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Review

Osteoarthritis Research Society International (OARSI): Past, present and future



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ABSTRACT

We provide a detailed account of the origin and establishment of the Osteoarthritis Research Society International (OARSI) and celebrate its history from inception to the current day. We discuss the mission, vision and strategic objectives of OARSI and how these have developed and evolved over the last 3 decades. We celebrate the achievements of the society as we approach its 30th birthday, honor the entire presidential line and respectfully pay tribute to the past presidents who are no longer with us. We reflect on the strong foundations of our society, OARSI's efforts to disseminate understanding of the health, disability and economic burdens of osteoarthritis (OA) to policymakers, and the exciting initiatives to make the society inclusive and international. We thank our corporate and industrial sponsors, who have supported us over many years, without whom our annual congresses would not have been possible. We celebrate our longstanding strategic partnership with our publisher, Elsevier, and the successful launch of our new journal Osteoarthritis and Cartilage Open, the most significant new development in our dissemination toolbox. For the first time in the history of the organization, our annual congress was cancelled in April 2020 and the 2021 meeting will be virtual. Despite the numerous challenges posed by the ongoing COVID-19 pandemic and the need to adapt quickly to a rapidly changing landscape, we must remain optimistic about the future. We will take advantage of new exciting opportunities to advance our mission and vision to enhance the quality of life of persons with OA.

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1. Introduction

The Osteoarthritis Research Society International (OARSI) is a non-profit scientific organization for scientists and healthcare professionals focused on research to develop better prevention and treatment of osteoarthritis (OA). The society was convened in 1990 as the “Osteoarthritis Research Society (OARS)” to promote and encourage fundamental and applied research, and to disseminate the results of that research in order to permit better knowledge of OA and of its treatment. In 1999 the word “international” (I) was added to the society’s name and OARS became OARSI to reflect the global scope of the research that is being done to tackle this serious disease and the international origins of its membership (Fig. 1) across the research community.

In this paper we provide an account of the history and origin of OARSI and celebrate its history from inception to the modern day as the society reaches its 30th birthday. We are not in a position to provide a detailed chronological history, because data from the early years of the society are scant and extremely sketchy. There are large gaps in our databases and we do not have access to detailed membership data from all the early years of the society, before starting our management relationship with Association Headquarters (AH). We hope that this manuscript can serve as a foundation on which others can overlay the achievements of the field and gain perspective on our past to take the true measure of our success in the future. The aim of this paper is to reflect on the key achievements of the society and the accomplishments of its founders and subsequent leaders. We honor the many scientists from industry who have supported us over the years, both intellectually and financially. We celebrate our longstanding relationship with AH, a chartered accredited association management company that has managed OARSI and provided strategic support since 2003.

Our society is supportive of young investigators who, based on our liberal definition of $</ = 40$ years of age, constitute more than 40% of our membership; we place a greater emphasis on the promotion and support of their interests. We invite them to participate more actively in society events, lead new initiatives and take more ownership for the work that they do for OARSI to serve as a strong and enduring foundation for the field of OA research.

We celebrate our longstanding strategic partnership with Elsevier, our publisher and partner in the launch of our new journal Osteoarthritis and Cartilage Open, which is the most significant new development in our dissemination toolbox. Although we had to cancel our 2020 annual congress in Vienna, Austria because of the COVID-19 pandemic, we attempted to mitigate the impacts of the pandemic on our research society by moving the invited talks that would have been presented in Vienna to an online weekly webinar, the OARSI Hour in 2020 and OARSI Live in 2021; our 2021 congress will be a virtual event. Despite the continued numerous challenges, we remain optimistic about the future of our organization and will make every effort to become more pro-active to transform the society from one that has traditionally relied on a single annual congress to a new and exciting format that provides content and engagement throughout the year. We will continue to advance our mission and vision in order to promote the very best research on OA. It is our hope that this will facilitate the development of new treatments and prevention strategies to enhance the quality of life of all persons with OA.

2. Mission, vision and promise of OARSI

2.1. Mission

Reflecting attainment of maturity, in 2010 at the age of 20, we developed a mission statement¹ that has guided the society ever since: “OARSI is the premier international organization for scientists and health care

¹ <https://www.oarsi.org/about/mission-vision-0> [Last accessed February 2021].

professionals focused on the prevention and treatment of osteoarthritis through the promotion and presentation of research, education and the world-wide dissemination of new knowledge.” Our mission statement concentrates on the present, defines our focus and core organizational priorities. We have a brand and logo (Fig. 2) that highlights the fact that we wish to function and to be perceived as the leading global organization involved in basic, translational and clinical research on OA, leading the dissemination of the original research and development that is undertaken by our members and strategic alliances. Our research focus is diverse and multidisciplinary and we employ diverse tools and methodologies (Fig. 3). As our field matures and we grow and gain greater critical mass, we hope to have a profound impact on the development of new treatments for OA and dissemination of knowledge concerning the implementation of these advances.

2.2. Vision statement

“To be the preeminent voice and expert resource in OA research and its application worldwide through a thriving international network of passionate, purpose-driven and progressive leadership.”² Our vision statement is aspirational and focuses on the future of our society. It is intended to be a source of inspiration and motivation for our members, many of whom are young investigators who will eventually lead the society and shape its future. OARSI’s vision statement describes the future of the organization, and the aspects of society, which the organization hopes to influence. It is implicit in our vision statement that we support the researchers in our membership, providing a forum for presentation and discussion and journals for dissemination. It is our members that do the original, cutting edge, transformational work. Our membership is truly international as is our board of directors, our subcommittees and discussion groups. Even though the majority of our annual congresses have been organized in North America and Europe, we have begun to hold joint meetings in Asia and we are planning an annual congress in Asia in the near future. We have organized a series of joint meetings, especially in the last two years, including three in China and one in Brazil. The meetings in China included two “Pearl River” meetings in collaboration with the International Chinese Osteoarthritis Society (ICOARS). The first meeting was held in Guangzhou, China in December 2018 and the second meeting was launched online in August 2020 due to the COVID-19 pandemic. The first Pearl River meeting in 2018 attracted more than 3000 attendees, while the second meeting in August 2020 attracted more than 9000 attendees in its first session, highlighting the success of our first joint online meeting. We also held a very successful joint meeting in September 2019 with the Brazilian Society of Rheumatology (Sociedade Brasileira de Reumatologia - SBR) in Fortaleza, Brazil. The “1st South Atlantic Forum on Osteoarthritis” was a full day event that attracted many delegates during the SBR 2019 congress.³

We envision that a few years from now, our society will be hosting a number of regional and virtual meetings in addition to the main annual congress. This strategy may be especially appropriate given the likelihood of prolonged travel restrictions and further cancellations in the face of the ongoing COVID-19 pandemic.

2.3. Our promise

“OARSI leads the advancement of understanding, early detection, treatment and prevention of osteoarthritis through its Pillars of Excellence that include international collaboration, education, professional development, productive partnerships and the creation and dissemination of expert resources

² <https://www.oarsi.org/about/mission-vision-0> [Last accessed February 2021].

