1. Proposed 2020 Legislation: Presentation by the MN Athletic Trainer Association
   • SF 2919/HF 2920 (see links and attachment)
     https://www.revisor.mn.gov/bills/text.php?number=SF2919&version=0&session=ls91&session_year=2019&session_number=0&format=pdf
     https://www.revisor.mn.gov/bills/text.php?number=HF2920&version=0&session=ls91&session_year=2019&session_number=0&format=pdf
   • Athletic Trainer Practice Act, Minn. Stat. §§148.7801 – 148.7815

2. Proposed 2020 Legislation: Presentation by the Minnesota Council of Certified Professional Midwives
   • Traditional Midwives Practice Act, Minn. Stat. §§ 147D (see link)
     https://www.revisor.mn.gov/statutes/cite/147D/pdf

3. Review of November 8, 2014 Board Resolution and Status of Research
   • 2014 Resolution (attached)
   • November 8, 2014 Board Meeting Minutes (excerpt attached)
   • 2010 Resolution (attached)
   • March 13, 2010 Board Meeting Minutes (excerpt attached)
   • The New England Journal of Medicine article, March 31, 2016 (attached)
   • Links to Resources
     https://www.cdc.gov/lyme/postlds/index.html
     https://www.cdc.gov/lyme/index.html

4. Board of Medical Practice Planning for the 2020 Legislative Session
   • Draft Modifications to Chapter 147
   • Current Statutes: §§147.091, Subd. 8, 147.038, Subd. 1, and 147.039 (attached)

5. Other Business

Remaining 2019 Meeting Dates (12:00 p.m.)
   November 12, 2019
   December 10, 2019
ATHLETIC TRAINERS

148.7801  CITATION.

148.7802  DEFINITIONS.

148.7803  PROHIBITED PRACTICE OR USE OF TITLES; PENALTY.

148.7804  POWERS OF THE BOARD.

148.7805  ATHLETIC TRAINERS ADVISORY COUNCIL.

148.7806  ATHLETIC TRAINING.

148.7807  LIMITATIONS ON PRACTICE.

148.7808  LICENSURE; REQUIREMENTS.

148.7809  LICENSE RENEWAL.

148.7810  BOARD ACTION ON APPLICATIONS.

148.7811  CHANGE OF ADDRESS.

148.7812  CONTINUING EDUCATION REQUIREMENTS.

148.7813  DISCIPLINARY PROCESS.

148.7814  APPLICABILITY.

148.7815  FEES.
1. Whereas: On March 10, 2010, the Minnesota Board of Medical Practice resolved to engage in a moratorium for a time period not to exceed five years; or the time at which double-blind, peer reviewed studies resolved issues relating to the presumptive diagnosis "chronic Lyme disease" and the long term prescription and administration of antibiotic therapy for its treatment, whichever is first; on the investigation, disciplining, or issuance of Corrective Action Agreements based solely on such therapeutic practice, except in the event of a complaint lodged by a patient or by a conservator, parent or guardian on the patient's behalf for this specific user of antibiotic therapy.

2. Whereas: The science regarding the presumptive diagnosis "chronic Lyme disease" and the long term prescription and administration of antibiotic therapy for its treatment remains unsettled.

3. Whereas: The Minnesota Board of Medical Practice has never investigated, disciplined, or taken any other action against any practitioner solely on that basis.

4. Whereas: The Minnesota Board of Medical Practice has never received any complaints solely on that basis.

5. Whereas: Patients, some physicians, and the public are seeking guidance on this issue.

Therefore, in the interest of allowing additional time for science to resolve this issue:

1. The March 10, 2010, Resolution of the Minnesota Board of Medical Practice to engage in a moratorium not to exceed five years on the investigation, disciplining, or issuance of Corrective Action Agreements based solely on long term prescription and administration of antibiotic therapy for treatment of "chronic Lyme disease" is rescinded.

2. Effective November 8, 2014, the Minnesota Board of Medical Practice will voluntarily engage in a moratorium for a time period not to exceed five years, or the time at which double-blind, peer reviewed studies have resolved the issues, whichever is first, on the investigation, disciplining, or issuance of Corrective Action Agreements based solely on long term prescription or administration of antibiotic therapy for "chronic Lyme disease," except in the event of a complaint lodged by a patient or by a conservator, parent or guardian on the patient's behalf for this specific use of antibiotic therapy.

3. Will publicize this voluntary action on its website.

4. Will educate its staff, medical coordinators, and members regarding this voluntary action.

5. Will diligently seek the results of double-blind, peer reviewed scientific studies that address this issue.

6. At the end of the five year period, in the absence of such scientific studies which bring a conclusion to the issue of the legitimacy of this diagnosis and treatment, the Board will reexamine this issue based on evidence available at the time.
EXEMPLARY TEXT

The Minnesota Board of Medical Practice met on November 8, 2014, at its offices in Minneapolis, Minnesota.

The following Board members were present for both Public and Executive Sessions, unless otherwise indicated: Mark A. Eggen, M.D., Vice President; V. John Ella, J.D., Secretary; Sarah L. Evenson, J.D., M.B.A.; Dr. Eduardo T. Fernandes; Rebecca J. Hafner-Fogarty, M.D., M.B.A.; Subbarao Inampudi, M.B., B.S., FACR; Kelli Johnson, M.B.A.; Gerald T. Kaplan, M.A., L.P.; Patricia J. Lindholm, M.D., FAAFP; Charles F. Moldow, M.D.; Allen G. Rasmussen, M.A.; Maria K. Statton, M.D., Ph.D.; Jon V. Thomas, M.D., M.B.A.; and Joseph R. Willett, D.O., FACOI

PUBLIC SESSION

Agenda Item 10: Policy and Planning Committee

Dr. Thomas provided a summary and presented the minutes of the October 30, 2014, Policy and Planning Committee meeting.

In the matter of the Board’s March 13, 2010, resolution regarding Lyme disease. In March 2010, the Board adopted a resolution stating, in pertinent part, that it would engage in a five year moratorium on investigating and taking action against licensees on the sole basis of prescribing or administering antibiotic therapy for “chronic Lyme disease.” On October 1, 2014, Board President Dr. Berge, Vice President Dr. Eggen, and Executive Director Ms. Martinez met with Senator John Marty to discuss the moratorium, which is due to expire in March 2015.

The Committee recommends that a motion be made to approve a resolution to extend the “chronic Lyme disease” moratorium for an additional five years. The Committee also recommends that the proposed resolution include a statement that the Board has not received complaints regarding treatment of “chronic Lyme disease.”

Dr. Elizabeth Maloney, a co-author of an article “Evidence Assessments and Guideline Recommendations in Lyme disease: The Clinical management of Known Tick Bites, Erythema Migrans Rashes and Persistent Disease,” and also a member of the public, requested to speak to the Board. Dr. Eggen granted Dr. Maloney three minutes to address the Board. Dr. Maloney spoke in favor of extending the moratorium for five years.

Dr. Thomas read the Committee’s proposed resolution to the Board.

After Board discussion, an amendment was made and passed unanimously that the adoption of the resolution would rescind the previous resolution. A motion was made and passed unanimously to approve a resolution to engage in a five year moratorium, effective November 8, 2014, on investigating and taking action against licensees on the sole basis of prescribing or administering antibiotic therapy for “chronic Lyme disease.” The Board has not received complaints regarding treatment of “chronic Lyme disease.”
Resolution Approved by the
Minnesota Board of Medical Practice
at its
March 13, 2010,
Board Meeting

1. Whereas: The science regarding the presumptive diagnosis “chronic Lyme
disease” and the long term prescription and administration of antibiotic
therapy for its treatment is unsettled.
2. Whereas: The Minnesota Board of Medical Practice has never investigated,
disciplined, or taken any other action against any practitioner solely on that
basis.
3. Whereas: The Minnesota Board of Medical Practice has never received any
complaints solely on that basis.
4. Whereas: Patients, some physicians, and the public are seeking guidance on
this issue.

Therefore, in the interest of allowing time for science to resolve this issue:

1. The Minnesota Board of Medical Practice voluntarily will engage in a
moratorium for a time period not to exceed five years, or the time at which
double-blind, peer reviewed studies have resolved the issues, whichever
is first, on the investigation, disciplining, or issuance of Corrective Action
Agreements based solely on long term prescription or administration of
antibiotic therapy for “chronic lyme disease,” except in the event of a
complaint lodged by a patient or by a conservator, parent or guardian on
the patient’s behalf for this specific use of antibiotic therapy.
2. Will publicize this voluntary action on its website.
3. Will educate its staff, medical coordinators, and members regarding this
voluntary action.
4. Will diligently seek the results of double-blind, peer reviewed scientific
studies that address this issue.
5. At the end of the five year period, in the absence of such scientific studies
which bring a conclusion to the issue of the legitimacy of this diagnosis
and treatment, the Board will reexamine this issue based on evidence
available at the time.
MINNESOTA BOARD OF MEDICAL PRACTICE
BOARD MEETING
2829 UNIVERSITY AVE. SE
MINNEAPOLIS, MN  55414-3246

MARCH 13, 2010

EXCERPT FROM THE MINUTES

The Minnesota Board of Medical Practice met on its regularly scheduled meeting date, March 13, 2010, at its offices in Minneapolis, Minnesota.

The following Board members were present for both Public and Executive Sessions, unless otherwise indicated: James Mona, D.O., President; Alfred Anderson, D.C., M.D., Vice President; Tammy McGee, MBA, Secretary; Keith Berge, M.D.; Mark A. Eggen, M.D.; Sarah L. Evenson, J.D., MBA; Subbarao Inampudi, M.D., FACR; Bradley Johnson, M.D.; *Kelli Johnson, MBA, Ernest Lampe, II, M.D.; James Langland, M.D.; Gregory Snyder, M.D., DABR; Jon Thomas, M.D., MBA and Tracy Tomac, M.D.

*Ms. Johnson was not present for Executive Session.

PUBLIC SESSION

Dr. Mona moved forward to board agenda 8, Policy and Planning Committee Meeting because of the large number of public attendees interested in the Lyme Disease Legislation

Tracy Tomac, M.D., Chair of the Policy and Planning Committee gave a summary of the February 23, 2010, Policy and Planning Committee meeting. Dr. Tomac stated that:

- State Senator John Marty, chief author of the bill in the Senate presented the rationale behind the Lyme disease bill. After a lengthy discussion, the Committee voted unanimously to recommend that the full board approve the Lyme Disease Resolution.

Dr. Mona welcomed Representative John Ward, Chief author of the Lyme disease bill in the House.

