

Mapping Bioethics in Latin America: History, Theoretical Models, and Scientific Output

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Abstract Objective: To present a narrative review of the history of bioethics in Latin America and of scientific output in this interdisciplinary field. Methods: This was a mixed-methods study. Results: A total of 1458 records were retrieved, of which 1167 met the inclusion criteria. According to the Web of Science classification, the predominant topics of study were medical ethics (n= 488), social sciences and medicine (n= 354), and environmental and public health topics (n= 279). Four themes of bioethics output in the Latin American literature have emerged: (a) issues involving the beginning and end of life, (b) ethics in human research, (c) patient–provider relationships, and (d) ethics training for health professionals. Conclusion: Although bioethics is a growing interdisciplinary field in Latin America, its academic impact is still very low, and programmes are highly concentrated in large urban centres in a few countries. Challenges includes the regional and international impact of local scientific output.

Keywords History of bioethics · Mixed method research · Latin America · Latin American bioethics

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Introduction

The origins and history of bioethics have been studied by several researchers and have become a topic of increasing interest in biomedical ethics discussions of the last decades (Jonsen 1998; Walter and Klein 2003; Rothman 2003). In addition, the precursors of bioethical thought are better known today, which now allows different perspectives and approaches to the history of bioethics (Caplan and Arp 2014; Potter 1987; Goldim 2009b). That being said, two historical developments have commonly been identified as the origins of bioethics: one in early twentieth century Europe and a second in the 1960s and 1970s in the United States.

According to Goldim (2009b) and Goldim and Fernandes (2011), the development of bioethics in Europe has its roots in the work of German theologian, philosopher, musician, and physician Albert Schweitzer. Schweitzer proposed the concept of sacredness of or reverence for life, affirming the intrinsic value of all life, not only human life. This would be an integral part of the values and moral principles of European bioethics going forward. At almost the same time in Germany, the Protestant philosopher and theologian Fritz Jahr was the first person to use the word bioethics (*Bioethik*), in 1926 (Goldim 2009b; Rinčić and Muzur 2011; Jahr 1926, 1927). The use of this term, according to Jahr (1927), is related to the proposition of a bioethical imperative, which says “respect every living being essentially as an end in itself and treat it, if possible, as such” (Jahr 1927, 3).

It is at the turn of the 1960s to 1970s, however, that the term bioethics begins to gain credence in the

scientific community (Goldim 2009b; Clotet 2006). In 1969, Daniel Callahan and Wyllard Gaylin established the Hastings Center in New York as the first think-tank created to reflect on the ethical issues concerning the growing incorporation of technologies into the field of healthcare (Clotet 2006). Two movements arose almost simultaneously in the United States, alongside that of the Hastings Center, setting the groundwork for the development of the field that we currently know as bioethics. The first was driven by chemist and oncology researcher Van Rensselaer Potter at the University of Wisconsin, traditionally credited with coining the term *bioethics* (Goldim 2009b). The second was driven by the Joseph and Rose Kennedy Institute for the Study of Human Reproduction and Bioethics by renowned Dutch gynaecologist André Hellegers at Georgetown University (Jonsen 1998; Clotet 2006). Both developments are contemporaneous and were published in the same journal, in the same issue, and on consecutive pages (Potter 1971a; Georgetown University 1971), demonstrating how important these issues were at that moment in history.

Potter proposed in the 1970s a new discipline that would bring together the humanities and scientific knowledge. This new discipline, according to Potter, was necessary for human survival and would therefore be called Bioethics (Goldim 2009b; Potter 1970, 1971a, b). Potter's work built upon the precursors of American bioethics, including Aldo Leopold's discussion on "Land Ethic" (Potter 1987, 1999). The Joseph and Rose Kennedy Institute for the Study of Human Reproduction and Bioethics, now known as Kennedy Institute of Ethics, also played and still plays a vital role in discussions in the field, especially through the contributions given by Beauchamp and Childress's principles of biomedical ethics (Beauchamp and Childress 2013) and other key scholars, such as Robert Veatch (1997) and Pellegrino and Thomasma (1993), among others.

Another key figure in the early development of bioethics in the United States was Henry K. Beecher. His work on ethics in research in the mid-1960s, in which he reported a number of grave incidents of ethical misconduct in human research conducted in the United States even after publication of the Nuremberg Code (Moreno 2016; Beecher 1959, 1962, 1966), provided fertile ground for the development of research ethics as a discipline. His role as leader of the Harvard University group which discussed the brain criterion for the determination of death in 1968 changed the very conception of the limits of life and death, with wide-ranging

repercussions for clinical bioethics (Beecher 1969; Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death 1968).

