwani, University of Washington, UNITED STATES

Dwight M. Achong, James A. Haley Veterans' Hospital, UNITED STATES

Rani Al-Senan, Columbia University Medical Center, UNITED STATES

Majid Assadi, Bushehr University of Medical Sciences, IRAN

Lawrence R. Bigongiari, Retired, UNITED STATES

Yong Eun Chung, Yonsei University, KOREA, REPUBLIC OF

Ramya Dhandapani, Royal Liverpool University Hospital, UNITED KINGDOM

Sorin M. Dudea, "Iuliu Hatieganu" University of Medicine and Pharmacy, ROMANIA

George Kyrgias, University of Thessaly, GREECE

Peipeng Liang, Capital Medical University, CHINA

Yiyan Liu, NJMS, Rutgers University, UNITED STATES

Pierleone Lucatelli, University of Siena, ITALY

Takayuki Masui, Seirei Hamamatsu General Hospital, JAPAN

Kavindra Nath, University of Pennsylvania, UNITED STATES

Barbara Palumbo, Universita degli Studi di Perugia, ITALY

Sachin S. Saboo, University of Texas Southwestern Medical Center, Dallas, UNITED STATES

Orazio Schillaci, University of Rome Tor Vergata, ITALY

Alberto Stephano Tagliafico, University Of Genova, ITALY

Kiran Talekar, Thomas Jefferson University, UNITED STATES

Michael Albert Thomas, UCLA Geffen School of Medicine, UNITED STATES

Ioannis Tsalafoutas, General Anticancer-Oncology Hospital of Athens "Agios Savvas", GREECE

Weiwu Yao, Shanghai Jiaotong University, CHINA

Katsuya Yoshida, Asahi General Hospital, JAPAN

JianJun Yuan, Henan Province people's Hospital, CHINA

Saad Zakko, Retired, UNITED KINGDOM

Weisheng Zhang, First Affiliated Hospital of Dalian Medical University, CHINA

Heye Zhang, Shenzhen Insitutues of Advanced Technology, CHINA

Zhuoli Zhang, Northwest University, UNITED STATES

Meihua Zhu, Oregon Health & Science University, UNITED STATES

Hongming Zhuang, Children's Hospital of Philadelphia University of Pennsylvania, UNITED STATES

Rheumatology

Xiaofeng Cai, University of Oklahoma Health Sciences Center, UNITED STATES

Francesco Carubbi, Università of L'Aquila, ITALY

Elizabeth Chang, Phoenix VA Health Care Systems, UNITED STATES

Carlos Guillén-Astete, Ramon y Cajal University Hospital, SPAIN

Raouf Hajji, Sidi Bouzid Hospital, TUNISIA

Jenn-Haung Lai, Chang Gung Memorial Hospital Yunlin Branch, TAIWAN

Worawit Louthrenoo, Chiang Mai University, THAILAND

Samy Slimani, University of Batna, ALGERIA

Sports and Exercise Medicine

Section Editor: Fergal Grace, Federation University Australia, AUSTRALIA

Jochen Baumeister, University of Paderborn, GERMANY

Antonino Bianco, University Of Palermo, ITALIA

Rodrigo Bini, EsEFEx, BRAZIL

Xavier García-Massó, University of Valencia, SPAIN

Justin Keogh, Bond University, AUSTRALIA

Chunxiao Li, The Hong Kong Institute of Educataion, HONG KONG

Antonio Paoli, University of Padova, ITALY

Massimo Sacchetti, University of Rome "Foro Italico", ITALY

Surgery

Section Editor: Danny Chu, University of Pittsburgh School of Medicine, UNITED STATES

Section Editor: Nicandro Figueiredo, Medcare Orthopaedics & Spine Hospital, DUBAI

Suresh Agarwal, University of Wisconsin, UNITED STATES

Shefali Agrawal, Indraprastha Apollo Hospitals, INDIA

Mahmoud Abdelwahab Ali, Mansoura University, EGYPT

Bilal Aljiffry, Taif University, SAUDI ARABIA

Akif Enes Arikan, Istanbul University, TURKEY

Wafi Attaallah, Marmara University, TURKEY

Goran Augustin, University of Zagreb and University Hospital Center Zagreb, CROATIA