Representative Ward spoke to the board regarding the proposed Resolution regarding Lyme disease.

- Representative Ward stated that there have been hearings in both the Senate and the House that were well attended and the Lyme bill has been significantly discussed.
- Representative Ward stated that if the board approves the Lyme Disease Resolution, the Lyme disease bills will not move forward.
- Representative Ward stated that some Minnesota physicians are concerned that they will be disciplined by the Board of Medical Practice for treatment of “chronic Lyme disease” with long term prescribing of antibiotics because they are not practicing within the Infectious Disease Society of America’s (IDSA) guidelines. Representative Ward stated this has led to a shortage of doctors treating “chronic Lyme disease” in Minnesota.
- Representative Ward stated that he and Senator Marty have received many letters from physicians who are fearful of treating “chronic Lyme disease” because they fear discipline from the Board of Medical Practice.
• Representative Ward stated that the Resolution would allow for a period of time for research and science to study the treatment of “chronic Lyme disease.” Representative Ward stated that the Resolution supports the Board of Medical Practice to educate the medical profession on “chronic Lyme disease.”

• Representative Ward stated there is a precedent with the 1997 statute for intractable pain that allows physicians to treat without being disciplined.

Dr. Maloney and Dr. Nicholas LaFond, public attendees, spoke to the board regarding their support of the passage of the Resolution.

Dr. Snyder stated that if he’d like to include a provision in the Resolution that allows the patient who is being treated for “chronic Lyme disease” to have the ability to lodge a complaint against the physician. Dr. Snyder stated that the ultimate goal of the board is to protect the patient. Dr. Snyder stated that there may be a physician that has had no training in Lyme and could cause patient harm. Dr. Snyder stated that by allowing the Resolution to pass as written, the board would not be able to protect the patient from an incompetent physician and Dr. Snyder had a huge concern with that. Representative Ward thought that was acceptable.

Board members discussion regarding the Lyme Disease Resolution:

• Dr. Anderson stated that he does not believe that the Board has been an obstacle in the treatment of “chronic Lyme disease” and doesn't understand the need for legislation. He stated that the board has never received a complaint or disciplined a physician for treating Lyme disease or “chronic Lyme disease.”

• Ms. McGee and Dr. Thomas agreed that the Minnesota physician fear is unwarranted.

• Ms. McGee believes that it is a slippery slope to mix politics with the practice of medicine.

• Dr. Snyder stated that the board would not take action against a physician unless someone files a complaint against the physician.

• Dr. Thomas stated that the board doesn't make evidence based decisions on the practice of medicine, the board is complaint driven. Dr. Thomas stated that the board is not out to punish, or to look for people who are treating “chronic Lyme disease.”

• Dr. Lampe stated that there is legislation and a major decision before the board based on five or eight physicians in the state.

• Dr. Johnson stated he is concerned about the unintended consequences of taking a legislative action to restrict medical decision-making that the board has always had jurisdiction over.

• Dr. Thomas stated that this discussion should be between family practice and infectious disease physicians, not the Minnesota Board of Medical Practice.

• Dr. Johnson stated that legislating healthcare is a very bad idea but a very good course of coming to the board and giving the board a chance to stop this from going to legislation.

• Dr. Lampe stated that this is not an issue that the Board of Medical Practice to decide. Dr. Lampe felt that this should be decided by the Legislature. Dr. Lampe did not think it is proper for the board to enable this process. Dr. Lampe stated that the Legislature can live with the consequences for having voted for the bill. Dr. Lampe stated that the board should make a statement that this does not fit with the board’s charge from the public.

• Dr. Mona stated he has given this issue considerable thought since it has come up over the past few years. Dr. Mona stated that the charge of the board is to protect the public; the charge of the board is not to set standards of medical care. Dr. Mona stated that the standard of medical care is evolving all the time. Dr. Mona stated that the board’s concern is the carve out of medicine and how many other special interest groups will come forth and want their own interest carved out the Medical Practice Act.
• Dr. Mona stated that the board members don’t have an interest on one side of the controversy or the other for or against long term antibiotic treatment. Dr. Mona stated that’s not the board’s concern. Dr. Mona stated that the concern has been the carve outs and taking away our ability to oversee physicians practices and protect the citizens of the State of Minnesota.

• Dr. Anderson stated he feels like he is being coerced. Dr. Anderson stated that the coercion is based on fear that is really ill conceived.

• Dr. Inampudi stated that all physicians don’t need to follow the guidelines, they are only guidelines. Dr. Inampudi stated that this is irrational fear that the physicians have.

Dr. Van Etta, board certified infectious disease specialist, a fellow in the Infectious Disease Society of American, former board member, gave a presentation.

• Dr. Van Etta stated that the controversy that has been created is in the definition of “chronic Lyme disease” The IDSA published their second set of Lyme treatment guidelines in 2006 and this has been considered the definitive guideline. Dr. Van Etta stated that because of concerns and criticism that were brought on the part of the chronic Lyme patient advocates brought forward through the Attorney General in Connecticut, there was a forced review of the Lyme guidelines and they are currently under discussion. Dr. Van Etta stated that as part of that review panel, there was extensive testimony in Washington, DC at the review panel public hearings in July of 2009 and there were multiple scientists speaking to these guidelines, as well as patient advocates, etc.

• Dr. Van Etta stated that, to date, the published results of no less than four peer reviewed, randomized, placebo controlled clinical trials have shown that extended antibiotic therapy is not beneficial for the treatment of “chronic Lyme disease.” If those who disagree with these findings believe that these studies were flawed or that such treatment is beneficial and safe it is incumbent on them to design and conduct randomized placebo controlled trials, that will withstand the rigorous test of peer review to demonstrate the efficacy and safety of such treatment. Until that is done, the current IDSA Guidelines for the treatment of Lyme disease with its more than 400 peer reviewed referenced citations should be considered the best available and most comprehensive resource on the diagnosis and treatment of Lyme disease.

• Dr. Van Etta stated that prior to the Policy and Planning Committee she was requested by board staff to write a memo outlining her thoughts on “chronic Lyme disease.” Dr. Van Etta read her memo out loud to the board. Dr. Van Etta stated that the board has worked on this concern for several years, each time when it appears in the legislature. Dr. Van Etta stated that there have been several prospective studies done by NIH showing that long-term antibiotics do not improve the health of patients diagnosed with “chronic Lyme disease.” Dr. Van Etta stated that there is also no scientifically defensible diagnosis of “chronic Lyme disease,” therefore Dr. Van Etta has always been opposed to any agreement in Minnesota that would lessen the board’s standards of practice evidence based medicine. Dr. Van Etta stated that, in addition, antibiotic treatment is not benign. She stated that patients in Minnesota have died as a result of complications of treating “chronic Lyme disease.” Dr. Van Etta stated that since this is the political reality, she agrees that it is preferable to enter into an agreement at present in exchange for preventing passage of the proposed statute.

• Dr. Van Etta recommended some changes to the Resolution. Dr. Van Etta stated that under whereas. Dr. Van Etta had no changes to recommend for whereas’ 2, 3, or 4. Under the first whereas, she felt that this statement is untenable because there is very good scientific evidence that does not support the use of chronic antibiotics so she would substitute for the first whereas the following: Whereas Lyme treatment guidelines are currently under review.

• Dr. Van Etta stated that she was concerned with statement number 5. Dr. Van Etta stated that this should be just allowed to sunset at five years and then should disappear. Dr. Van Etta
stated that those who practice evidence based medicine and treat these patients feel fairly comfortable with this guideline.

- Dr. Van Etta informed the board that Dave Renner, the Chief Lobbyist for the Minnesota Medical Association feels that this the Lyme disease bill will move forward in the House if this compromise Resolution is not reached by the board and that it will be passed successfully. Dr. Van Etta stated that Mr. Renner, speaking for the Minnesota Medical Association stated that they are in support of this Resolution and that it would be preferable to becoming a State law. Ms. Karolyn Stirewalt, attorney for the MMA stated that is correct that the MMA supports the passage of the Resolution. Dr. Van Etta stated that Dr. Ruth Lynfield who is the Chief Epidemiologist for the Minnesota Department of Health feels this should go to legislature and hope that they don’t pass it, and stated that even if it does pass, at least the Minnesota Department of Health and board will be on the right side of the issue.

Dr. Hafner-Fogarty past board member spoke to the board.

- Dr. Hafner-Fogarty stated that the proposed legislation inserts the legislature into the practice of medicine by effectively legislating a standard of care. Dr. Hafner-Fogarty stated that the legislature has no particular expertise in the practice of medicine; this is one of the reasons that the State created the Board.
- Dr. Hafner-Fogarty stated that it’s not that the Board of Medical Practice establishes the standard of care, but when faced with potential disciplinary issues, the board gets testimony from both sides or multiple sides of an issue and interprets what the standard of care is. Dr. Hafner-Fogarty stated that the physician fear is irrational.
- Dr. Hafner-Fogarty stated that a five-year moratorium is a lifetime in medicine. Dr. Hafner-Fogarty stated that if there is not currently already a randomized controlled double blinded study in progress, then five years is meaningless. Dr. Hafner-Fogarty stated that it would take more time than five years in order to design a study, get it approved, get it funded and carry out the study and interpret the results and get the results published.
- Dr. Hafner-Fogarty stated that she would urge the board not to approve the Resolution.
- Dr. Hafner-Fogarty stated that the legislation is really a very concerning insertion of the legislature attempting to begin to practice medicine and for that reason she feels that the legislation should be strongly and consistently opposed by the board.

Richard Auld, Ph.D., gave a history and the political process involved with the Lyme disease bill and the arrival of the proposed Resolution. Dr. Auld stated that this legislation was introduced last year and it did not come to hearing in either house, there were a number of negotiations that the board participated in with the chief authors and specifically aimed at the language that was introduced last year, which is somewhat different from this year’s language. Dr. Auld stated that the board opposed that legislation at the staff level and with the authorization of the board on these grounds:

1. This bill legislated a clinical standard of care.
2. Dr. Auld stated that this law created a specific carve-out of the board’s authority to enforce the medical practice act. Dr. Auld stated that this would set an extremely dangerous precedent for future carve outs. Dr. Auld stated that the facts are there have been no disciplinary actions on this issue specifically, no corrective actions on this issue specifically, in fact, no complaints. Dr. Auld stated that the bill was reintroduced this year, it came very quickly to committee hearings, was heard in the Senate, passed out of the Senate Committee, and it’s currently on the floor and floor debate has begun. Dr. Auld stated that the bill was coming up for discussion in the House Committee. Dr. Auld thanked Representative Ward and Dr. Maloney for inviting board staff to attend and discuss this issue in negotiation. Dr. Auld stated that Representative Ward provided a
structure so that board staff could talk about this and the language that is in the proposed Resolution is the result. Dr. Auld stated that the Committee in the House laid the bill over, its not been acted on by the Committee but they are waiting for the outcome of this board meeting to decide what to do. Dr. Auld stated that if the board does not approve the Resolution, the bill will pass this year and will be sent to the Governors Office and Dr. Auld has no reason to believe that the Governor would veto this bill.