Compared to North America and Europe, Latin America saw a rather late development of the field of bioethics; only in the second half of the 1980s were the first graduate disciplines and institutions dedicated to its study established in the continent (Clotet 2006).

To date, no evaluation and review of the intellectual output of Latin American researchers in the field of bioethics has been done, although some descriptive works have analysed the history of bioethics in the context of the Latin American continent and in specific countries (Lolas Stepke 2005; Pessini, Sobral, and Goncalves 2007; Pessini, Barchifontaine, and Lolas Stepke 2010; Álvarez-Díaz 2012; Hodelín Tablada 2011; Garrafa 2000, 2006; Irrazábal 2015).

Within this context, the aim of this article is to present a narrative review of scientific output in the field of bioethics in Latin America, including the main topics discussed, the main theoretical models used to approach bioethical problems, and the perspectives of Latin American bioethics for the coming decades.

Methods

This was a narrative review of the literature of the scientific publications on Latin America. Narrative reviews are a tool to present the state of a field from a theoretical and/or contextual point of view (Bae 2014). We performed a mixed-methods approach, which used only descriptive statistics on the quantitative step for the characterization of the sample and analysis of bibliometric and scientometric indicators. Indicators such as impact factor, rate of citations, and mean of citations were used in the quantitative descriptive analysis. Mixed methods are defined as a research design in which the researcher collects, analyses, and integrates data from both qualitative and quantitative methodologies. It can be adapted or modified to achieve the objectives defined by the research team (Creswell 2014).

A systematic evaluation of the selected articles was performed through thematic content analysis, as proposed by Laurence Bardin (2011), for the qualitative data. Content analysis allows qualitative data gathered during the research to be analysed systematically and reliably, such that generalizations and inferences can be made over the categories of interest of the research team

(Haggarty 1996). Moreover, content analysis has allowed us to categorize the themes according to their pattern of appearance in the data gathered.

Regarding content analysis, the three steps proposed by Bardin were observed, namely: (a) pre-analysis, whereby the researchers perform a “free-floating” reading of the abstracts and full-text, selection of the sample documents, definition of the objectives, elaboration of the first indicators, and search for units of meaning; (b) exploration of the material, in which the categories and units of meaning were defined, thus creating the coding model to be used in the study; and (c) treatment of the results, i.e., inference and interpretation of the collected data, at which point the data was analysed reflexively (Bardin 2011). According to Bazeley:

... content analysis is broadly applied to a range of strategies for text analysis, almost always involving use of a computer, large-scale samples of text, counts of word use, and statistical analysis of the results. Results are then interpreted in the light of the research questions and the cultural or political environment of the sample. (Bazeley 2013, 74)

The sample was composed of articles published in the Scientific Electronic Library Online (SciELO) database until October 2015. This database was chosen as it is the largest digital repository of articles published in Latin America and because it is widely used by the community of bioethics researchers to promote their work. Furthermore, the SciELO platform was chosen due to its contribution to the visibility and access to science produced in the Latin American continent, whose international presence is still low despite the recent growth of Brazilian scientific production (Cerqueira 2017).

The descriptors used to search the articles were *Bioética* (Portuguese), *Bioética* (Spanish), and *Bioethics* (English). We prioritized just these keywords in order to access all the articles that direct or indirectly had approached a theme of the bioethics field, such as medical ethics, end of life care, spirituality, and others, in Latin American countries.

The criteria for inclusion in the study were (a) full text available for download, (b) authors of Latin American or Iberian origin (Portuguese or Spanish, due to the close collaboration that researchers in bioethics in Latin America maintain with these two countries), and (c) articles published in Portuguese, English, or Spanish. Editorials, book reviews, and articles not focusing on bioethics discussions were excluded, including those where bioethics was mentioned only in the context of approval from the Institutional Review Board (IRB) or Bioethics Committee.

Bibliometric and scientometric data were collected from the SciELO collection of the Web of Science repository in October of 2015 and exported to an Excel worksheet. The articles themselves were downloaded and imported into the QSR NVivo® Pro version 10 mixed-methods analysis software for Windows, during the months of October and November 2015.