³ <https://www.sbr2019.com.br/site/reumato2019/forum-oarsi> [Last accessed February 2021].

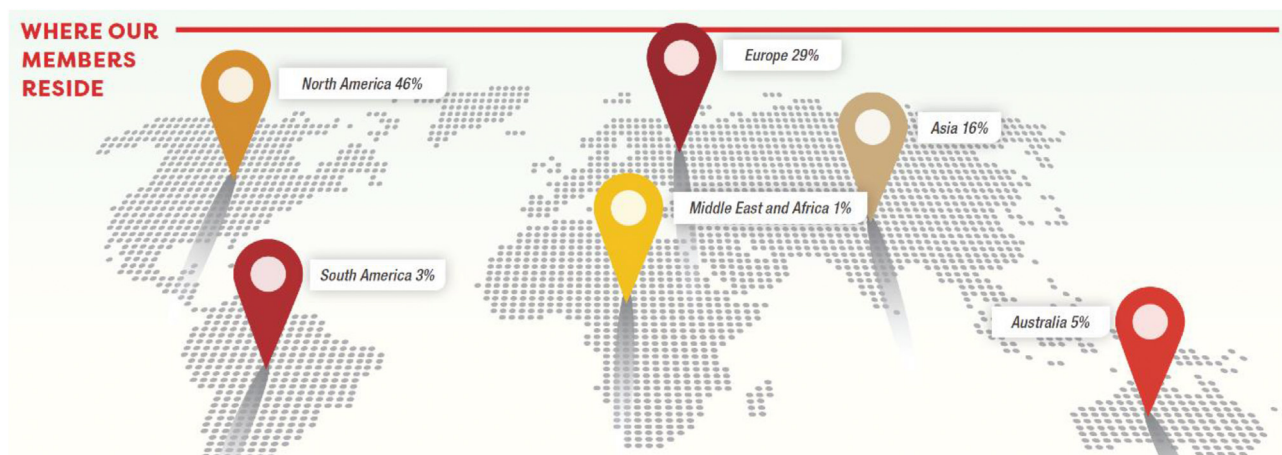


Fig. 1. Breakdown of the membership of OARSI in different regions of the world (data compiled by Association Headquarters, November 2019).



Fig. 2. The original (top) and present (bottom) OARSI logos. The globe that dots the “i” in OARSI in the new logo is the symbol that embodies the international flavor of our society.

and knowledge.”⁴ Our promise statement defines the societal and global impact of our organization. Members of OARSI are advancing our understanding of the epidemiology and molecular mechanisms of the disease, identifying susceptibility genes, predisposing factors and behaviors, biomarkers, druggable targets and pathways. OARSI members are also engaged in developing better outcome measures, first-line treatments, assessing efficacy and cost effectiveness of treatments, disseminating and implementing the best clinical practice, participating in clinical guidelines development, planning, conducting and publishing clinical trials, and much more.

Only multidisciplinary collaboration will enhance strategies for early detection and for developing new treatments and interventions for OA. Of course, none of these are possible without international collaboration, which OARSI (emphasis on ‘international’ in the name) strives to facilitate. However, we still have a great deal of work to do to become truly

international by increasing our reach and membership in Asia, Africa, Central and South America.

Linda Sandell presided over the first strategic planning process for the society during her presidency. The strategic goals of the society are:

- **To increase OARSI visibility:** The society will develop a stronger presence in the field of OA through guidelines development, conferences, products and mentoring of younger investigators. We will identify the different stakeholders who have an interest in OA and develop a plan to reach these audiences.
- **To develop, disseminate and exchange knowledge in OA research and care:** This will be accomplished through workshops, Congress, journals, symposia with related organizations, our website, blog, other social media, among other outlets.
- **To advance research and treatment for OA:** OARSI has developed treatment guidelines which are regularly updated. In addition, we are working with the Foundation for NIH on a multiyear Biomarker Initiative. We will begin prioritizing an OA research agenda.
- **To develop and foster strategic alliances:** OARSI has held symposia in Asia with local societies. We have also worked with PANLAR, EULAR, ORS, the US Arthritis Foundation and many other societies and will continue to develop relationships with governmental agencies and scientific societies.
- **To maintain financial stability:** OARSI is now in a strong financial position. On average over the last decade the society has had 94% of a year’s operating expenses in reserve. We will continue to be responsible stewards of OARSI funds.
- **To develop international outreach:** OARSI is well recognized in North America, Europe and the Antipodes; we will continue to reach out to OA investigators in other regions, including Africa, Asia, Central and South America to develop symposia and translate and disseminate the treatment guidelines.

2.4. The history of OARSI

OARSI was originally known as the Osteoarthritis Research Society (OARS). The society was convened in 1990 to promote and encourage fundamental and applied research, and to disseminate the results of that research in order to permit better knowledge of OA and of its treatment (see Fig. 4 for an abbreviated timeline of the history of OARS/OARSI).

For many years prior to the establishment of OARSI, the only focused meetings on OA were sponsored by diverse groups: e.g. the pharmaceutical industry and Gordon Research Conferences. Despite the major global burden of OA, it has been, and still is, difficult for OA to have much of a presence at relevant annual society meetings such as the American College of Rheumatology (ACR), the American Academy of Orthopaedic

⁴ <https://www.oarsi.org/about/mission-vision-0> [Last accessed February 2021].

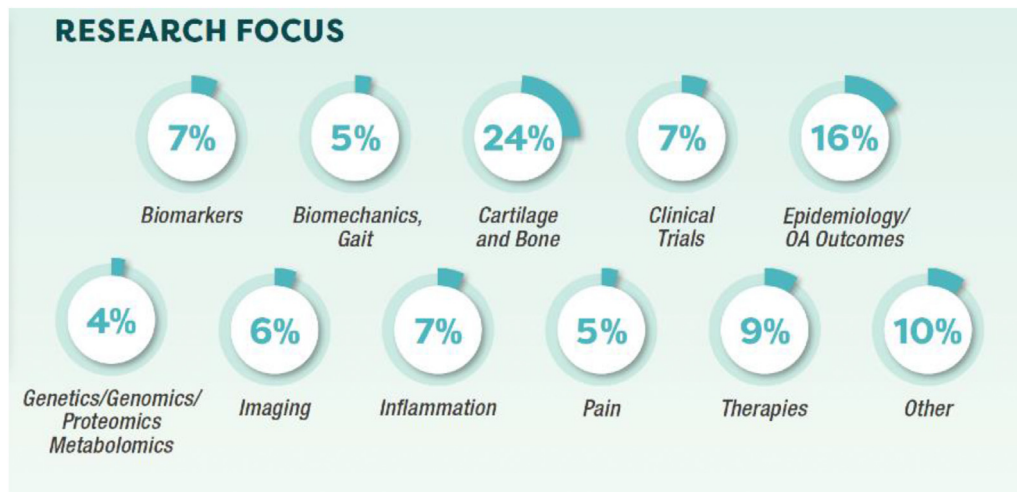


Fig. 3. The research focus, methodologies and the many disciplines in which our members are engaged in (data compiled by Association Headquarters, November 2019).