Dr. Auld stated that he and Representative Ward, Dr. Snyder, Dr. LaFond and Dr. Mahoney had a discussion and came up with some language that might be a good addition to the Resolution.

Dr. Inampudi asked about a minor revision in the first suggested modification on number 1 and asked if it could include a complaint lodged by a patient or on behalf of a patient. From the public members in the audience, there were concerns that change could open it up to anyone filing a complaint. Mr. Fruechte suggested “that except in the event of a complaint lodged by a patient or on their behalf by a custodian.” Dr. Auld asked Representative Ward if these additions to the Resolution would be accepted by Senator Marty and his staff. Representative Ward stated that they would be.

Dr. Langland asked if they discussed Dr. Van Etta’s proposed modifications on the Resolution. Dr. Auld stated that the other language in the proposed Resolution is negotiated language and it’s not something that’s subject to change without considerable further negotiation and agreement. Dr. Auld stated he is skeptical that the changes suggested by Dr. Van Etta would be agreed to.

Dr. Snyder repeated the board’s concerns that this legislation:
- Is disruptive;
- Protects physicians from a non-issue;
- Is a precedent setting carve-out of board authority;
- May be dangerous to the citizens of Minnesota.

Dr. Snyder stated that his sense is that if the board does not accept a compromise that this legislation will precede. Dr. Snyder asked Representative Ward, with all due respect, after hearing all of these concerns, how he can justify this approach. Representative Ward stated that he brings forward legislation that he thinks is helpful, is respectful, and is good for the constituents that he represents. Representative Ward stated that he has heard from a significant number of constituents that this legislation is needed and that’s why he believes that this legislation would be passed in both Houses.

Ms. McGee asked the Chair to call the question.

Mr. Fruechte read the amendment to the Resolution under number 1 under therefore: The Minnesota Board of Medical Practice voluntarily will engage in a moratorium for a time period not to exceed five years or the time at which double-blind peer review studies have resolved the issues which ever is first on the investigation, disciplining, or issuance of Corrective Action Agreements based solely on long-term prescription or administration of antibiotic therapy for chronic lyme disease except in the event of a complaint lodged by a patient, or by a conservator, parent or guardian on the patient’s behalf for this specific use of antibiotic therapy.

The board made a motion to accept the amendment to the Resolution; the motion was seconded and passed unanimously.

Dr. Mona asked board members to raise their hands for the passage of the Resolution. After the first count, Mr. Leach asked to see board members hands again to make sure that he and Ruth . Martinez,
Complaint Review Supervisor, counted correctly of 8 in favor of the Resolution and six opposed. The second vote came in at 7 to 7; one board member had changed their vote. Because Mr. Leach and Ms. Martinez both had the same count of 8 to 7 the first time they counted the votes, and the board member that changed his voted stated he did so, the Resolution passed with the first count of 8 to 6.

The board approved the following resolution with a vote of eight for and six against:

1. Whereas: The science regarding the presumptive diagnosis “chronic Lyme disease” and the long term prescription and administration of antibiotic therapy for its treatment is unsettled.
2. Whereas: The Minnesota Board of Medical Practice has never investigated, disciplined, or taken any other action against any practitioner solely on that basis.
3. Whereas: The Minnesota Board of Medical Practice has never received any complaints solely on that basis.
4. Whereas: Patients, some physicians, and the public are seeking guidance on this issue.

Therefore, in the interest of allowing time for science to resolve this issue:

1. The Minnesota Board of Medical Practice voluntarily will engage in a moratorium for a time period not to exceed five years, or the time at which double-blind, peer reviewed studies have resolved the issues, whichever is first, on the investigation, disciplining, or issuance of Corrective Action Agreements based solely on long term prescription or administration of antibiotic therapy for “chronic lyme disease,” except in the event of a complaint lodged by a patient or by a conservator, parent or guardian on the patient’s behalf for this specific use of antibiotic therapy.
2. Will publicize this voluntary action on its website.
3. Will educate its staff, medical coordinators, and members regarding this voluntary action.
4. Will diligently seek the results of double-blind, peer reviewed scientific studies that address this issue.
5. At the end of the five year period, in the absence of such scientific studies which bring a conclusion to the issue of the legitimacy of this diagnosis and treatment, the Board will reexamine this issue based on evidence available at the time.

Voting Against the Resolution: Dr. Berge
Dr. Inampudi
Dr. Lampe
Dr. Langland
Ms. McGee
Dr. Thomas

Voting for the Resolution: Dr. Anderson
Dr. Eggen
Ms. Evenson
Dr. Johnson
Ms. Johnson
Dr. Mona
Dr. Snyder
Dr. Tomac
BACKGROUND
The treatment of persistent symptoms attributed to Lyme disease remains controversial. We assessed whether longer-term antibiotic treatment of persistent symptoms attributed to Lyme disease leads to better outcomes than does shorter-term treatment.

METHODS
In a randomized, double-blind, placebo-controlled trial conducted in Europe, we assigned patients with persistent symptoms attributed to Lyme disease — either related temporally to proven Lyme disease or accompanied by a positive IgG or IgM immunoblot assay for Borrelia burgdorferi — to receive a 12-week oral course of doxycycline, clarithromycin plus hydroxychloroquine, or placebo. All study groups received open-label intravenous ceftriaxone for 2 weeks before initiating the randomized regimen. The primary outcome measure was health-related quality of life, as assessed by the physical-component summary score of the RAND-36 Health Status Inventory (RAND SF-36) (range, 15 to 61, with higher scores indicating better quality of life), at the end of the treatment period at week 14, after the 2-week course of ceftriaxone and the 12-week course of the randomized study drug or placebo had been completed.

RESULTS
Of the 281 patients who underwent randomization, 280 were included in the modified intention-to-treat analysis (86 patients in the doxycycline group, 96 in the clarithromycin–hydroxychloroquine group, and 98 in the placebo group). The SF-36 physical-component summary score did not differ significantly among the three study groups at the end of the treatment period, with mean scores of 35.0 (95% confidence interval [CI], 33.5 to 36.5) in the doxycycline group, 35.6 (95% CI, 34.2 to 37.1) in the clarithromycin–hydroxychloroquine group, and 34.8 (95% CI, 33.4 to 36.2) in the placebo group (P = 0.69; a difference of 0.2 [95% CI, –2.4 to 2.8] in the doxycycline group vs. the placebo group and a difference of 0.9 [95% CI, –1.6 to 3.3] in the clarithromycin–hydroxychloroquine group vs. the placebo group); the score also did not differ significantly among the groups at subsequent study visits (P = 0.35). In all study groups, the SF-36 physical-component summary score increased significantly from baseline to the end of the treatment period (P < 0.001). The rates of adverse events were similar among the study groups. Four serious adverse events thought to be related to drug use occurred during the 2-week open-label ceftriaxone phase, and no serious drug-related adverse event occurred during the 12-week randomized phase.

CONCLUSIONS
In patients with persistent symptoms attributed to Lyme disease, longer-term antibiotic treatment did not have additional beneficial effects on health-related quality of life beyond those with shorter-term treatment. (Funded by the Netherlands Organization for Health Research and Development ZonMw; PLEASE ClinicalTrials.gov number, NCT01207739.)
Patients with Lyme disease, which is caused by the *Borrelia burgdorferi* sensu lato complex (including *B. afzelii* and *B. garinii* in Europe), often report persistent symptoms. These symptoms are also referred to as the post–Lyme disease syndrome or chronic Lyme disease and may occur after resolution of an erythema migrans rash or after other—possibly unnoticed—manifestations of early Lyme disease, regardless of whether a patient received initial appropriate antibiotic treatment. Patients present mainly with pain, fatigue, and neurologic or cognitive disturbances.

Previous randomized, clinical trials have not shown convincingly that prolonged antibiotic treatment has beneficial effects in patients with persistent symptoms attributed to Lyme disease. Nonetheless, the debate about this issue has continued. Although most guidelines do not recommend antimicrobial therapy for longer than 2 to 4 weeks, other guidelines recommend prolonged antibiotic therapy. We performed a randomized, double-blind, clinical trial (Persistent Lyme Empiric Antibiotic Study Europe [PLEASE]) that included three study groups to compare shorter-term treatment (ceftriaxone followed by placebo [placebo group]) with longer-term treatment (ceftriaxone followed by doxycycline [doxycycline group] or ceftriaxone followed by the combination of clarithromycin and hydroxychloroquine [clarithromycin–hydroxychloroquine group]).

### Methods

#### Study Oversight

The trial was approved by the medical ethics review committee Commissie Mensgebonden Onderzoek regio Arnhem–Nijmegen. The study was conducted in accordance with the principles of the most recent version of the Declaration of Helsinki and the International Conference on Harmonisation guidelines on Good Clinical Practice. Written informed consent was provided by all the participants. All the authors take responsibility for the accuracy and completeness of the reported data and vouch for the fidelity of the trial to the protocol (available with the full text of this article at NEJM.org) and statistical analysis plan (which is included in the protocol). Details of the protocol and study design have been published previously. The trial was performed at two sites in the Netherlands (Radboud University Medical Center and Sint Maartenskliniek) and was overseen by an independent external data and safety monitoring board.

#### Study Population

Patients were recruited from October 2010 through June 2013. Eligibility was assessed according to previously described inclusion and exclusion criteria (Table S1 in the Supplementary Appendix, available at NEJM.org). In short, patients with persistent symptoms attributed to Lyme disease (musculoskeletal pain, arthritis, arthralgia, neuralgia, sensory disturbances, dysesthesia, neuropsychological disorders, or cognitive disorders, with or without persistent fatigue) were eligible if these symptoms either were temporally related to an erythema migrans rash or an otherwise proven case of symptomatic Lyme disease or were accompanied by *B. burgdorferi* IgG or IgM antibodies, as confirmed by means of immunoblot assay.