Results

A total of 1458 records were retrieved from the SciELO repository, of which 1346 were available for download at the time of data collection. Of these, 1167 met the second inclusion criteria and were analysed qualitatively and quantitatively. Figure 1 shows the flow of information retrieval from the Web of Science and SciELO.org databases.

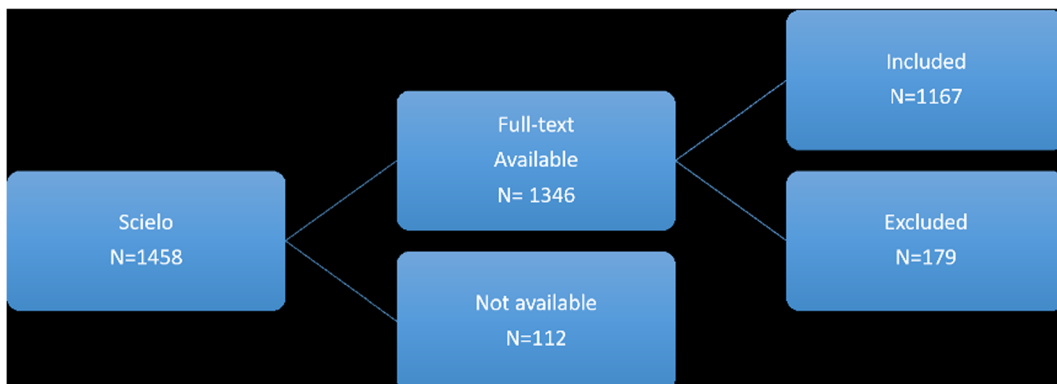


Fig. 1 Flow of information retrieval from the Web of Science and SciELO.org databases

For descriptive analysis of quantitative data in terms of scientometric and bibliometric indicators, all retrieved articles were analysed (n=1458). The countries with the largest number of publications, Brazil (n=460), Colombia (n=166), and Chile (n=151) accounted for half of the scientific output in the field of bioethics in the continent. Regarding academic and research institutions, the University of São Paulo (n=83), the University of Chile (n=73), and the University of Brasília (n=72) stood out in the sample. The most prominent journals were the *Acta Bioethica* (n=214), *Revista Latinoamericana de Bioética* (n=112), and *Revista Bioética* (n=91).

According to the classification of subjects and fields of study by Web of Science descriptors, the most prevalent subjects were medical ethics (n=488), social sciences and medicine (n=354), and environment and public health (n=279). Together, these three subject matter areas accounted for two-thirds of all publications with the descriptor Bioethics from Latin America.

Analysis of the impact of Latin American scientific output in Bioethics revealed a total of 1654 citations (mean number of citations, 1.14), generating an H-index of 13, i.e., only 13 articles received 13 or more citations in the analysed period.

Through Bardin's content analysis (2011) four main themes of bioethics publications in Latin America emerged from the collected material: (a) questions involving the beginning and end of life, (b) ethics in research with human subjects, (c) ethics of the patient–provider relationship, with an emphasis on doctor–patient relations, and (d) ethical training of health professionals, with an emphasis on Medicine, Dentistry, and Nursing.

Quantitative analysis of the issues discussed in the literature showed that professional ethics was the most frequent topic in Latin American publications (n=407), followed by education and teaching in bioethics (i.e., ethical and moral training of health professionals) (n=195), questions about the beginning and end of life (n=190), research ethics (n=177), and public health issues (n=144).

When analysing the category of professional ethics, medical ethics was particularly noteworthy because of the frequency with which it appeared in the material collected (Figure 2). Issues surrounding informed consent, patient autonomy, and the duty of information on the part of the health professional stood out. Issues of responsibility associated with the patient–provider relationship also received substantial emphasis in the



Fig. 2 Word Cloud of the most frequent words related to professional ethics

literature, especially those concerning legal responsibility. The ethics of dentistry and nursing professionals were also frequently discussed; however, the majority of these discussions focused on questions related to the doctor–patient relationship.

Regarding the education and training of health professionals in ethics, we can highlight two topics as most important in the literature of the continent (Figure 3). The first concerned the teaching of ethics and bioethics at the different levels of education, as well as the continued education of health professionals on bioethics issues. The second concerned the models of teaching and learning that biomedical schools are developing in Latin America. It is worth highlighting that several articles analysed the curricula of courses in the health field and the presence or absence of disciplines dedicated to professional ethics and/or bioethics.