Bishwajit Bhattacharya, Yale School Of Medicine , UNITED STATES

Adrian Billeter, University Of Heidelberg, GERMANY

Gerald Brandacher, Johns Hopkins University School of Medicine, UNITED STATES

Jakob Burcharth, Zealand University Hospital, DENMARK

Klaus Burkart, Arcus Sportklinik, GERMANY

Caroline Chebli, Kennedy-White Orthopaedic Center, UNITED STATES

Sheng Chen, second affiliated hospital,school of medicine,zhejiang university, CHINA

Xiao-Dong Chen, Sichuan Cancer Hospital, CHINA

Tan To Cheung, The University of Hong Kong, HONG KONG

Roberto Cirocchi, University of Perugia, ITALY

Evert Eriksson, Medical University of South Carolina, UNITED STATES

Sebastian Farr, Orthopedic Hospital Speising, AUSTRIA

Rama Rao Ganga, Cleveland Clinic Florida, UNITED STATES

Ankush Gosain, University of Tennessee Health Science Center, UNITED STATES

Perbinder Grewal, Portsmouth Hospitals NHS Trust, UNITED KINGDOM

Jeff Halldorson, UC San Diego, UNITED STATES

Daniel A. Hashimoto, Massachusetts General Hospital, UNITED STATES

Jian-Kun Hu, Sichuan University, CHINA

Ting-Shuo Huang, Chang Gung Memorial Hospital, TAIWAN

Calogero Iacono, University of Verona Medical School, ITALY

Fadi Issa, University of Oxford, UNITED KINGDOM

Marc Jeschke, U of T and Sunnybrook Health Sciences, CANADA

Maria Kapritsou, Hellenic Anticancer Institute "Saint Savvas" Hospital, GREECE

George Kasotakis, Boston University School of Medicine, UNITED STATES

James Kellam, University of Texas Health Science Center McGovern Medical School, UNITED STATES

Ji Soo Kim, Seoul National University College of Medicine, REPUBLIC OF KOREA

Jin-Sung Kim, The Catholic University of Korea, KOREA, REPUBLIC OF

Jorg Kleeff, University of Liverpool, UNITED KINGDOM

Leonidas G. Koniaris, Indiana University, UNITED STATES

Zheng Li, Peking Union Medical College, CHINA

Song Liu, Universite Paris-Sud, FRANCE

Panagis M. Lykoudis, Royal Free London NHS Foundation Trust, UNITED KINGDOM

Giuseppe Malleo, University of Verona Hospital Trust, ITALY

Johannes Mayr, University Children`s Hospital Basel, SWITZERLAND

Neil Merrett, Western Sydney University, AUSTRALIA

Pedro Moya, University General Hospital of Elche, SPAIN

Adrian Murillo, Instituto Tecnológico Y De Estudios Superiores De Monterrey, MEXICO

Kelvin Ng, University of Hong Kong, HONG KONG

Theodossis Papavramidis, University of Athens, GREECE

Gianluca Pellino, Second University of Naples, ITALY

Henrik Petrowsky, University Hospital Zurich, SWITZERLAND

Eitan Podgaetz, University of Minnesota, UNITED STATES

Andrea Ruzzenente, Universita degli Studi di Verona, ITALY

Marek Sierzega, Jagiellonian University Medical College, POLAND

Pedro Silva Vaz, Hospital Amato Lusitano - Unidade Local de Saúde de Castelo Branco, PORTUGAL