#### Randomization and Blinding

Patients were randomly assigned to one of three groups in a 1:1:1 ratio. Randomization was computerized and balanced by minimization for age (<40 or ≥40 years), sex, duration of symptoms (<1 or ≥1 year), and baseline Global Health Composite score of the RAND-36 Health Status Inventory (RAND SF-36). The randomization list consisted of consecutive medication numbers entered into a secured Web-based database by an independent Web manager. All personnel involved in the study (except the Web manager and study pharmacist) and all participants were unaware of the study-group assignments.

#### Intervention

All the patients received treatment with 2000 mg of open-label intravenous ceftriaxone daily for 14 days. Patients were admitted at the study site for ceftriaxone administration during days 1 and 2; subsequent doses were given intravenously by specialized home-care nurses. After the 2-week course of ceftriaxone treatment was completed, the patients received a 12-week oral course of doxycycline (100 mg of doxycycline twice daily combined with a placebo twice daily), clarithromycin–hydroxychloroquine (500 mg of clarithromycin twice daily combined with 200 mg of hydroxychloroquine twice daily), or placebo (two
different placebo capsules twice daily), as randomly assigned in a blinded manner. The study drugs and placebo were prepared as capsules with an identical appearance. Active drugs were purchased as standard tablets through the hospital pharmacy department and were placed inside size 000 capsules; placebos were prepared by filling color-matched size 000 capsules with inactive microcrystalline cellulose. Adherence was verified by means of pill counts, patient diaries, and the Medication Event Monitoring System (AARDEX Group), in which microprocessors in the cap of a medication bottle electronically record each time a bottle is opened. The use of specific concomitant medications was prohibited during the entire study period, as described previously.

**Outcome Measures**

Outcomes were assessed with the use of self-completed questionnaires at baseline, at the end of the treatment period at 14 weeks (i.e., when the 2-week course of ceftriaxone and the 12-week randomized phase had been completed), at 26 weeks (12 weeks after the end of the treatment period), at 40 weeks (the end of the trial, 26 weeks after the end of the treatment period), and at 52 weeks after the start of the treatment period. Study visits to evaluate safety were scheduled at weeks 2, 8, and 14 and included a medical history, physical examination, and laboratory investigations. The primary outcome measure was health-related quality of life at the end of the treatment period, as assessed by the physical-component summary score of the RAND SF-36. This score is based on the weighted T-scores of the four physical scales of the RAND SF-36 (physical functioning, role limitations due to physical health problems, pain, and general health perceptions). The raw SF-36 physical-component summary score was transformed into a norm-based T-score (range, 15 to 61), with a mean (±SD) score of 50±10 in the general population (higher scores indicate a better physical quality of life).

Main secondary outcomes were physical and mental aspects of health-related quality of life, as assessed with the use of the RAND SF-36, and fatigue, as assessed with the use of the fatigue-severity scale of the Checklist Individual Strength, on which scores range from 8 to 56, with higher scores indicating more fatigue (Table 1).

**Statistical Analysis**

The primary analyses were performed in the modified intention-to-treat population, which included all patients who were randomly assigned to a study group and received at least one dose of ceftriaxone. In the primary analysis, the three study groups were compared at end of the treatment period by means of analysis of covariance, with sex and baseline SF-36 physical-component summary score as covariates. Missing data were imputed according to the baseline-value-carried-forward method. In secondary analyses, linear mixed models were used to evaluate the duration of the treatment effect in an exploratory way, and missing data were imputed with the nearest available observation. All models included the baseline value of the dependent variable, sex, time, study-group assignment, and time-by-treatment interaction. No interim efficacy analysis was performed. Sensitivity analyses included a prespecified per-protocol analysis and alternative imputation techniques. Patients who had major protocol violations, such as receipt of less than 75% of a study drug or placebo, as recorded by microprocessors in the Medication Event Monitoring System caps, or use of prohibited concomitant medication, were excluded from the per-protocol analysis.

A two-sided alpha level of 5% was used to indicate statistical significance, and confidence intervals, when calculated, were 95% confidence intervals. Bonferroni correction was used for pairwise comparisons among the three study groups. Statistical analyses were performed with the use of SPSS software, version 20 (SPSS).

The calculation of power was based on a pilot study that included 80 patients with persistent symptoms attributed to Lyme disease. Patients were classified as having a poor or reasonable clinical condition, as assessed during the first clinical consultation at the outpatient clinic. The difference in SF-36 physical-component summary score between patients with a poor clinical condition and those with a reasonable clinical condition was a mean of 3±8 points, which corresponds to the minimal clinically important difference of 2 to 5 points that has been proposed for the SF-36 physical-component summary score. We calculated that a minimum of 75 patients would need to be assigned to each group (225 patients in total) for the study to have 90% power to detect a difference of 3 points at
Table 1. Baseline Characteristics in the Modified Intention-to-Treat Population.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Doxycycline Group (N=86)</th>
<th>Clarithromycin–Hydroxychloroquine Group (N=96)</th>
<th>Placebo Group (N=98)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female sex — no. (%)</td>
<td>40 (47)</td>
<td>42 (44)</td>
<td>47 (48)</td>
</tr>
<tr>
<td>Age — yr</td>
<td>48.1±12.8</td>
<td>48.2±13.0</td>
<td>50.0±9.7</td>
</tr>
<tr>
<td>White race — no. (%)†</td>
<td>84 (98)</td>
<td>96 (100)</td>
<td>98 (100)</td>
</tr>
<tr>
<td>Current symptoms — no. (%)‡</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arthralgia</td>
<td>80 (93)</td>
<td>87 (91)</td>
<td>84 (86)</td>
</tr>
<tr>
<td>Musculoskeletal pain</td>
<td>72 (84)</td>
<td>77 (80)</td>
<td>76 (78)</td>
</tr>
<tr>
<td>Sensory disturbances</td>
<td>62 (72)</td>
<td>72 (75)</td>
<td>79 (81)</td>
</tr>
<tr>
<td>Neuralgia</td>
<td>7 (8)</td>
<td>16 (17)</td>
<td>18 (18)</td>
</tr>
<tr>
<td>Neurocognitive symptoms</td>
<td>76 (88)</td>
<td>81 (84)</td>
<td>85 (87)</td>
</tr>
<tr>
<td>Fatigue</td>
<td>84 (98)</td>
<td>91 (95)</td>
<td>92 (94)</td>
</tr>
<tr>
<td>Duration of symptoms — yr</td>
<td>2.7</td>
<td>2.7</td>
<td>2.1</td>
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<tr>
<td>Interquartile range</td>
<td>1.3–7.7</td>
<td>1.3–5.4</td>
<td>0.9–5.5</td>
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<tr>
<td>Lyme disease history — no. (%)‡</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tick bite</td>
<td>47 (55)</td>
<td>46 (48)</td>
<td>60 (61)</td>
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<tr>
<td>Erythema migrans§</td>
<td>25 (29)</td>
<td>26 (27)</td>
<td>27 (28)</td>
</tr>
<tr>
<td>Acrodermatitis chronica atrophicans¶</td>
<td>0</td>
<td>1 (1)</td>
<td>2 (2)</td>
</tr>
<tr>
<td>Meningoradiculitis‖</td>
<td>1 (1)</td>
<td>9 (9)</td>
<td>5 (5)</td>
</tr>
<tr>
<td>Previous antibiotic treatment — no. (%)</td>
<td>75 (87)</td>
<td>86 (90)</td>
<td>89 (91)</td>
</tr>
<tr>
<td>Duration — days</td>
<td>40</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>Interquartile range</td>
<td>27–57</td>
<td>21–44</td>
<td>28–58</td>
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<tr>
<td>No. of courses</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Interquartile range</td>
<td>1.0–2.0</td>
<td>1.0–2.0</td>
<td>1.0–2.5</td>
</tr>
<tr>
<td>Intravenous treatment — no. (%)</td>
<td>11 (13)</td>
<td>16 (17)</td>
<td>15 (15)</td>
</tr>
<tr>
<td>Positive <em>Borrelia burgdorferi</em> serology — no. (%)</td>
<td>70 (81)</td>
<td>73 (76)</td>
<td>75 (77)</td>
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<tr>
<td>IgM</td>
<td>25 (29)</td>
<td>21 (22)</td>
<td>35 (36)</td>
</tr>
<tr>
<td>IgG</td>
<td>55 (64)</td>
<td>65 (68)</td>
<td>58 (59)</td>
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<tr>
<td>RAND SF-36 score**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical-component summary</td>
<td>30.3±6.3</td>
<td>32.7±7.5</td>
<td>31.8±8.1</td>
</tr>
<tr>
<td>Mental-component summary</td>
<td>37.4±9.9</td>
<td>37.1±9.8</td>
<td>37.6±9.6</td>
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<tr>
<td>Global-health composite</td>
<td>32.1±8.0</td>
<td>33.1±8.3</td>
<td>33.0±9.1</td>
</tr>
<tr>
<td>Physical-functioning scale</td>
<td>37.3±8.2</td>
<td>40.3±9.9</td>
<td>38.1±9.4</td>
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<tr>
<td>Role–physical scale</td>
<td>28.8±5.9</td>
<td>31.3±9.5</td>
<td>30.3±8.6</td>
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<tr>
<td>Bodily pain scale</td>
<td>35.2±8.3</td>
<td>37.3±8.2</td>
<td>38.1±9.4</td>
</tr>
<tr>
<td>General-health scale</td>
<td>35.5±7.7</td>
<td>35.9±7.6</td>
<td>35.9±8.4</td>
</tr>
<tr>
<td>Mental-health scale</td>
<td>44.2±9.8</td>
<td>43.6±10.0</td>
<td>44.0±8.5</td>
</tr>
<tr>
<td>Role–emotional scale</td>
<td>41.8±15.1</td>
<td>39.9±15.2</td>
<td>42.4±14.8</td>
</tr>
<tr>
<td>Social-functioning scale</td>
<td>33.5±12.8</td>
<td>33.8±12.0</td>
<td>34.2±12.2</td>
</tr>
<tr>
<td>Vitality scale</td>
<td>38.3±7.1</td>
<td>39.0±7.8</td>
<td>38.3±7.7</td>
</tr>
</tbody>
</table>
Therapy for Symptoms Attributed to Lyme Disease

a two-sided alpha level of 5% and a reliability coefficient (correlation between consecutive measurements) of 0.7. To compensate for possible loss to follow-up, a study population of at least 255 patients was targeted.