Analysis of publications on the ethics of human subjects research revealed that discussions focused on the specific regulatory framework of each country (Figure 4). There were also discussions about the relationship between national milestones and the international regulatory framework, as well as critiques about the (in)adequacy of certain international regulations, such as the adoption of the double standard in the Declarations of Helsinki. The training of professionals to work on Research Ethics Committees is also an important and frequent topic in Latin American bioethics. Important interchanges between the University of Chile and the University of

bioethics in the coming decades. The first efforts to develop Latin American bioethics began in the mid-1980's and since then, there has been a growing number of programmes, publications, and collaborations between researchers in the continent. Based on our analysis, the major topics and themes that studies focused on were principlism theory, medical ethics, clinical bioethics, and educational issues.

It is in Brazil that we find the first centre for bioethics in the Latin American continent, with the creation in 1988 of the discipline of Bioethics in the Graduate Program in Medicine of the Pontifical Catholic University of Rio Grande do Sul (PUCRS). Four years later, the Program for Attention to Bioethical Problems was created at Hospital de Clínicas de Porto Alegre (HCPA). In 2013, the programme became the hospital's Clinical Bioethics Division (Genro, Francisconi, and Goldim 2014). From there, research groups and programmes devoted to bioethics problems have multiplied in Brazil and are now present in several states, including São Paulo, Rio de Janeiro, Paraná, Santa Catarina, and the Federal District (Clotet 2006; Garrafa 2000).

However, it is important to note that since the 1970s, the Institute of Medical Humanities of the University of Buenos Aires (UBA) School of Medicine had been exploring topics of medical ethics indirectly related to bioethics. In the 1990s, this Institute incorporated Bioethics into its name. The UBA Institute later gave rise to the Latin American School of Bioethics (ELABE), and played an essential role in the diffusion of bioethics in the continent through the work of Professor José María Mainetti (Clotet 2006; Rodríguez del Pozo and Mainetti 2009).

The creation of the Institute of Bioethics at the University of Chile, with support from the Pan American Health Organization (PAHO), is another important milestone in the history of the bioethics in the hemisphere (Sinardet 2004; Lolas Stepke 2006, 2010). In addition to PAHO's support which was essential to the establishment of this centre in Chile, it is important to note the influence of U.S. theologian James Drane in fostering discussions on bioethics in Chile and especially at the University of Chile, together with Fernando Lolas Stepke (2005). No less important were the creation of the Latin American Network of Bioethics, funded by UNESCO (UNESCO and Redbioética 2017), as well as the Chair of Bioethics at the University of Brasília, also endowed by UNESCO (Universidade de Brasília [UnB] 2017).

Although the theoretical models developed in Latin America have appeared infrequently compared to the

standard references of bioethics literature, it is important to emphasize that at least three major models have arisen in the continent: complex (or complexity) bioethics (Goldim 2009a), intervention bioethics (Porto and Garrafa 2009; Garrafa and Porto 2003), and protection bioethics (Schramm 2008; Schramm and Kottow 2001).

Complex bioethics or the bioethics of complexity appears to be related to the work of Edgar Morin and other scholars of systemic theory and is observed mainly in Brazil and Chile. It is defined in its Brazilian tradition as a “shared, complex and interdisciplinary reflection on the adequacy of actions involving life and living” (Goldim 2009a). It emerges as an integrative alternative using different theoretical references, such as principlism, virtue ethics, and human rights, for the analysis of bioethical problems. In its development, it is very similar to the Croatian philosopher Ante Čović's proposal of an integrative bioethics (Čović and Hoffmann 2007; Muzur and Sass 2012).

Intervention and protection bioethics arose from critiques of Beauchamp and Childress's mainstream referential. Critics argued that this framework, based on an individualist model of problem solving, could not account for public health issues. As according to these scholars, the main bioethical conflicts and problems in Latin America are related to public health, such a framework could never be adequate for the multiple Latin American realities (Porto and Garrafa 2009; Garrafa and Porto 2003).

Intervention bioethics, proposed by Garrafa and Porto (2003), can be characterized as “a proposal that breaks the enforced paradigms and re-inaugurates a utilitarianism orientated to the search of equity amongst the segments of society and capable of dissolving this centre-peripheral structural division of the world and of assuming a consequentialism based on solidarity, on the overcoming of inequality” (Porto and Garrafa 2009; Garrafa and Porto 2003).