Surgeons (AAOS), the European League against Rheumatism (EULAR) and the Orthopaedic Research Society (ORS). This has been attributable, at least in part, to the current lack of commercially available disease modifying OA drugs (DMOADs). Another important reason is the lack of adaptive immune markers, such as autoantibodies to rheumatoid factor (RF), antinuclear antibody (ANA) and anticitrullinated protein antibody (anti-CCP), which have played important diagnostic and therapeutic roles in the field of rheumatology and increased interest in inflammatory rheumatic diseases for the last 50 years. In addition, the unfortunate and fatalistic use of the term degenerative joint disease (DJD) supported the concept that this was a disease of aging affecting a small proportion of the population for which there was no effective treatment, except NSAIDs for OA pain. The defeatist DJD concept was counterproductive for basic and clinical research on OA and the lack of biomarkers, especially biomarkers of early disease, has hampered the development of new and effective management and therapeutic strategies.

The existence of prescription drugs, such as biologics for rheumatoid arthritis, led to industry support of societies with a high proportion of physician prescribers. Gratifyingly, we increasingly witness change. In 2017, ACR funded its first OA grant through the Rheumatology Research Foundation.⁵ At their Annual Congress in June 2019, the European League Against Rheumatism (EULAR) acknowledged that OA is the most common joint disorder and the single most common cause of disability in older adults⁶ among the 200 forms of rheumatic and musculoskeletal diseases (RMDs). In 2020, OARSI published its infographic on OA as a Serious Disease based on the OARSI White Paper. The infographic was developed by OARSI Young Investigators Hiral Master, Louise Thoma and Linda Truong (Fig. 5).

By the late 1980's it was apparent that there was an unmet need to bring researchers and clinicians together in a single forum to exchange ideas related to OA. Charles-Joël Menkès from the Hôpital Cochin in Paris recruited an administrator with experience in professional medical organizations who enthusiastically proceeded to create a learned society. The organizing committee included C. Joel Menkès (Chairman), France; Roy Altman, USA; Bernard Avouac, France; Bernard Mazieres, France; Jean-Pierre Pelletier, Canada, and a liaison from ILAR, Michel Lequèsne (France). OARS, a non-profit organization, was founded in 1990 in Paris, France, under French law. Organizational meetings started in 1992 and

were held every 3 months in Paris with interim phone consultations. One of these founders and two very early contributors, Roy Altman, Paul Dieppe and Marc Hochberg, honored the membership with their attendance at the 25th anniversary of OARSI in 2015 in Seattle, WA. The founding members of OARS are pictured in Fig. 6.

The first administrator, Bernard Tricot, was ambitious, pro-active and energetic and the first congress of the Osteoarthritis Research Society (OARS) was organized in 1992 in Paris. Charles-Joël Menkès was the first president and the 2-year rotation for presidents was established with plans of one congress in the 2-year rotation.

The organizing committee was aware that the society needed a journal. Because of his prior experience as Editor of Seminars in Arthritis and Rheumatism, Roy D. Altman was appointed Editor in Chief. After reviewing the proposals of 3 publishers, OARSI chose WB Saunders Company, London, to publish Osteoarthritis and Cartilage (Saunders later to be purchased by Elsevier).

The first World Congress was a scientific success with about 200 participants. There were over 20 podium presentations and more than 100 abstracts [1] and a report on the meeting was published in September 1993 [2]. Unfortunately, the meeting was not successful financially, so when the second president Roy Altman assumed the presidency at the end of the congress, OARS was about \$150,000 USD in debt.

With a few rotations on the Board, moving the second congress to the United States, and with strong pharmaceutical support, the second congress was held in Orlando, Florida in 1994. The congress was a scientific and financial success. Partial support was provided to winners of the best abstracts submitted by trainees. Two hundred participants attended and over 100 abstracts were presented. The organization became solvent. Leadership elected to transfer OARS to the US and register it as a 501.c3 organization with the US Internal Revenue Service (Fig. 4). Bernard Tricot served as our Executive Director during the presidency of Charles-Joël Menkès. He was then replaced by Ms. Evelyn Altman-Orbach, who managed the society until another management agency got involved during the presidency of Stefan Lohmander, with James Zaniello, Ryan Dryden and Gaylen Camera serving as Executive Directors. AH was hired in 2003 with Steve Echart and Diann Stern serving as the first Executive Directors under AH management.

The society was incorporated in the United States in April 1994 with the name "Osteoarthritis Research and Education Foundation". In 1999 the name of the society was changed from OARS to its current name "Osteoarthritis Research Society International". The new millennium added the "I" to OARSI.

In order to address a pressing need, an interim meeting to develop

⁵ <https://www.rheumresearch.org> [Last accessed February 2021].

⁶ World Health Organisation. Priority diseases and reasons for inclusion. Osteoarthritis. Available at: https://www.who.int/medicines/areas/priority_medicines/Ch6_12Osteo.pdf [Last accessed February 2021].

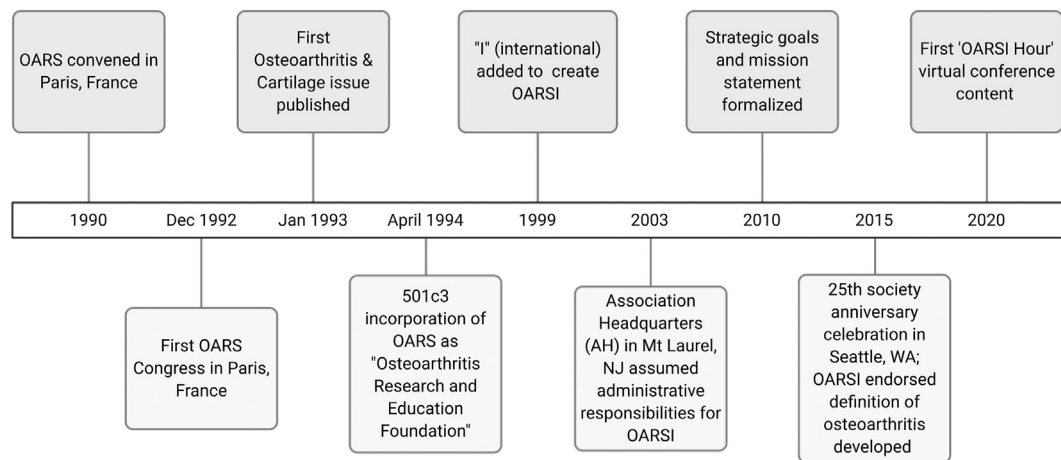


Fig. 4. Major events in the OARS/OARSI timeline from 1990 to 2020 (created with BioRender.com).

consensus among the interested parties on the development and conduct of clinical trials in OA was planned. With participants from academic institutions, the National Institutes of Health (NIH), the leadership of the ACR, clinicians, industry and regulatory agencies such as the US Food and Drug Agency (FDA) and the European Medicines Agency (EMA), OARS produced and published a set of guidelines for the design and conduct of clinical trials in OA of the hip and knee [3].