RESULTS

STUDY POPULATION AND BASELINE CHARACTERISTICS

Approximately 1200 patients were screened. The most frequent reasons for ineligibility were negative serologic findings combined with Lyme disease that was either unproven or temporally unrelated to symptoms, a coexisting condition that could account for the patient’s symptoms, or known unacceptable side effects from the active study drugs. Of all eligible patients, fewer than 10% declined to participate. A total of 281 patients underwent randomization, and 280 started the oral course of the study drug or placebo (Fig. 1). Table 1 shows the baseline characteristics of patients included in the modified intention-to-treat analysis; there were no significant baseline differences among the study groups.

The randomized oral regimen (active study drug or placebo) was completed by 252 patients (90.0%): 76 of 86 patients (88.4%) in the doxycycline group, 84 of 96 patients (87.5%) in the clarithromycin–hydroxychloroquine group, and 92 of 98 patients (93.9%) in the placebo group (P = 0.28) (Fig. 1).

No differences in adherence were recorded among the study groups (P = 0.50); 75 patients (87.2%) in the doxycycline group, 78 (81.3%) in the clarithromycin–hydroxychloroquine group, and 84 (85.7%) in the placebo group took at least 75% of the assigned study medication or placebo, as recorded by the microprocessors on the Medication Event Monitoring System caps (Fig. 1).

OUTCOMES

The primary outcome in the modified intention-to-treat analysis (i.e., the mean health-related quality of life at the end of the treatment period, as indicated by the SF-36 physical-component summary score, corrected for baseline SF-36 physical-component summary score and sex) did not differ significantly among the study groups (P = 0.69) (Table 2). With respect to the secondary outcomes, the mean SF-36 physical-component summary score among all patients in the

<table>
<thead>
<tr>
<th>Table 1. (Continued.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic</td>
</tr>
<tr>
<td>Checklist Individual Strength††</td>
</tr>
<tr>
<td>Total score</td>
</tr>
<tr>
<td>Fatigue-severity scale</td>
</tr>
</tbody>
</table>

* Plus–minus values are means ±SD. All study groups received a 2-week course of ceftriaxone before the randomized 12-week course of study drug or placebo. The modified intention-to-treat population included all patients who were randomly assigned to a study group and received at least one dose of ceftriaxone. Between-group differences in characteristics were analyzed with the use of analysis of variance for continuous variables, chi-square tests for proportions, and Fisher’s exact test for small numbers (expected frequency <5). Data that were not normally distributed were analyzed with the use of Kruskal–Wallis tests. There were no significant baseline differences among the study groups at a significance level of 0.05. RAND SF-36 denotes the RAND-36 Health Status Inventory.

† Race was self-reported.

‡ Categories are not mutually exclusive.

§ This condition was considered to be temporally related if it was diagnosed by a physician 0 to 4 months before the onset of symptoms.

‖ The condition was considered to be temporally related if it was diagnosed on the basis of intrathecal borrelia antibody production 0 to 4 months before the onset of symptoms.

** The ranges of the RAND SF-36 scores were as follows: physical-component summary, 15 to 61; mental-component summary, 11 to 66; global-health composite, 8 to 65; physical-functioning scale, 16 to 58; role–physical scale, 26 to 56; bodily pain scale, 20 to 60; general-health scale, 20 to 64; mental-health scale, 16 to 66; role–emotional scale, 19 to 54; social-functioning scale, 12 to 57; and vitality scale, 26 to 70. For all scales, higher scores indicate better quality of life.

†† Scores on the Checklist Individual Strength range from 20 to 140 for the total score and from 8 to 56 for the fatigue-severity scale. For both scales, higher scores indicate more fatigue.
1200 Patients were assessed for eligibility

284 Were included in the study

3 Withdrew consent

281 Underwent randomization

1 Withdrew consent

86 Received open-label ceftriaxone and were included in the modified intention-to-treat analysis

96 Received open-label ceftriaxone and were included in the modified intention-to-treat analysis

98 Received open-label ceftriaxone and were included in the modified intention-to-treat analysis

2 Did not receive assigned treatment
1 Withdrew consent after allergic reaction to ceftriaxone
1 Received incorrect medication

2 Did not receive assigned treatment
1 Withdrew consent
1 Received incorrect medication

2 Did not receive assigned placebo
2 Withdraw consent after allergic reaction to ceftriaxone

76 Completed assigned treatment

84 Completed assigned treatment

96 Were assigned to receive doxycycline 84 Received assigned treatment

96 Were assigned to receive clarithromycin + hydroxychloroquine 94 Received assigned treatment

98 Were assigned to receive placebo 96 Received assigned placebo

8 Discontinued assigned treatment prematurely
1 Had an allergic reaction (rash)
1 Had an adverse event
1 Was pregnant
2 Withdraw consent
3 Had unknown reasons

10 Discontinued assigned treatment prematurely
3 Had an allergic reaction (rash)
4 Had an adverse event
2 Withdraw consent
1 Had unknown reasons

4 Discontinued assigned placebo prematurely
2 Had an adverse event
1 Withdraw consent
1 Had unknown reasons

81 Returned week-14 questionnaires
6 Did not complete SF-36 primary outcome questionnaire

89 Returned week-14 questionnaires
7 Did not complete SF-36 primary outcome questionnaire

93 Returned week-14 questionnaires
6 Did not complete SF-36 primary outcome questionnaire

86 Were assigned to receive doxycycline
84 Received assigned treatment

96 Received open-label ceftriaxone and were included in the modified intention-to-treat analysis

98 Received open-label ceftriaxone and were included in the modified intention-to-treat analysis

21 Were excluded
11 Did not take ≥75% of assigned oral treatment or withdrew consent
9 Did not meet inclusion criteria or met exclusion criteria
4 Took prohibited medication (antibiotics or glucocorticoids)
1 Was aware of the study group assignment before the end of the treatment period

23 Were excluded
18 Did not take ≥75% of assigned oral treatment or withdrew consent
8 Did not meet inclusion criteria or met exclusion criteria
3 Took prohibited medication (antibiotics or glucocorticoids)

24 Were excluded
14 Did not take ≥75% of assigned oral treatment or withdrew consent
8 Did not meet inclusion criteria or met exclusion criteria
4 Took prohibited medication (antibiotics or glucocorticoids)

81 Returned week-14 questionnaires
6 Did not complete SF-36 primary outcome questionnaire

65 Were included in per-protocol analysis

73 Were included in per-protocol analysis

74 Were included in per-protocol analysis

86 Were assigned to receive doxycycline
84 Received assigned treatment

23 Were excluded
13 Did not take ≥75% of assigned oral treatment or withdrew consent
10 Did not meet inclusion criteria or met exclusion criteria
3 Took prohibited medication (antibiotics or glucocorticoids)
1 Was aware of the study group assignment before the end of the treatment period

188 Received open-label ceftriaxone and were included in the modified intention-to-treat analysis

188 Received open-label ceftriaxone and were included in the modified intention-to-treat analysis

98 Received open-label ceftriaxone and were included in the modified intention-to-treat analysis

24 Were excluded
14 Did not take ≥75% of assigned oral treatment or withdrew consent
8 Did not meet inclusion criteria or met exclusion criteria
4 Took prohibited medication (antibiotics or glucocorticoids)
modified intention-to-treat analysis increased from 31.8 at baseline to 36.4 at the end of the treatment period (difference, 4.6 points; 95% confidence interval [CI], 3.6 to 5.5; P<0.001). At weeks 26, 40, and 52, the SF-36 physical-component summary score remained higher than the baseline score but did not change significantly from the score at the end of the treatment period in any of the study groups (Fig. 2). None of the secondary outcome measures at the end of the treatment period differed significantly among the study groups (Table 2). Mixed-model analyses did not show any additional longer-term treatment effect with respect to the SF-36 physical-component summary score or any of the secondary outcomes; P values for time-by-treatment interaction ranged from 0.14 to 0.90, and there was no significant difference among the study groups in the SF-36 physical-component summary score (P=0.35) or any other secondary outcome measure at any time point during follow-up. All sensitivity analyses yielded results similar to those of the main analyses. Specifically, the results were not quantitatively different when alternate imputation techniques were used for missing data (Table S4 in the Supplementary Appendix). The per-protocol analysis, which included 212 patients (Fig. 1), yielded similar results to the modified intention-to-treat analysis at the end of the treatment period and during follow-up across the three study groups.

SAFETY

Overall, 205 patients (73.2%) reported at least one adverse event, 9 patients (3.2%) had a serious adverse event, and 19 patients (6.8%) had an adverse event that led to discontinuation of the study drug (Table 3). Most adverse events were grade 1 or 2 according to the criteria of the AIDS Clinical Trials Group for grading the severity of adverse events among adults (Table S3 in the Supplementary Appendix).

During the 2-week open-label ceftriaxone phase, 131 patients (46.8%) reported at least one adverse event. Most of these adverse events were judged to be drug-related, and rash and diarrhea were the most common events. No catheter-associated infections were reported. In 6 patients, an allergic adverse event led to the discontinuation of ceftriaxone. Five serious adverse events were reported, four of which were allergic reactions related to ceftriaxone use.

During the 12-week randomized phase, 134 patients (47.9%) had at least one adverse event (Table 3), most of which were judged to be drug-related. The percentage of patients with adverse events from any cause and with drug-related adverse events did not differ significantly among the study groups (P=0.27 and P=0.14, respectively). Photosensitivity and nausea were the most common events in the doxycycline group. Nausea and diarrhea were the most common events in the clarithromycin–hydroxychloroquine group, and rash was significantly more prevalent in that group than in either of the other two groups (P=0.01). Fourteen patients (5.0%) discontinued the randomized active drug or placebo because of an adverse event; the number of patients who discontinued their assigned regimen did not differ significantly among the three study groups (P=0.49). Four serious adverse events were reported, none of which were drug-related.