Protection bioethics, in turn, can be understood as an “applied ethics constituted of theoretical and practical tools aimed at understanding, describing and resolving conflicts of interest between those who have the means that enable them to fulfil their lives and those who do not” (Schramm 2008, 16–17). The focus of protection bioethics is on the conflicts generated in public health, with particular attention to vulnerable populations (Schramm and Kottow 2001).

Analysis of the progress of Latin American and U.S. bioethics shows some parallels in development between

the two. For example, during the first twenty years of bioethics in the United States, Potter criticized the model of bioethics proposed by the Kennedy Institute of Bioethics for favouring issues of medical ethics and clinical bioethics rather than public health issues, more directly related to the survival issues of the human species so important to Potter (Potter 1987). This divergence between Potter and the KIE researchers began in the early days of bioethics, with the 1971 publications of Potter's commentary on his proposed new discipline and the creation of the Kennedy Institute. Both texts independently claimed credit for coining the term bioethics, causing Potter discomfort and ultimately, the institute to be renamed the Kennedy Institute of Ethics by Georgetown University (Potter, 1971a, b; Georgetown University 1971).

Limitations

The main limitations of this study were threefold: (a) data was obtained from only one database, although this choice was justified methodologically; (b) no books, book chapters, dissertations, or theses were analysed, even though these are important sources for dissemination of scientific output in bioethics in Latin America; and (c) all articles analysed were published for an internal audience, i.e., for Spanish- or Portuguese-speaking researchers and experts.

Conclusions

Upon systematic analysis of the main themes and discussions addressed in the bioethics literature of Latin America, we note the same pattern of historical development as in other countries, with strong emphasis on medical ethics and clinical bioethics as the core topics of analysis. This similarity may reflect the fact that bioethics was born out of concerns about problems faced by professionals in daily practice and in this sense, the initial contexts of bioethics in the United States and in Latin America are similar. Additionally, bioethics in both the United States and Latin America incorporated discussions about the impact of human action on nature and the growing use of new technologies in healthcare. Public health issues, such as resource allocation and access to the health system, are also addressed by the

Latin American bioethics literature, although to a lesser degree.

Although bioethics is a growing interdisciplinary field in Latin America, its academic impact is still very low (h-index = 13). As in developed countries, research groups and centres in Latin America are concentrated in large urban centres. In Brazil, for example, there are four specific graduate programmes in bioethics, three of which are interdisciplinary and one within the larger area of public health. This scenario needs to change if a truly Latin American bioethics concerned with regional issues is desired; for example, as agriculture is a fundamental part of the economy of most countries in the region, its impacts on the environment and on public health should be an important topic of discussion for regional development. In addition, more in-depth approaches to these regional issues characteristic of Latin America, such as indigenous health and the health of migrant populations, are needed.

The vast majority of countries in the region which produce scientific output in bioethics also have national bioethics committees or commissions, which play an important role in the discussion of public health policies in their respective countries. Brazil is one of the only Latin American countries to lack a national bioethics commission.

Challenges for bioethics in Latin America include enhancing the impact, both regional and international, of local scientific output. This will require networks for collaboration with centres of excellence in bioethics in other countries, especially in universities recognized for academic excellence. The trilingual publication of articles (in Portuguese, Spanish, and English) in Latin American journals, as *Revista Bioética* has been doing, is extremely important for the internationalization of Latin American bioethics and for increasing dialogue and cooperation among centres of excellence and researchers in the field.

Finally, another challenge pointed out in the literature is the improvement of bioethics education in Latin America. Establishing additional graduate programmes and undergraduate courses in bioethics, not only in large urban centres but also in rural areas, would contribute greatly to this aim.