Like many other learned societies in the early stages of its development, OARS had to endure many years of financial hardship. In the early years, the financial administrative support of OARS was derived from the presidents' resources locally: for the term of the first president (C-J Menkès) the support was by Bernard Tricot; for the 2 year term of the second president, Roy Altman, by the Arthritis Division of the University of Miami; and during the term of the third president Jean-Pierre Pelletier, by the Centre Hospitalier de l'Université de Montréal, Montreal, Quebec, Canada. In addition, for the initial 5 years of the society, until the publisher could assume the entire cost of publication, the Arthritis Division of the University of Miami also provided the support for the staff for our journal *Osteoarthritis and Cartilage*.

After the initial year of publication of *Osteoarthritis and Cartilage* in 1993, the Editor Roy Altman successfully facilitated the indexing of *Osteoarthritis and Cartilage* into PubMed. After less than 2 years of publication, *Osteoarthritis and Cartilage* received its first ISI Impact Factor. The journal has climbed in stature (current impact factor 4.793). The *Osteoarthritis and Cartilage* impact factor places between the 3rd and 6th of all orthopaedic journals and in the top 10 in rheumatology.

The third congress was held in Singapore (1997), just prior to an International League Against Rheumatism (ILAR) meeting and was both a scientific and financial success. OARS continued to expand the meeting to include awards for basic and clinical researchers and best abstracts submitted by trainees. The current emphasis on the importance of young investigators goes back to the early years of the society. The Board was expanded and several committees were established in imaging and pathology. By 1991 OARS had recruited 112 members. However by the time the society reached its 11th birthday in 2001 it had 554 members in 38 countries across the world (Fig. 7).

Stefan Lohmander, the fourth president, took charge with a rapidly building cash reserve, ensuring financial stability from 2003 onwards. At that time the society was able to employ AH, a professional full-services firm headquartered in Mount Laurel, New Jersey⁹ that specializes in helping non-profit organizations achieve their mission and vision and professionally manage their affairs.

⁹ Association Headquarters 1120 Route 73, Suite 200, Mt Laurel, NJ 08054, United States of America.

The fifth president, Sergio Jimenez oversaw the meeting in Barcelona (2000) one year after the "I" was added to OARS. This new scope led to increasing expansion of vision, increased international diversity, financial responsibility and recognition across the world as the primary forum for OA research communication for basic and clinical scientists. Table 1 summarizes the meetings held by OARSI since 1992 and Table 2 summarizes the names of all the OARSI presidents, presidents-elect and immediate past presidents along with the journals editors since 1992.

We are a research society and our chief 'product' is the research findings of our members and the broader OA community. In order to accomplish our dissemination goals, OARSI has sponsored annual conferences and workshops on OA since 1990. However, the COVID-19 pandemic in 2020 forced the cancellation of the 2020 congress and led to the decision by the Board of Directors to make the 2021 congress virtual. In 2020 we introduced the "OARSI Hour" webinar series which evolved into the "OARSI Live" webinars in 2021. We have a highly regarded scientific journal, *Osteoarthritis and Cartilage*; a newsletter covering Society business as well as medical and research developments; several Social Media channels, including LinkedIn, Facebook and Twitter; and the "Hey OA!" podcast. Podcasts have become a powerful medium in higher education and an indispensable tool in continuing medical education. OARSI continues to support the "Hey OA!" podcast series, which informally discusses a variety of OA research areas, aimed at non-specialist audience. Podcasts provide a timely opportunity for educating researchers, healthcare professionals and patients about OA and facilitating the dialogue between them using an increasingly popular platform [15].

2.5. *Osteoarthritis and cartilage – the official journal of OARSI*

Osteoarthritis and Cartilage is OARSI's monthly peer-reviewed journal. *Osteoarthritis and Cartilage* is an international, multidisciplinary journal that fosters the cross-fertilization of findings from both the clinical as well as the basic and translational sciences of the various disciplines in which our members are engaged. The first issue of *Osteoarthritis and Cartilage* was published in January 1993¹⁰ and included abstracts from the first meeting of the society held in Paris, France in December 1992.¹¹ The journal has steadily grown in terms of readership, prestige and impact factor and popularity in the OARSI community and beyond (Fig. 8). In this, OARSI and Elsevier have collaborated productively since

¹⁰ Abstracts of the 1st O.A.R.S. Congress of The Osteoarthritis Research Society, Paris, France 10–12 December 1992 <https://www.sciencedirect.com/journal/osteoarthritis-and-cartilage/vol/1/issue/1> [Last accessed February 2021].

¹¹ <https://omeract.org> [Last accessed February 2021].

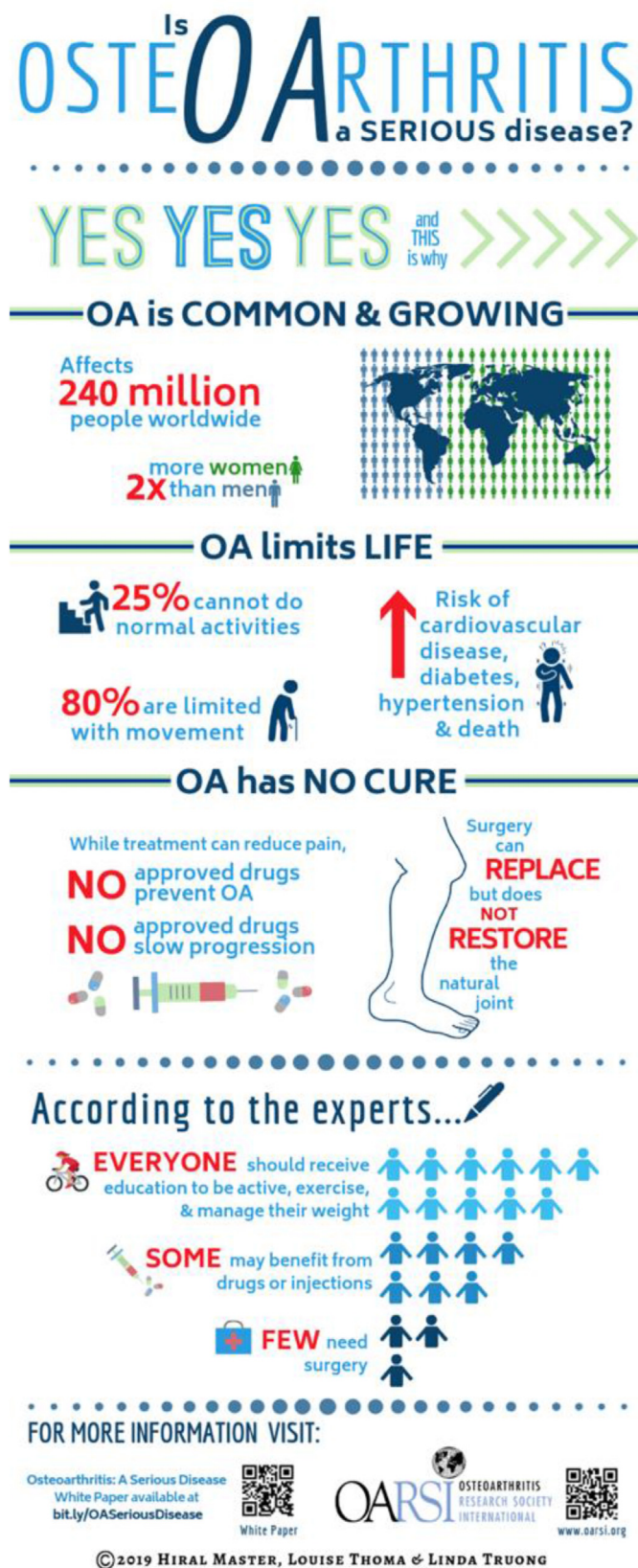


Fig. 5. Infographic on OA as a Serious Disease based on the OARSI White Paper.⁷¹ The infographic is accompanied by a slide deck.⁸²