DISCUSSION

In this randomized, double-blind trial involving patients with persistent symptoms attributed to Lyme disease, prolonged antibiotic treatment (ceftriaxone followed by 12 weeks of either doxycycline or clarithromycin–hydroxychloroquine) did not lead to a better health-related quality of life than that with shorter-term treatment (ceftriaxone followed by placebo). Patients with persistent symptoms attributed to Lyme disease have a poor quality of life, as has been reported in previous studies\(^6,16,17,18\). The low baseline RAND SF-36 scores of the patients in our trial also reflect the poor quality of life among...
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Doxycycline Group (N=86)</th>
<th>Clarithromycin–Hydroxychloroquine Group (N=96)</th>
<th>Placebo Group (N=98)</th>
<th>P Value†</th>
<th>Doxycycline Group vs. Placebo Group</th>
<th>Clarithromycin–Hydroxychloroquine Group vs. Placebo Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary outcome: SF-36 physical-component summary‡</td>
<td>35.0 (33.5 to 36.5)</td>
<td>35.6 (34.2 to 37.1)</td>
<td>34.8 (33.4 to 36.2)</td>
<td>0.69</td>
<td>0.2 (−2.4 to 2.8)</td>
<td>0.9 (−1.6 to 3.3)</td>
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<td>Secondary outcomes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>RAND SF-36§</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Mental-component summary</td>
<td>40.2 (38.6 to 41.9)</td>
<td>40.5 (38.9 to 42.1)</td>
<td>40.1 (38.6 to 41.7)</td>
<td>0.94</td>
<td>0.1 (−2.7 to 2.9)</td>
<td>0.4 (−2.3 to 3.1)</td>
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<td>Global-health composite</td>
<td>36.1 (34.5 to 37.8)</td>
<td>36.6 (35.1 to 38.1)</td>
<td>36.0 (34.5 to 37.5)</td>
<td>0.85</td>
<td>0.1 (−2.6 to 2.9)</td>
<td>0.6 (−2.1 to 3.2)</td>
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<tr>
<td>Physical-functioning scale</td>
<td>41.9 (40.5 to 43.3)</td>
<td>42.1 (40.8 to 43.4)</td>
<td>41.0 (39.7 to 42.3)</td>
<td>0.44</td>
<td>0.9 (−1.4 to 3.2)</td>
<td>1.1 (−1.1 to 3.4)</td>
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<tr>
<td>Role–physical scale</td>
<td>33.6 (31.6 to 35.6)</td>
<td>34.4 (32.5 to 36.3)</td>
<td>33.9 (32.0 to 35.8)</td>
<td>0.84</td>
<td>−0.3 (−3.7 to 3.1)</td>
<td>0.5 (−2.8 to 3.8)</td>
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<td>Bodily pain scale</td>
<td>39.1 (37.5 to 40.7)</td>
<td>40.5 (39.0 to 41.9)</td>
<td>39.4 (37.9 to 40.9)</td>
<td>0.42</td>
<td>−0.3 (−2.9 to 2.4)</td>
<td>1.1 (−1.5 to 3.6)</td>
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<td>General-health scale</td>
<td>37.1 (35.6 to 38.6)</td>
<td>38.4 (37.0 to 39.8)</td>
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<td>0.41</td>
<td>−0.4 (−2.9 to 2.0)</td>
<td>0.9 (−1.5 to 3.3)</td>
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<td>Mental-health scale</td>
<td>45.1 (43.8 to 46.4)</td>
<td>45.2 (43.9 to 46.4)</td>
<td>45.1 (43.9 to 46.4)</td>
<td>1.00</td>
<td>0.0 (−2.3 to 2.2)</td>
<td>0.0 (−2.1 to 2.2)</td>
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<tr>
<td>Role–emotional scale</td>
<td>44.7 (42.4 to 47.0)</td>
<td>41.4 (39.2 to 43.6)</td>
<td>42.6 (40.4 to 44.8)</td>
<td>0.11</td>
<td>2.1 (−1.7 to 6.0)</td>
<td>−1.2 (−5.0 to 2.6)</td>
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<tr>
<td>Social-functioning scale</td>
<td>36.3 (34.2 to 38.4)</td>
<td>38.5 (36.6 to 40.5)</td>
<td>37.5 (35.6 to 39.5)</td>
<td>0.32</td>
<td>−1.2 (−4.7 to 2.3)</td>
<td>−2.4 (−2.4 to 4.4)</td>
</tr>
<tr>
<td>Vitality scale</td>
<td>42.5 (40.9 to 44.0)</td>
<td>42.4 (41.0 to 43.9)</td>
<td>41.9 (40.5 to 43.4)</td>
<td>0.85</td>
<td>0.5 (−2.0 to 3.1)</td>
<td>0.5 (−2.0 to 3.0)</td>
</tr>
<tr>
<td>Checklist Individual Strength¶</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total score</td>
<td>88.7 (84.4 to 92.9)</td>
<td>87.1 (83.0 to 91.1)</td>
<td>88.4 (84.4 to 92.4)</td>
<td>0.84</td>
<td>0.3 (−6.9 to 7.4)</td>
<td>−1.3 (−8.3 to 5.6)</td>
</tr>
<tr>
<td>Fatigue-severity scale</td>
<td>39.4 (37.3 to 41.5)</td>
<td>38.6 (36.6 to 40.5)</td>
<td>38.3 (36.3 to 40.2)</td>
<td>0.73</td>
<td>1.1 (−2.4 to 4.6)</td>
<td>0.3 (−3.1 to 3.7)</td>
</tr>
</tbody>
</table>

*All study groups first received a 2-week course of ceftriaxone before the randomized 12-week course of study drug or placebo. P values were derived by analysis of covariance. All scores are adjusted for sex and baseline SF-36 physical-component summary score.
†Bonferroni correction was used for pairwise comparisons among the three study groups.
‡Group differences should exceed 2 to 4 T-points (exact number of points varies for each scale) to indicate minimally important differences on all RAND SF-36 scales.14
§The ranges of the RAND SF-36 scores were as follows: RAND SF-36 physical-component summary, 15 to 61; mental-component summary, 11 to 66; global-health composite, 8 to 65; physical-functioning scale, 16 to 58; role–physical scale, 26 to 56; bodily pain scale, 20 to 60; general-health scale, 20 to 64; mental-health scale, 16 to 66; role–emotional scale, 19 to 54; social-functioning scale, 12 to 57; and vitality scale, 26 to 70. For all scales, higher scores indicate better quality of life.
¶Scores on the Checklist Individual Strength range from 20 to 140 for the total score and from 8 to 56 for the fatigue-severity scale. For both scales, higher scores indicate more fatigue.
these patients. At the 14-week visit at the end of the treatment period, the mean SF-36 physical-component summary score had improved significantly from baseline regardless of the study-group assignment, but quality of life remained below that of the general population. Similar improvements over time, regardless of study-group assignment, were reported by Kaplan et al., who compared placebo with ceftriaxone followed by doxycycline for persistent symptoms attributed to Lyme disease.29

Whether improvement in the SF-36 physical-component summary score at the end of the treatment period is a beneficial effect of shorter-term antibiotic therapy or a nonspecific effect caused by the low level of baseline functioning, expectations associated with treatment, or placebo effects remains unclear, because all the patients had received 2 weeks of open-label antibiotics before entering into the longer-term randomized study-drug or placebo phase. No significant differences among the study groups were found for any of the secondary outcomes at the end of the treatment period. In addition, no significant changes over time were observed during the 26-week follow-up after the end of the treatment period in any of the study groups.

Although we did not find a significant benefit of longer-term antibiotic therapy, we did find that there were side effects from the use of antibiotics; however, these side effects were similar among the study groups. The majority of patients (68.6%) reported a drug-related adverse event. During the open-label ceftriaxone phase, the incidence of serious adverse events was low; no patient had a serious adverse event related to the use of catheters, and 4 of 280 patients (1.4%) had allergic reactions. During the randomized phase, photosensitivity related to doxycycline use and rash related to clarithromycin–hydroxychloroquine use were the most common adverse events, and no serious adverse event was thought to be related to the randomized study drugs or placebo.

Specific efforts were made to ensure that the patients adhered to the study regimens. Using the Medication Event Monitoring System caps, we recorded that 22 patients (7.9%) discontinued treatment 7 days or more before the end of the treatment period at week 14. In a sensitivity analysis that included the 212 patients who were more than 75% adherent to the study regimen, as determined by electronic medication bottle caps, and had no major protocol violations, no significant difference was shown among the study groups.

The findings of the current trial contribute to the findings of prior work.4,6,18 Our results are consistent with those from the randomized, placebo-controlled trials by Klempner et al.,5 who did not identify a benefit from treatment with ceftriaxone followed by doxycycline for a total of 90 days. However, these trials had been performed in North America, and Lyme disease in Europe is caused by different borrelia species.20 The trials by Klempner et al.5 have been the subject of divergent opinions because they were discontinued prematurely after an interim analysis had indicated that a significant difference in efficacy was unlikely to be reached. Therefore, although the results are statistically

![Figure 2. Physical-Component Summary Scores.](https://example.com/figure2.png)

Shown is the mean SF-36 physical-component summary score for each study group at baseline and at subsequent study visits (nonimputed values). The SF-36 physical-component summary score is based on the weighted T-scores of the four physical RAND SF-36 scales (physical functioning, role limitations due to physical health problems, pain, and general health perceptions). The raw SF-36 physical-component summary score was transformed into a norm-based T-score (range, 15 to 61), with a mean (±SD) score of 50±10 in the general population (higher scores indicate a better physical quality of life). The P value was derived by means of analysis of covariance at the end of the treatment period at 14 weeks, with adjustment for sex and baseline SF-36 physical-component summary score.
valid, the value of prolonged antibiotic therapy for patients with Lyme disease has been based on a study population of approximately 115 patients. Others have suggested that the trials by Klempner et al. were underpowered as a result of an optimistic estimate of the size of the treatment effect.\textsuperscript{7} In a pilot study, we determined that the clinically relevant treatment effect on the SF-36 physical-component summary score was 3 points, as was recommended by the SF-36 Health Survey.\textsuperscript{14} None of the differences among the study groups were found to exceed the minimal clinically relevant difference for each of the RAND SF-36 scales, which varies between 2 and 4 across scales.\textsuperscript{14} Whereas earlier trials might have been influenced by baseline differences, we included baseline health-related quality of life as a covariate.

Three other small, placebo-controlled trials have addressed prolonged treatment for persistent symptoms attributed to Lyme disease and showed positive effects for some outcomes only.\textsuperscript{4,6,18} Krupp et al.\textsuperscript{4} reported a significant treatment effect of ceftriaxone on fatigue, but not on cognitive function, at follow-up. Fallon et al. found a beneficial effect of ceftriaxone on neurocognitive performance at week 12, but the effect was not sustained to week 24.\textsuperscript{18} Cameron et al. report- ed beneficial effects of amoxicillin on mental-health scores, but not on physical health, in a subgroup of patients.\textsuperscript{6} Although several non-comparative, open-label studies have shown beneficial effects of prolonged antimicrobial treatment, including the regimens used in the current study,\textsuperscript{21-24} randomized, controlled trials of pro- longed antimicrobial treatment have not confirmed those effects.

The current trial has several limitations.