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References

- Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death. 1968. A definition of irreversible coma: Report of the Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death. *JAMA* 205(6): 337.
- Álvarez-Díaz, J.A. 2012. Bioética latinoamericana o bioética en Latinoamérica [Latin American bioethics or bioethics in Latin America?]. *Revista Latinoamericana de Bioética* 12(1): 10–27.
- Bae, J.-M. 2014. Narrative reviews. *Epidemiology and Health* 36: e2014018.
- Bardin, L. 2011. Análise de conteúdo [Content analysis]. São Paulo: Edições 70.
- Bazeley, P. 2013. *Qualitative data analysis: Practical strategies*. London: SAGE Publications, Inc.
- Beauchamp, T.L., and J.F. Childress. 2013. *Principles of biomedical ethics*, 7th ed. New York: Oxford University Press.
- Beecher, H.K. 1959. Experimentation in man. *JAMA* 169(5): 461–478.
- . 1962. Some fallacies and errors in the application of the principle of consent in human experimentation. *Clinical Pharmacology and Therapeutics* 3(2): 141–146.
- . 1966. Ethics and clinical research. *New England Journal of Medicine* 274(24): 1354–1360.
- . 1969. After the definition of irreversible coma. *New England Journal of Medicine* 281(19): 1070–1071.
- Caplan, A., and R. Arp (eds). 2014. *Contemporary debates in bioethics*. West Sussex: Wiley-Blackwell.
- Cerqueira, R.C. 2017. Revistas científicas na América Latina: o caso do SciELO [Scientific journals in Latin America: The case of SciELO]. <http://www.revistahcsm.coc.fiocruz.br/revistas-cientificas-na-america-latina-o-caso-do-scielo/>. Accessed August 10, 2018.
- Clotet, J. 2006. *Bioética: Uma aproximação [Bioethics: an approach]*, 2nd ed. Porto Alegre: Edipucrs.
- Čović, A., and T.S. Hoffmann. 2007. *Integrative bioethik: Beiträge des I [Integrative bioethics]*. Berlin: Academia Verlag.
- Creswell, J.W. 2014. *Research design: Qualitative, quantitative, and mixed methods approaches*, 4th ed. Los Angeles: SAGE Publications, Inc.
- Garrafa, V., and D. Porto. 2003. Intervention bioethics: A proposal for peripheral countries in a context of power and injustice. *Bioethics* 17(5–6): 399–416.
- . 2000. Radiografia bioética de Brasil [A bioethical radiograph of Brazil]. *Acta Bioethica* 6(1).
- Garrafa, V. 2006. Apresentando a bioética [Introducing bioethics]. *Universitas. História* 2 (1): 7–17.
- Genro, B.P., C.F. Francisconi, and J.R. Goldim. 2014. [Clinical bioethics: Twenty years of experience in the Hospital de Clínicas de Porto Alegre]. *Revista Da AMRIGS* 58(1): 83–88.
- Georgetown University. 1971. “Panorama: Institute for bioethics established at Georgetown University. *BioScience* 21(21): 1090–1092.
- Gracia, D. 1991. *Procedimientos de decisión en ética clínica [Decision procedures in clinical ethics]*. Madrid: Eudema.
- . 1998. *Bioética clínica [Clinical bioethics]*. Bogotá: El Búho.
- . 2007. *Fundamentos de bioética [Fundamentals of bioethics]*. Madrid: Editorial Triacastela.
- Goldim, J.R. 2009a. [Complex bioethics: A comprehensive approach to decision making process]. *Revista AMRIGS* 53(1): 58–63.
- . 2009b. Revisiting the beginning of bioethics: The contribution of Fritz Jahr (1927). *Perspectives in Biology and Medicine* 52(3): 377–380.
- Goldim, J.R., and M.S. Fernandes. 2011. From reverence for life to bioethics: Albert Schweitzer, a bioethics precursor. *Jahr* 2(4): 505–509.
- Haggarty, L. 1996. What is content analysis? *Medical Teacher* 18(2): 99–101.
- Hodelín Tablada, R. 2011. Bioética anglosajona en su 40 aniversario: El traspaso hacia América Latina y su llegada a Cuba [Anglo-Saxon bioethics in its 40th anniversary: The transfer to Latin America and its arrival to Cuba]. *Medisan* 15(11): 1674–1686.
- Irrazábal, G. 2015. Acerca de la emergencia y consolidación de la bioética como disciplina desde una perspectiva sociológica [On the emergence and consolidation of bioethics as a discipline, as seen from a sociological perspective]. *História, Ciências, Saúde-Manguinhos* 22(4): 1121–1140.
- Jahr, F. 1926. [Life sciences and ethics: Old knowledge in new clothing]. *Die Mittelschule. Zeitschrift Für Das Gesamte Mittlere Schulwesen* 40: 604–606.
- . 1927. [Bio-ethics: A review of the ethical relationships of humans to animals and plants]. *Kosmos* 24(4): 2–4.
- Jonsen, A.R. 1998. *The birth of bioethics*. New York: Oxford University Press.
- Lolas Stepke, F. 2005. Rehistoriar la bioética en Latinoamérica: La contribución de James Drane [Remaking bioethics’ history in Latin America: James Drane’s contribution]. *Acta Bioethica* 11(2): 161–167.
- . 2006. Bioethics at the Pan American Health Organization: Origins, development, and challenges. *Acta Bioethica* 12(1): 113–119.
- . 2010. Acta Bioethica: Una década de historia [Acta Bioethica: A decade of history]. *Acta Bioethica* 16 (2): 115–118.
- Moreno, J.D. 2016. Acid brothers: Henry Beecher, Timothy Leary, and the psychedelic of the century. *Perspectives in Biology and Medicine* 59(1): 107–121.
- Muzur, A., and H.-M. Sass. 2012. *Fritz Jahr and the foundations of global bioethics: The future of integrative bioethics*, vol 37. LIT Verlag Münster.
- Pellegrino, E.D., and D.C. Thomasma. 1993. *The virtues in medical practice*. Oxford University Press.
- Pessini, L., A. Sobral, and M.S. Gonçalves. 2007. *Bioética na Ibero-América: História e perspectivas [Ibero-American bioethics: History and perspectives]*. Centro Universitário São Camilo.
- Pessini, L., C.P. de Barchifontaine, and F. Lolas Stepke. 2010. *Ibero-American bioethics. Philosophy and Medicine*, vol. 106. Dordrecht: Springer Netherlands.
- Porto, D., and V. Garrafa. 2009. Bioética de intervenção: Considerações sobre a economia de Mercado [Intervention bioethics: Considerations on market economy]. *Revista Bioética* 13(1): 1122–1132.
- Potter, V.R. 1970. Bioethics, science of survival. *Perspectives in Biology and Medicine* 14(1): 127–153.