after *Osteoarthritis and Cartilage* was initially launched by W. B. Saunders, London, as this company was purchased by Elsevier and incorporated into the brand. The OARSI leadership works to ensure that the society journals continue to satisfy the needs of the Society, its authors and readers. *Osteoarthritis and Cartilage* has an Open Archive policy, so that all published articles are available without charge 12 months after publication. Stefan Lohmander the Editor-in-Chief at the time worked hard for several years to convince Elsevier to develop an Open Archive policy for the main journal.

2.6. Selected achievements and initiatives of the editors and past leaders of the society

It is impossible to here list all our society’s achievements in a single paper. Therefore, this section will highlight a selected number of achievements and initiatives. The editors of *Osteoarthritis and Cartilage* and the executive leadership of OARSI have accomplished much in collaboration with the Board of Directors, Editorial Board and AH. Steve Abramson recalls working closely with colleagues on the Board of Directors, including Roland (Rollie) Moskowitz, Virginia Kraus and Linda Sandell to advance the goals of OARSI. The particular areas that they focused on included the recognition of OARSI as the key international organization to promote the dissemination of clinical and basic research in OA. They also worked to expand the membership interests beyond those interested in cartilage biology, to encompass the basic sciences, animal models, clinical research, imaging, physical therapy and rehabilitation to make OARSI the ‘one-stop-shop’ for all things OA, and pre-eminent authority in the field of OA. Importantly, we see ourselves as being open to interdisciplinary collaboration and welcome colleagues from other disciplines, including the social and physical sciences to join our efforts.

In the effort to make *Osteoarthritis and Cartilage* the lead journal for OA, the editors Roy Altman and Stefan Lohmander supported a series of systematic reviews and OA treatment guidelines that continue to the present day under the leadership of Joel Block [16–20]. Further guidance for the design and implementation of clinical trials and use of imaging and molecular biomarkers in OA, is found in yet other publications in *Osteoarthritis and Cartilage* [21,22]. Stefan Lohmander launched special journal issues on OA animal models and histopathology, OA pain, OA imaging, OA clinical trial methodology and the use of molecular and imaging biomarkers in such trials, inflammation in OA, and negative findings in *in vivo* models of OA (Table 3). These special issues would not have been possible without the special issue guest editors that generously volunteered their time and hard work.

OARSI has also collaborated closely with OMERACT¹² (Outcome Measures in Rheumatology), an independent initiative of international health professionals interested in outcome measures and measurement methodology, especially in rheumatology. The joint effort between OARSI and OMERACT produced its first published output comparing three different acquisition techniques for radioanatomic positioning in 2006 following a meeting of the Radiography Working Group of the OARSI-OMERACT Imaging Workshop [23]. Two years later an OARSI/OMERACT initiative led by Aileen Davis developed a short measure of physical function for knee OA using multi-national data from individuals with varying degrees of severity of knee OA – the Physical Function Shortform (KOOS-PS) – intended for use as the function component in an OA severity scoring system [24]. This was accompanied by a cross-culturally valid, short measure of physical function using function subscales (daily living and sports and recreation) of the Hip disability and Osteoarthritis Outcome Score (HOOS) [25]. Other joint OARSI/OMERACT initiatives looked at the pain experience in hip and knee OA, the first study that used a systematic approach to identify two pain types [26],

¹² <https://www.oarsi.org/education/oarsi-resources/oarsi-white-paper-oa-serious-disease>.



Fig. 6. The founding members of OARS.

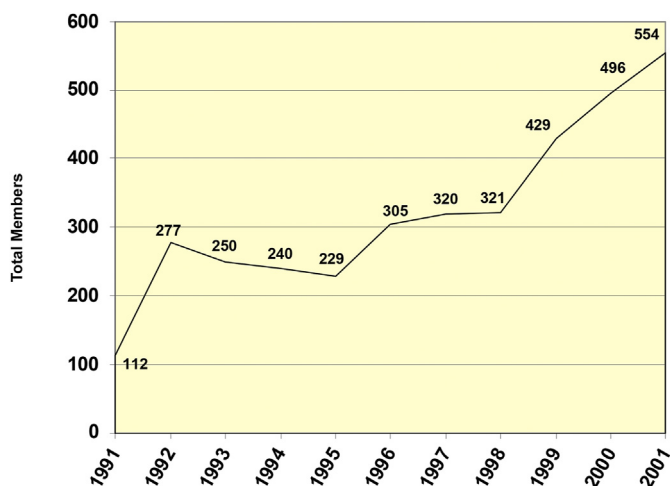


Fig. 7. OARS/OARSI membership history in the first decade of the society.

which we now define as phenotypes [27–32]. This was followed by the development and preliminary psychometric testing of the new pain measure [33].

Other OARSI-OMERACT task forces have examined radiographic grading techniques for knee [34] and hip [35] OA and for determining progression [36], translated questionnaires (the Intermittent and Constant Osteoarthritis Pain (ICOAP) questionnaire) for evaluating OA pain [37] and examined the role of pain and functional impairment in the decision to recommend total joint replacement in hip and knee OA [38],

⁷ <https://www.oarsi.org/education/oarsi-resources/oarsi-white-paper-oa-serious-disease> [Last accessed February 2021].

⁸ <https://www.oarsi.org/research/infographic-oa-serious-disease> [Last accessed February 2021].

and developed measures to define “nonresponders” to disease-modifying OA drugs (DMOADs) in OA clinical trials [39,40]. To facilitate OA drug development, the OARSI-OMERACT task forces have demonstrated the responsiveness to pharmaceutical intervention for ICOAP and KOOS-PS [41].

OARSI has supported a major initiative on the histopathology of OA in animal model systems (dog [42], guinea pig [43], horse [44], mouse [45], rabbit [46], rat [47], and sheep/goat [48]) led by Thomas Aigner [49]. Victor Goldberg led the OARSI FDA Osteoarthritis Devices Working Group focused on the development of a better understanding of the risk to benefit ratio for different joint replacements and identifying appropriate methodologies for evaluating the efficacy and optimal outcomes of new medical devices, designed to treat OA joints [50].