### Table 3. Adverse Events in the Modified Intention-to-Treat Population.\textsuperscript{9}

<table>
<thead>
<tr>
<th>Type of Event</th>
<th>Total (N = 280)</th>
<th>Open-Label Phase (N = 280)</th>
<th>Randomized Phase</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Doxycycline</td>
<td>Clarithromycin–Hydroxychloroquine</td>
<td>Placebo</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Group (N = 86)</td>
<td>Group (N = 96)</td>
<td>Group (N = 98)</td>
<td></td>
</tr>
<tr>
<td>任何不良事件†</td>
<td>205 (73.2)</td>
<td>131 (46.8)</td>
<td>47 (54.7)</td>
<td>45 (46.9)</td>
</tr>
<tr>
<td>任何与药物相关的不良事件†</td>
<td>192 (68.6)</td>
<td>127 (45.4)</td>
<td>42 (48.8)</td>
<td>42 (43.8)</td>
</tr>
<tr>
<td>停药因不良事件†</td>
<td>19 (6.8)</td>
<td>6 (2.1)</td>
<td>3 (3.5)</td>
<td>7 (7.3)</td>
</tr>
<tr>
<td>任何严重不良事件</td>
<td>9 (3.2)</td>
<td>5 (1.8)</td>
<td>3 (3.5)</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>最常见的不良事件</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>腹泻</td>
<td>91 (32.5)</td>
<td>72 (25.7)</td>
<td>4 (4.7)</td>
<td>9 (9.4)</td>
</tr>
<tr>
<td>恶心</td>
<td>44 (15.7)</td>
<td>20 (7.1)</td>
<td>9 (10.5)</td>
<td>10 (10.4)</td>
</tr>
<tr>
<td>皮疹†</td>
<td>31 (11.1)</td>
<td>23 (8.2)</td>
<td>1 (1.2)</td>
<td>8 (8.3)</td>
</tr>
<tr>
<td>真菌性口腔感染</td>
<td>20 (7.1)</td>
<td>8 (2.9)</td>
<td>5 (5.8)</td>
<td>4 (4.2)</td>
</tr>
<tr>
<td>光敏</td>
<td>19 (6.8)</td>
<td>2 (0.7)</td>
<td>16 (18.6)</td>
<td>0</td>
</tr>
<tr>
<td>头痛</td>
<td>16 (5.7)</td>
<td>12 (4.3)</td>
<td>0</td>
<td>2 (2.1)</td>
</tr>
<tr>
<td>眩晕</td>
<td>16 (5.7)</td>
<td>3 (1.1)</td>
<td>3 (3.5)</td>
<td>5 (5.2)</td>
</tr>
<tr>
<td>视力障碍</td>
<td>16 (5.7)</td>
<td>1 (0.4)</td>
<td>1 (1.2)</td>
<td>4 (4.2)</td>
</tr>
</tbody>
</table>

\textsuperscript{9} Data are the number of patients who had at least one event of a given type (% of study group). All patients received a 2-week course of ceftriaxone treatment (open-label phase), after which patients were randomly assigned to receive a 12-week oral course of doxycycline, clarithromycin–hydroxychloroquine, or placebo (randomized phase).

\textsuperscript{†} The total is not a sum of the two trial phases because some patients had an adverse event during both phases. P values were derived from the chi-square test for the comparisons of the three study groups during the randomized phase.

\textsuperscript{‡} Fisher’s exact test was used when the numbers were small (expected frequency <5).
First, patients received open-label antibiotics for 2 weeks before the randomized phase. Consequently, the study was designed to compare longer-term therapy with shorter-term therapy, rather than with placebo as was done in previous trials.\textsuperscript{4,5,18} Although we did not identify any benefit of longer-term therapy, the question of whether a 2-week regimen of antibiotics is superior to withholding any therapy in our patient population remains unanswered. We chose not to include a study group that received only placebo because it was judged to be unethical to withhold treatment from patients who might have an infection at baseline that had not yet been treated. We selected ceftriaxone because it is considered the treatment of choice for disseminated Lyme disease.\textsuperscript{5,8} Thus, although 14 weeks of antimicrobial therapy did not provide a clinical benefit for patients with persistent symptoms attributed to Lyme disease, our results cannot show whether our study may have included patients with undiagnosed active \textit{B. burgdorferi} infection, who have benefited from ceftriaxone treatment.

This trial, as well as previous trials,\textsuperscript{4-6,18} was aimed at the treatment of patients with persistent, notably distressing or impairing symptoms that emerged after well-documented Lyme disease. We acknowledge that the cause of these persistent symptoms is unclear and that these patients may be heterogeneous with respect to the pathogenesis or the duration and severity of the symptoms — which reflects the heterogeneity of the population seen in clinical practice. We prevented an imbalance in baseline characteristics among the study groups by performing a randomization balanced for duration of symptoms (<1 or ≥1 year) and baseline RAND SF-36 score. Finally, it may be argued that 14 weeks of treatment is insufficient to show a beneficial treatment effect. However, whereas prolonged antimicrobial treatment is not uncommon for various infectious diseases,\textsuperscript{39,26} the purpose of prolonged therapy for such diseases is for the prevention of microbiologic relapse rather than for a delayed onset of clinical alleviation of signs or symptoms. We are not aware of any infectious disease in which the initial effect on signs, symptoms, and laboratory findings is delayed beyond the first 3 months of effective therapy.

In conclusion, the current trial suggests that 14 weeks of antimicrobial therapy does not provide clinical benefit beyond that with shorter-term treatment among patients who present with fatigue or musculoskeletal, neuropsychological, or cognitive disorders that are temporally related to prior Lyme disease or accompanied by positive \textit{B. burgdorferi} serologic findings.

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Therapy for Symptoms Attributed to Lyme Disease

longed antibiotic treatment in patients with persistent symptoms attributed to Lyme borreliosis. BMC Infect Dis 2014; 14: 543.


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Subd. 8. Limitation.

No board proceeding review or investigation of against a regulated person shall be initiated unless the Board has received a complaint or report within seven years from the date of the commission of some portion of the offense or misconduct complained of or reported on except for alleged violations of subdivision 1, paragraph (t).

No board review or investigation of a regulated person shall be initiated unless the board has received a complaint or report within seven years from the date of the commission of some portion of the conduct complained of or reported on except for alleged violations of subdivision 1, paragraph (t).

Subdivision 1. Board approval; reporting.

A person holding an active license to practice medicine in the state may, upon approval of the board, be granted license cancellation if the board is not investigating the person as a result of a complaint or information received or if the board has not begun disciplinary proceedings against the person. Such action by the board shall be reported as a cancellation of a license in good standing.

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Subdivision 1. Board approval; reporting.

The Board of Medical Practice shall not renew, reissue, reinstate, or restore a license that has lapsed and is not subject to a pending review, investigation, or disciplinary action, on or after January 1, 1989, and has not been renewed within two annual license renewal cycles starting July 1, 1991. A licensee whose license is canceled for nonrenewal must obtain a new license by applying for licensure and fulfilling all requirements then in existence for an initial license to practice medicine in Minnesota.

The Board of Medical Practice shall not renew, reissue, reinstate, or restore a license that has lapsed and is not subject to a pending review, investigation, or disciplinary action, on or after January 1, 1989, and has not been renewed within two annual license renewal cycles starting July 1, 1991. A licensee whose license is canceled for nonrenewal must obtain a new license by applying for licensure and fulfilling all requirements then in existence for an initial license to practice medicine in Minnesota.
147.091 GROUNDS FOR DISCIPLINARY ACTION.

Subdivision 1. **Grounds listed.** The board may refuse to grant a license, may refuse to grant registration to perform interstate telemedicine services, or may impose disciplinary action as described in section 147.141 against any physician. The following conduct is prohibited and is grounds for disciplinary action:

(a) Failure to demonstrate the qualifications or satisfy the requirements for a license contained in this chapter or rules of the board. The burden of proof shall be upon the applicant to demonstrate such qualifications or satisfaction of such requirements.

(b) Obtaining a license by fraud or cheating, or attempting to subvert the licensing examination process. Conduct which subverts or attempts to subvert the licensing examination process includes, but is not limited to: (1) conduct which violates the security of the examination materials, such as removing examination materials from the examination room or having unauthorized possession of any portion of a future, current, or previously administered licensing examination; (2) conduct which violates the standard of test administration, such as communicating with another examinee during administration of the examination, copying another examinee's answers, permitting another examinee to copy one's answers, or possessing unauthorized materials; or (3) impersonating an examinee or permitting an impersonator to take the examination on one's own behalf.

(c) Conviction, during the previous five years, of a felony reasonably related to the practice of medicine or osteopathic medicine. Conviction as used in this subdivision shall include a conviction of an offense which if committed in this state would be deemed a felony without regard to its designation elsewhere, or a criminal proceeding where a finding or verdict of guilt is made or returned but the adjudication of guilt is either withheld or not entered thereon.

(d) Revocation, suspension, restriction, limitation, or other disciplinary action against the person's medical license in another state or jurisdiction, failure to report to the board that charges regarding the person's license have been brought in another state or jurisdiction, or having been refused a license by any other state or jurisdiction.

(e) Advertising which is false or misleading, which violates any rule of the board, or which claims without substantiation the positive cure of any disease, or professional superiority to or greater skill than that possessed by another physician.

(f) Violating a rule promulgated by the board or an order of the board, a state, or federal law which relates to the practice of medicine, or in part regulates the practice of medicine including without limitation sections 604.201, 609.344, and 609.345, or a state or federal narcotics or controlled substance law.

(g) Engaging in any unethical or improper conduct, including but not limited to:

1. conduct likely to deceive or defraud the public;

2. conduct likely to harm the public;

3. conduct that demonstrates a willful or careless disregard for the health, welfare, or safety of a patient;

4. medical practice that is professionally incompetent; and

5. conduct that may create unnecessary danger to any patient's life, health, or safety, in any of which cases, proof of actual injury need not be established.

(h) Failure to provide proper supervision, including but not limited to supervision of a:
(1) physician assistant;

(2) licensed or unlicensed health care provider; and

(3) physician under any agreement with the board.

(i) Aiding or abetting an unlicensed person in the practice of medicine, except that it is not a violation of this paragraph for a physician to employ, supervise, or delegate functions to a qualified person who may or may not be required to obtain a license or registration to provide health services if that person is practicing within the scope of that person's license or registration or delegated authority.

(j) Adjudication by a court of competent jurisdiction, within or outside this state, as:

(1) mentally incompetent;

(2) mentally ill;

(3) developmentally disabled;

(4) a chemically dependent person;

(5) a person dangerous to the public;

(6) a sexually dangerous person; or

(7) a person who has a sexual psychopathic personality.