- . 1971a. Reflections: Bioethics. *BioScience* 21(21): 1088–1088.
- . 1971b. *Bioethics: Bridge to the future*. Englewood Cliffs, New Jersey: Prentice Hall.
- . 1987. Leopold, Aldo land ethic revisited—2 kinds of bioethics. *Perspectives in Biology and Medicine* 30(2): 157–169.
- . 1999. Fragmented ethics and “Bridge Bioethics.” *Hastings Center Report* 29(1): 38–40.
- Rinčić, I., and A. Muzur. 2011. Fritz Jahr: The invention of bioethics and beyond. *Perspectives in Biology and Medicine* 54(4): 550–556.
- Rodríguez del Pozo, P. and J.A. Mainetti. 2009. Bioética sin más: The past, present, and future of a Latin American bioethics. *Cambridge Quarterly of Healthcare Ethics* 18(3): 270–279.
- Rothman, D.J. 2003. *Strangers at the bedside: A history of how law and bioethics transformed medical decision making*, 2nd ed. New York: Aldine de Gruyter.
- Schramm, F.R., and M. Kottow. 2001. Principios bioéticos en salud pública: Limitaciones y propuestas [Bioethical principles in public health: Limitations and proposals]. *Cadernos de Saude Publica* 17(4): 949–956.
- Schramm, F.R. 2008. Bioética da proteção: Ferramenta válida para enfrentar problemas morais na era da globalização [Bioethics of protection: Valid tool to face moral problems in the globalization era]. *Revista Bioética* 16(1): 11–23.
- Sinardet, E. 2004. Special document 10 years PAHO bioethics unit (1994–2004). *Acta Bioethica* 10(1): 7–10.
- UNESCO, and Redbioética. 2017. Redbioética—Rede Latino-Americana e do caribe de bioética da UNESCO | United Nations Educational, Scientific and Cultural Organization [Redbioética—Latin American and Caribbean Network of Bioethics]. Representação Da UNESCO No Brasil. <http://www.unesco.org/new/pt/brasil/this-office/networks/specialized-communities/specialized-communities-shs/redbioetica/>. Accessed April 10, 2017.
- Universidade de Brasília (UnB). 2017. Cátedra UNESCO de bioética da Universidade de Brasília [UNESCO Chair in Bioethics at the University of Brasília]. https://bioetica.catedraunesco.unb.br/?page_id=72. Accessed April 10, 2017.
- Veatch, R.M. 1997. *Medical ethics*, 2nd ed. Jones & Bartlett Learning.
- Walter, J.K., and E.P Klein. 2003. *The story of bioethics: From seminal works to contemporary explorations*. Georgetown University Press.