2.7. A new dissemination channel: Osteoarthritis and Cartilage Open

We were delighted in late 2019 to formally launch *Osteoarthritis and Cartilage Open*, a new Open Access journal edited by Henning Madry. The new journal publishes multidisciplinary findings from the clinical and basic sciences in all fields of research of relevance to OA in the form of original articles, reviews and hypotheses. *Osteoarthritis and Cartilage Open* also accepts experimental and clinical study protocols and manuscripts describing large datasets obtained from experimental or clinical studies. The selected open access model means that published results will be freely available to readers worldwide, extending the global reach and impact of OARSI; this is especially important for reaching researchers and clinicians in developing countries, particularly in continents and territories where OA is endemic. In developing countries many academic and research institutions do not have the financial resources to purchase a subscription to Elsevier journals, and rely on open access papers. Therefore, the strategy of developing an open access journal increases the immediate accessibility of the research on OA, which may not be sufficiently visible in those territories. As already mentioned, papers published in *Osteoarthritis and Cartilage* become openly available 12 months after publication. In today’s digital and highly connected world, research

Table 1

Dates and locations of the OARSI World Congresses from December 1992 to April 2020.

Date	Congress
December 1992	1st World Congress, Paris, France [1],
December 1994	2nd World Congress, Orlando, FL [4]
June 1997	3rd World Congress, Singapore [5]
September 1999	4th World Congress, Vienna, Austria [6]
October 2000	5th World Congress, Barcelona, Spain [7]
October 2001	6th World Congress, Washington, DC [8]
September 2002	7th World Congress, Sydney, Australia [9]
October 2003	8th World Congress, Berlin, Germany [10]
December 2004	9th World Congress, Chicago, IL [11]
December 2005	10th World Congress, Boston, MA
December 2006	11th World Congress, Prague [12], 11th World Congress, Prague [12]
December 2007	12th World Congress, Fort Lauderdale, FL [13]
September 2008	13th World Congress, Rome, Italy,
September 2009	14th World Congress, Montreal, Quebec, Canada [14]
September 2010	15th World Congress, Brussels, Belgium
September 2011	16th World Congress, San Diego, CA
April 2012	17th World Congress, Barcelona, Spain
April 2013	18th World Congress, Philadelphia, PA
April 2014	19th World Congress, Paris, France
April 2015	20th World Congress, Seattle, Washington
April 2016	21st World Congress, Amsterdam, Netherlands
April 2017	22nd World Congress, Las Vegas, NV
April 2018	23rd World Congress, Liverpool, UK
April 2019	24th World Congress, Toronto, Canada
April 2020	25th World Congress, Vienna, Austria (cancelled due to the COVID-19 pandemic)
April 2021	26th World Congress, OARSI 2021 World Congress (fully virtual)

fundlers, authors and readers demand access to the latest research findings. Our end users are the communities of researchers, healthcare providers, policymakers and, of course, indirectly, patients. The new journal becomes another key vehicle for enhanced communication among these communities.

2.8. OARSI sponsored activities

In October 2007, OARSI responded to a Request for Proposal (RFP) from the FDA to conduct and manage the coordination of a critical appraisal of certain fundamentals of the science related to the design of clinical development programs for human drugs, biological products, and medical devices for the treatment and prevention of OA to assist the agency as they work to finalize the draft FDA guidance originally issued in July 1999. OARSI received notification that their proposal had been accepted and subsequently embarked upon a two-year initiative to address the key issues as outlined within the original RFP. The reports from the individual working groups involved were published in *Osteoarthritis and Cartilage* in May, 2011 [51].

Selected activities from 2013 to the present:

- Strategic initiative of facilitating high quality trials in OA to advance the development of treatment for individuals with OA
 - OARSI FDA Trial Guidance 2014 led by Francis Berenbaum
 - Comprehensive clinical trials guidelines conducted as an OARSI/ Industry initiative published as a special issue by *Osteoarthritis and Cartilage* in 2015, Joanne Jordan, Chair [52,53].

Table 2

Names of the OARSI presidents, presidents-elect, immediate past presidents and journal editors and the years of their service.

Period	President	President-Elect	Immediate Past-President	Editor
1992–1994	Charles Joël Menkès	Roy Altman	–	Roy Altman
1994–1996	Roy Altman	Jean-Pierre Pelletier	Charles Joël Menkès	Roy Altman
1996–1998	Jean-Pierre Pelletier	Stefan Lohmander	Roy Altman	Roy Altman
1998–2000	Stefan Lohmander	Sergio Jimenez	Jean-Pierre Pelletier	Roy Altman
2000–2002	Sergio Jimenez	Roland Moskowitz	Stefan Lohmander	Roy Altman
2002–2004	Roland Moskowitz	Martin Lotz	Sergio Jimenez	Roy Altman
2004–2006	Martin Lotz	Steven Abramson	Roland Moskowitz	Roy Altman
2006–2008	Steven Abramson	Francis Berenbaum	Martin Lotz	Roy Altman
2008–2010	Francis Berenbaum	Linda Sandell	Steven Abramson	Stefan Lohmander
2010–2013	Linda Sandell	Virginia Kraus	Francis Berenbaum	Stefan Lohmander
2013–2015	Virginia Kraus	John Loughlin	Linda Sandell	Stefan Lohmander
2015–2017	John Loughlin	Jeff Katz	Virginia Kraus	Stefan Lohmander
2017–2019	Jeff Katz	Ali Mobasheri	John Loughlin	Joel Block (Osteoarthritis and Cartilage) Henning Madry (starting 2019 for Osteoarthritis and Cartilage Open)
2019–2021	Ali Mobasheri	Gun-il Im	Jeff Katz	Joel Block (Osteoarthritis and Cartilage) Henning Madry (Osteoarthritis and Cartilage Open)

- Initiated Foundation for NIH study – a collaboration with OARSI and supported by several pharmaceutical and OA advocacy organizations to advance and formally qualify strategic imaging and soluble biomarkers that predict structural change and pain progression in knee OA, led by David J. Hunter from the University of Sydney in Australia and Virginia Byers Kraus from Duke University [54].
- Clinical trial designs for post-marketing approval of a drug based on biomarkers in 2019 [55] (Fig. 9)
- Pathways to drug approval for OA treatments [56].
- Raising an understanding and awareness of the importance of OA
 - Developing a definition of OA with OARSI input and potential for future update, published in 2015 [57].
 - Initiated OA as a serious disease culminating in dissemination of a white paper on the subject to the FDA in December 2016,^{13,14}
- Strategic Initiative of Asian outreach
 - OARSI session Nov 2014 at the Chinese Orthopaedic Association Meeting in Beijing, China
 - OARSI co-sponsored early OA workshop in Japan led by Frank Luyten [58], who continues to lead the early OA initiative with Stefan Lohmander
- Strategic initiative of developing broader collaborations with other groups and societies in the field

¹³ [Last accessed February 2021]. https://www.oarsi.org/sites/default/files/docs/2016/oarsi_white_paper_oa_serious_disease_121416_1.pdf [Last accessed February 2021].



Fig. 8. Reading the most recent issues of *Osteoarthritis and Cartilage* to help them get through those cold and dark winter nights in Sweden, Nobuyuki Kumahashi, André Struglics, Staffan Larsson, Per Swård and Maria Hansson assembled in the Research Cell “Confession Dialogue” by Maaria Wirkkala at the Biomedical Center, Lund University. Photo by Staffan Larsson at Lund University, reproduced with permission.