Timucin Taner, Mayo Clinic, UNITED STATES

Serkan Teksöz, Istanbul University, TURKEY

Papavramidis Theodosios, Aristostle University of Thessaloniki, GREECE

Alfonso Torquati, Rush University, UNITED STATES

Francisco Vaz-Guimaraes Filho, Baylor College of Medicine, UNITED STATES

Feng Yang, Huashan Hospital affiliated to Fudan University, CHINA

Steven Yule, Harvard Medical School, UNITED STATES

Toxicology

Gokhan Cuce, University of Necmettin Erbakan, TURKEY

Eleonore Fröhlich, Medical University of Graz, AUSTRIA

Goran Gajski, Institute for Medical Research and Occupational Health, CROATIA

Oliver Grundmann, University of Florida, UNITED STATES

Carlos Fernando Mello, Universidade Federal De Santa Maria, BRASIL

Mihalis Panagiotidis, Heriot Watt University, SCOTLAND

Satyabrata Pany, University of Houston, UNITED STATES

Urology

Section Editor: Giuseppe Lucarelli, University of Bari, ITALY

Rohit Malik, University of Michigan, UNITED STATES

Hiroshi Miyamoto, Johns Hopkins University, UNITED STATES

Sakthivel Muniyan, University of Nebraska Medical Center, UNITED STATES

Pedro Fontes Oliveira, ICBAS-UP, PORTUGAL

Jae Young Park, Korea University College of Medicine, KOREA, REPUBLIC OF

Masaki Shiota, Kyushu University, JAPAN

Shan Wang, UT Southwestern Medical Center, UNITED STATES

Women's Health

Ying Qu, Cedars-Sinai Medical Center, UNITED STATES

Rishein Gupta, University of Texas at San Antonio, UNITED STATES

Advertisement



Follow us on

- Facebook (https://www.facebook.com/medicinelww/)
- Twitter (https://twitter.com/Medicinelww)

Content Links

- Feedback (https://journals.lww.com/md-journal/Secure/Pages/feedback.aspx)
- Sitemap (https://journals.lww.com/md-journal/_layouts/1033/oaks.journals/sitemap.aspx)
- RSS Feeds (https://journals.lww.com/md-journal/_layouts/OAKS.Journals/feeds.aspx)
- LWW Journals (https://journals.lww.com/)

Resources

- Privacy Policy (Updated October 4, 2017) (https://journals.lww.com/md-journal/_layouts/oaks.journals/privacy.aspx)
- Terms of Use (https://journals.lww.com/md-journal/_layouts/oaks.journals/terms.aspx)
- Open Access Policy (http://www.wkopenhealth.com/)
- Subscribe to eTOC

Contact Wolters Kluwer Health, Inc.

Email:
customerservice@lww.com (mailto:customerservice@lww.com)
Phone:
800-638-3030 (within the USA) 301-223-2300 (outside of the USA)
Copyright © 2018 (https://journals.lww.com/md-journal/_layouts/oaks.journals/copyright.aspx) The Authors.
Published by Wolters Kluwer Health, Inc. (http://www.wolterskluwerhealth.com/pages/welcome.aspx)

- Support
- Training
- Contact Us
- clarivate.com

Master Journal List
Site

Client

proxystylesheet

Output

Search Search

allAreas

Journal Search

Search Terms

Database Search Type Title Word

Master Journal List

Search

Search Term(s): **0025-7974** · The following title(s) matched your request

First Previous Next Last

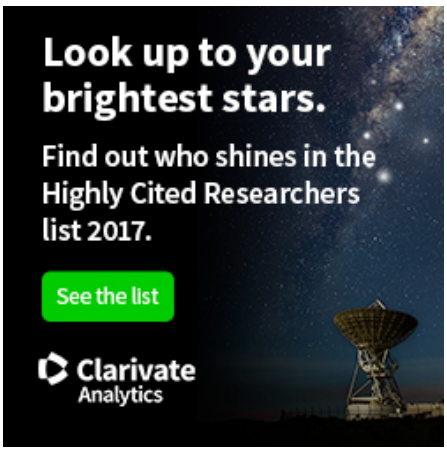
Total journals: **1** · Journals 1-1 (of 1)

Format for print

- **MEDICINE**
  Weekly ISSN: 0025-7974
  LIPPINCOTT WILLIAMS & WILKINS, TWO COMMERCE SQ, 2001 MARKET ST, PHILADELPHIA, USA, PA, 19103
  Coverage
  - Science Citation Index
  - Science Citation Index Expanded
  - Current Contents - Clinical Medicine
  - Current Contents - Life Sciences
  - BIOSIS Previews

Total journals: **1** · Journals 1-1 (of 1)

Format for print



Clarivate

Accelerating innovation

- Cookie Policy
- Privacy Statement
- Terms of Use
- Copyright
- Careers
- **© 2017 Clarivate**

Follow us