Table 3
Osteoarthritis and cartilage special issues.

Title	Guest Editors	Publication Details
OARSI Histopathology Supplement	Thomas Aigner	Osteoarthritis and Cartilage, October 2010 Volume 18, Supplement 3, S1–S122
OARSI FDA Initiative on issues related to clinical development programs for the treatment and prevention of OA – Introduction to the OARSI FDA Initiative	Steven B Abramson, Francis Berenbaum, Marc C Hochberg, Rollie W Moskowitz	Osteoarthritis and Cartilage, May 2011 Volume 19, Issue 5, p475-610
Pain in Osteoarthritis	Joanne M Jordan, Richard H Gracely	Osteoarthritis and Cartilage, September 2013 Volume 21, Issue 9, p1143-1408
Imaging in Osteoarthritis	David J Hunter, Frank W Roemer, Tim J Mosher	Osteoarthritis and Cartilage, October 2014 Volume 22, Issue 10, p1347-1748
OARSI Initiative on Recommendations for Conducting Clinical Trials in Osteoarthritis	Joanne M Jordan, Yves Henrotin	Osteoarthritis and Cartilage, May 2015 Volume 23, Issue 5, p671-838
Inflammation in Osteoarthritis	Wim van den Berg, Francis Berenbaum	Osteoarthritis and Cartilage, November 2015 Volume 23, Issue 11, p1823-2058
Negative findings in <i>in vivo</i> models of osteoarthritis	Tonia Vincent, Anne-Marie Malfait	Osteoarthritis and Cartilage, March 2017 Volume 25, Issue 3, p351-434
Cracking the code on the innate immune program in OA	Timothy M. Griffin, Rik J. Lories	Osteoarthritis and Cartilage, March 2020 Volume 28, Issue 5, p529-718

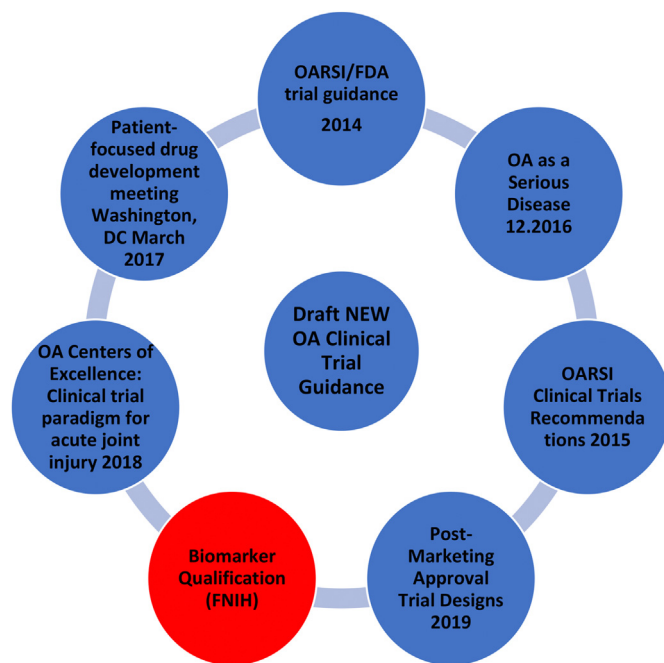


Fig. 9. Synergy of OARSI FNIH Biomarkers Consortium endeavours for qualification of biomarkers to facilitate new regulatory guidance for OA drug development.

- OARSI participation in the AAOS Function and Pain Assessment Workgroup with Aileen Davis as the representative of OARSI
- Training the next generation of OA researchers
 - Primers on OA – initial primer posted online in 2011; an updated primer will be published as “Fundamentals of OA” in monthly installments in *Osteoarthritis and Cartilage* 2021-22
 - OARSI exchange scholarships supporting 6 trainees and investigators annually to train in labs across the world to gain new skills and lay the foundation for collaboration between their home laboratory and the visiting laboratory
- Addition of special interest groups called “Discussion Groups” to the annual Congress
- Introduction of a Clinical Trial Course at the 2017 Annual Congress in Las Vegas, which was successful and followed up with a virtual meeting in September 2020
- Establishment of a “Governance Task Force” to formalize and standardize many organizational structures and processes including committee composition and terms of reference, election procedures for Board members and Officers

2.9. Education and dissemination priorities for the future

The prevalence of OA is increasing. OARSI has a responsibility to address the needs of this expanding population by promoting rigorous research on disease mechanisms, prevention and treatment and by disseminating the findings as widely as possible to all stake holders. We must work tirelessly to recruit new partners to work with OARSI and establish new strategic relationships with international organizations that share our vision and mission, and with regulatory agencies. We will encourage strategic collaboration with other scientific societies, arthritis foundations and industry partners. We will disseminate widely the excellent work that we do through *Osteoarthritis and Cartilage* and *Osteoarthritis and Cartilage Open*. We are primarily a research organization but we must find new ways to work more closely with OA patients and patient societies since patient groups and patient centered organizations are playing increasingly important roles in the design and execution of research across many fields. We should work more closely with the media

to increase awareness of OA as a serious disease, especially amongst politicians and other decision makers. We need to do more to educate the public and politicians. OARSI already works closely with other organizations such as FNIH, PANLAR, EULAR, ORS, the US Arthritis Foundation, and other European and International societies. In the future, OARSI needs to work more closely with government agencies to increase recognition for this seriously debilitating disease. Our current Young Investigators are the future leaders in OA research. We will encourage greater student and young investigator interest and participation in OARSI and give them more ownership and responsibility for their society and their society journals. These goals are realistic, achievable and in line with our existing mission and vision. The society is proud of its high ethical standards and has established bylaws to regulate itself and ensure that its operational management is transparent.

We have many exciting opportunities as we look to the future. Our promise is to enhance education, not just for healthcare professionals and researchers, but for the end-users of the research – patients and the lay public. As stated, we have developed evidence-based treatment guidelines, which will be further disseminated using a dedicated mobile app developed in collaboration with Ambulomics Inc. However, the main published outputs of the society are academic products that need to be more effectively “translated” and “distilled” for policy makers, patients and the lay public. We have an obligation to educate researchers, healthcare professionals, patient groups, patients and the general public. At the annual congress in Paris in 2014 we launched the Partners for OA Initiative with the major international non-profit OA funders including the US Arthritis Foundation and the Arthritis National Research Foundation in Denmark, Versus Arthritis in the UK, the Arthritis Society of Canada, Arthritis Australia, Fondation Arthritis and the French Society of Rheumatology in France, Deutsche Arthrose in Germany, and Reuma-Nederlands in the Netherlands. In more recent years we have begun to collaborate with patient groups such as the Osteoarthritis Foundation International (OAFi) in Barcelona and the Osteoarthritis Foundation in Belgium and look forward to further opportunities to work increasingly together with them in the future as our patient-related guides and dissemination partners. More recently we have started working with Victory Healthcare Communications in New Jersey and the AxDev group in Montreal to develop electronic platforms for educating healthcare professionals. We have a responsibility to take our best research findings and treatment guidelines and distil them into easy-to-understand educational materials for OA patients and the lay public.

Another aspect of education is the professional development of health care practitioners. The inclusion of more clinicians and interdisciplinary researchers in our society in future will be a welcome evolution that will likely undoubtedly come about with the advent of DMOADs. We need to ensure that participation in events organized by our society will allow medical professionals to earn continuing medical education certificates and for other professionals to obtain continuing professional development certificates. We are not the only organization that cares about OA. There are many industry partners who share our mission and vision and without their support, many of our annual congresses would not have been possible. Our industry partners are also major stakeholders, so we have an obligation to strive to meet their needs of education and professional development.

OA is a serious disease [59,60] that affects more than 250 million people globally. OARSI members are making steady progress in understanding pathways to prevent, manage and treat OA. Throughout the years, OARSI has celebrated these achievements with awards for basic research, clinical research, lifetime achievement and the new rising star award and aims to promote worldwide collaboration through the OARSI collaborative scholarships (see Table 4 and a live list on the OARSI website <https://oarsi.org/research/oarsi-awards> for a list of all past awardees).

OARSI remains sound and strong, financially and structurally. However, we need to be more pro-active and mitigate the long-term impacts of the COVID-19 pandemic on OA research and care. By introducing the

Table 4

OARSI clinical and basic research award recipients since 1990 and lifetime achievement award recipients since 2003.

Year	Clinical Research Award Recipients	Basic Research Award Recipients	Lifetime Achievement Award Recipients
1990	Paul Dieppe, MD	Tim Hardingham, BSc, PhD, DSc	
1992	Roland Moskowitz, MD	Mike Baylis, PhD Jean Pierre Pelletier, MD Johanne Martel Pelletier, PhD	
1994	Stefan Lohmander, MD, PhD	David Howell, MD Fred Woessner, PhD	
1997		Chris Evans, PhD	
1999	Marc Hochberg, MD, MPH David Felson, MD, MPH	David Felson, MD, MPH	
2001	Roy Altman, MD	Wim van den Berg, PhD	
2003			Klaus Kuettner, PhD
2004			Charles Joel Menkes, MD Michel Lequesne, MD David S. Howell, MD Leon Sokoloff, MD
2005	Kenneth D. Brandt, MD	Sergio Jimenez, MD	Anthony Robin Poole, PhD, DSc Roy D. Altman, MD
2006	Timothy Spector, MD, MSc, FRCP	Hiroshi Kawaguchi, MD, PhD	
2007	Joanne Jordan, MD, MPH	Ernst Hunziker, MD, PhD	
2008	Michael Nevitt, PhD, MPH	Van C. Mow, PhD	Roland W. Moskowitz, MD Kenneth D. Brandt, MD
2009	Leena Sharma, MD	Amanda Fosang, PhD	Alice Maroudas, PhD Paul A. Dieppe, MD Dick Heinegård, MD, PhD
2010	Felix Eckstein, MD	Martin Lotz, MD	David Felson, MD, MPH
2011	Martin Englund, MD, PhD	David Eyre, PhD	Marc C. Hochberg, MD, MPH
2012	Michael Doherty, MD, MA, FRCP, ILTM	Shiro Ikegawa, MD, PhD	
2013	Marie-Pierre Heliö Le Graverand-Gastineau, MD, DSc, PhD	Gerard Ateshian, PhD	
2014	Ewa Roos, PT, PhD	Richard Loeser, Jr., MD	Karl A. Ruldolphi, PhD, DVM David R. Eyre, PhD George Nuki, MD, FRCP
2015	Sita Bierma-Zienstra, PhD, S.M.A	Mary Goldring, PhD	Linda Sandell, PhD Stefan Lohmander, MD, PhD Mary B. Goldring, PhD
2016	Elena Losina, PhD	Farshid Guilak, PhD	Virginia Kraus, MD, PhD
2017	Francis Berenbaum, MD, PhD	Francisco Blanco, MD, PhD	Tom Andriacchi, PhD
2018	Ali Guermazi, MD, PhD	James Martin, PhD	
2019	David Hunter, MD, PhD	Frank Beier, PhD	
2020	Gillian Hawker, MD, MSc	Peter van der Kraan, PhD	

OARSI Hour weekly webinars and supporting joint virtual meetings with other organizations we plan to continue our engagement with the OARSI membership and maintain an online program of research dissemination. In the coming years, we plan to maintain an unremitting effort to facilitate the endeavors of our membership and those in the OA field to achieve approvals of new drugs for the treatment of OA, possibly even DMOADs. Upon attaining such a watershed achievement, our society will no doubt be at a critical moment in its history and evolution, with the opportunity to grow from 1500 members to many-fold that number once such drugs are approved. Our most recent joint meeting with the International Chinese Osteoarthritis Research Society (ICOARS) attracted more than 9000 attendees. This highlights the potential for our society to grow internationally and collaborate with other societies and organizations. OARSI remains focused on leading internationally in the area of basic, and translational research and clinical development. We welcome formal approaches from other societies, organizations and industry

partners for long-term strategic projects to further the mission and vision of our society focused on the prevention and treatment of osteoarthritis.

To conclude, this paper provides a history of our society on its 30th anniversary, told from the perspective of the authors and constructed from data that are available. However, this can only be “a” history of OARSI, not “the” history of OARSI. It is important to tell the history of the society from our perspective before much of the information fades into obscurity and is forgotten. Therefore, we encourage the readers to write to the editor of Osteoarthritis and Cartilage Open to continue this dialogue and help us fill in the gaps.

3. Dedication

We dedicate this paper to the memory of OARS founders who have passed away: Charles-Joël Menkès, MD (1931-2016), First OARSI President; Dr Roland (Rollie) Moskowitz, MD (1929-2018), OARSI President from 2003 to 2004. We also celebrate this paper to our colleagues Dr Victor M. Goldberg, MD (1939-2015) (OARSI Board Member, 2013-2018) and Dr Kenneth D. Brandt, MD (1936-2017) (OARSI Board Member, 1996-2000 and winner of the OARSI Lifetime Achievement Award in 2009).

Contributions

Ali Mobasher drafted the manuscript using notes provided by Diann Stern and Roy Altman. Additional notes were provided by Marc Hochberg during manuscript preparation. All authors commented on the manuscript and provided edits and feedback. Ali Mobasher takes the responsibility for the accuracy and integrity of the information contained in this article.

Footnotes

The opinions expressed are those of the authors, and do not reflect the official policy of OARSI.

Declaration of competing interest

The authors have no conflicts to declare in connection with this article.

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- 4th world congress of the osteoarthritis research society international (OARSI). Vienna, Austria, 16-19 September 1999. Abstracts, *Osteoarthritis Cartilage* 7 (Suppl A) (1999) S1–S38.
- 5th world congress of the osteoarthritis research society international (OARSI). Barcelona, Spain, 4-6 October 2000. Abstracts, *Osteoarthritis Cartilage* 8 (Suppl B) (2000) S1–S88.
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