Such adjudication shall automatically suspend a license for the duration of the adjudication unless the board orders otherwise.

(k) Conduct that departs from or fails to conform to the minimal standards of acceptable and prevailing medical practice in which case proof of actual injury need not be established.

(l) Inability to practice medicine with reasonable skill and safety to patients by reason of the following, including but not limited to:

(1) illness;

(2) intoxication;

(3) use of drugs, narcotics, chemicals, or any other type of substance;

(4) mental condition;

(5) physical condition;

(6) diminished cognitive ability;

(7) loss of motor skills; or

(8) deterioration through the aging process.

(m) Revealing a privileged communication from or relating to a patient except when otherwise required or permitted by law.
(n) Failure by a doctor of osteopathic medicine to identify the school of healing in the professional use of the doctor's name by one of the following terms: osteopathic physician and surgeon, doctor of osteopathic medicine, or D.O.

(o) Improper management of medical records, including failure to maintain adequate medical records, to comply with a patient's request made pursuant to sections 144.291 to 144.298 or to furnish a medical record or report required by law.

(p) Fee splitting, including without limitation:

1. paying, offering to pay, receiving, or agreeing to receive, a commission, rebate, or remuneration, directly or indirectly, primarily for the referral of patients or the prescription of drugs or devices;

2. dividing fees with another physician or a professional corporation, unless the division is in proportion to the services provided and the responsibility assumed by each professional and the physician has disclosed the terms of the division;

3. referring a patient to any health care provider as defined in sections 144.291 to 144.298 in which the referring physician has a "financial or economic interest," as defined in section 144.6521, subdivision 3, unless the physician has disclosed the physician's financial or economic interest in accordance with section 144.6521; and

4. dispensing for profit any drug or device, unless the physician has disclosed the physician's own profit interest.

The physician must make the disclosures required in this clause in advance and in writing to the patient and must include in the disclosure a statement that the patient is free to choose a different health care provider. This clause does not apply to the distribution of revenues from a partnership, group practice, nonprofit corporation, or professional corporation to its partners, shareholders, members, or employees if the revenues consist only of fees for services performed by the physician or under a physician's direct supervision, or to the division or distribution of prepaid or capitated health care premiums, or fee-for-service withhold amounts paid under contracts established under other state law.

(q) Engaging in abusive or fraudulent billing practices, including violations of the federal Medicare and Medicaid laws or state medical assistance laws.

(r) Becoming addicted or habituated to a drug or intoxicant.

(s) Inappropriate prescribing of or failure to properly prescribe a drug or device, including prescribing a drug or device for other than medically accepted therapeutic or experimental or investigative purposes authorized by a state or federal agency.

(t) Engaging in conduct with a patient which is sexual or may reasonably be interpreted by the patient as sexual, or in any verbal behavior which is seductive or sexually demeaning to a patient.

(u) Failure to make reports as required by section 147.111 or to cooperate with an investigation of the board as required by section 147.131.

(v) Knowingly providing false or misleading information that is directly related to the care of that patient unless done for an accepted therapeutic purpose such as the administration of a placebo.

(w) Aiding suicide or aiding attempted suicide in violation of section 609.215 as established by any of the following:
(1) a copy of the record of criminal conviction or plea of guilty for a felony in violation of section 609.215, subdivision 1 or 2;

(2) a copy of the record of a judgment of contempt of court for violating an injunction issued under section 609.215, subdivision 4;

(3) a copy of the record of a judgment assessing damages under section 609.215, subdivision 5; or

(4) a finding by the board that the person violated section 609.215, subdivision 1 or 2. The board shall investigate any complaint of a violation of section 609.215, subdivision 1 or 2.

(x) Practice of a board-regulated profession under lapsed or nonrenewed credentials.

(y) Failure to repay a state or federally secured student loan in accordance with the provisions of the loan.

(z) Providing interstate telemedicine services other than according to section 147.032.

Subd. 1a. Conviction of a felony-level criminal sexual conduct offense. (a) The board may not grant a license to practice medicine to any person who has been convicted of a felony-level criminal sexual conduct offense.

(b) A license to practice medicine is automatically revoked if the licensee is convicted of a felony-level criminal sexual conduct offense.

(c) A license that has been denied or revoked pursuant to this subdivision is not subject to chapter 364.

(d) For purposes of this subdivision, "conviction" means a plea of guilty, a verdict of guilty by a jury, or a finding of guilty by the court, and "criminal sexual conduct offense" means a violation of sections 609.342 to 609.345 or a similar statute in another jurisdiction.

Subd. 1b. Utilization review. The board may investigate allegations and impose disciplinary action as described in section 147.141 against a physician performing utilization review for a pattern of failure to exercise that degree of care that a physician reviewer of ordinary prudence making utilization review determinations for a utilization review organization would use under the same or similar circumstances. As part of its investigative process, the board shall receive consultation or recommendation from physicians who are currently engaged in utilization review activities. The internal and external review processes under sections 62M.06 and 62Q.73 must be exhausted prior to an allegation being brought under this subdivision. Nothing in this subdivision creates, modifies, or changes existing law related to tort liability for medical negligence. Nothing in this subdivision preempts state peer review law protection in accordance with sections 145.61 to 145.67, federal peer review law, or current law pertaining to complaints or appeals.

Subd. 2. Automatic suspension. (a) A license to practice medicine is automatically suspended if (1) a guardian of a licensee is appointed by order of a court pursuant to sections 524.5-101 to 524.5-502, for reasons other than the minority of the licensee; or (2) the licensee is committed by order of a court pursuant to chapter 253B. The license remains suspended until the licensee is restored to capacity by a court and, upon petition by the licensee, the suspension is terminated by the board after a hearing.

(b) Upon notice to the board of a judgment of, or a plea of guilty to, a felony reasonably related to the practice of patient care, the credentials of the regulated person shall be automatically suspended by the board. The credentials shall remain suspended until, upon petition by the regulated person and after a hearing, the suspension is terminated by the board. The board shall indefinitely suspend or revoke the credentials of the
regulated person if, after a hearing, the board finds that the felonious conduct would cause a serious risk of harm to the public.

(c) For credentials that have been suspended or revoked pursuant to paragraphs (a) and (b), the regulated person may be reinstated to practice, either with or without restrictions, by demonstrating clear and convincing evidence of rehabilitation, as provided in section 364.03. If the regulated person's conviction is subsequently overturned by court decision, the board shall conduct a hearing to review the suspension within 30 days after receipt of the court decision. The regulated person is not required to prove rehabilitation if the subsequent court decision overturns previous court findings of public risk.

(d) The board may, upon majority vote of a quorum of its members, suspend the credentials of a regulated person without a hearing if the regulated person fails to maintain a current name and address with the board, as described in paragraph (e), while the regulated person is: (1) under board investigation, and a notice of conference has been issued by the board; (2) party to a contested case with the board; (3) party to an agreement for corrective action with the board; or (4) under a board order for disciplinary action. The suspension shall remain in effect until lifted by the board pursuant to the board's receipt of a petition from the regulated person, along with the regulated person's current name and address.

(e) A person regulated by the board shall maintain a current name and address with the board and shall notify the board in writing within 30 days of any change in name or address. If a name change only is requested, the regulated person must request revised credentials and return the current credentials to the board. The board may require the regulated person to substantiate the name change by submitting official documentation from a court of law or agency authorized under law to receive and officially record a name change. If an address change only is requested, no request for revised credentials is required. If the regulated person's current credentials have been lost, stolen, or destroyed, the person shall provide a written explanation to the board.

Subd. 2a. Effective dates. A suspension, revocation, condition, limitation, qualification, or restriction of a license or registration shall be in effect pending determination of an appeal unless the court, upon petition and for good cause shown, shall otherwise order. A revocation of a license pursuant to subdivision 1a is not appealable and shall remain in effect indefinitely.

Subd. 3. Conditions on reissued license. In its discretion, the board may restore and reissue a license to practice medicine, but as a condition thereof may impose any disciplinary or corrective measure which it might originally have imposed.

Subd. 4. Temporary suspension of license. In addition to any other remedy provided by law, the board may, without a hearing, temporarily suspend the license of a physician if the board finds that the physician has violated a statute or rule which the board is empowered to enforce and continued practice by the physician would create a serious risk of harm to the public. The suspension shall take effect upon written notice to the physician, specifying the statute or rule violated. The suspension shall remain in effect until the board issues a final order in the matter after a hearing. At the time it issues the suspension notice, the board shall schedule a disciplinary hearing to be held pursuant to the Administrative Procedure Act. The physician shall be provided with at least 20 days' notice of any hearing held pursuant to this subdivision. The hearing shall be scheduled to begin no later than 30 days after the issuance of the suspension order.

Subd. 5. Evidence. In disciplinary actions alleging a violation of subdivision 1, paragraph (c) or (d), a copy of the judgment or proceeding under the seal of the court administrator or of the administrative agency which entered the same shall be admissible into evidence without further authentication and shall constitute prima facie evidence of the contents thereof.
Subd. 6. **Mental examination; access to medical data.** (a) If the board has probable cause to believe that a regulated person comes under subdivision 1, paragraph (1), it may direct the person to submit to a mental or physical examination. For the purpose of this subdivision every regulated person is deemed to have consented to submit to a mental or physical examination when directed in writing by the board and further to have waived all objections to the admissibility of the examining physicians' testimony or examination reports on the ground that the same constitute a privileged communication. Failure of a regulated person to submit to an examination when directed constitutes an admission of the allegations against the person, unless the failure was due to circumstance beyond the person's control, in which case a default and final order may be entered without the taking of testimony or presentation of evidence. A regulated person affected under this paragraph shall at reasonable intervals be given an opportunity to demonstrate that the person can resume the competent practice of the regulated profession with reasonable skill and safety to the public.

In any proceeding under this paragraph, neither the record of proceedings nor the orders entered by the board shall be used against a regulated person in any other proceeding.

(b) In addition to ordering a physical or mental examination, the board may, notwithstanding section 13.384, 144.651, or any other law limiting access to medical or other health data, obtain medical data and health records relating to a regulated person or applicant without the person's or applicant's consent if the board has probable cause to believe that a regulated person comes under subdivision 1, paragraph (1). The medical data may be requested from a provider, as defined in section 144.291, subdivision 2, paragraph (h), an insurance company, or a government agency, including the Department of Human Services. A provider, insurance company, or government agency shall comply with any written request of the board under this subdivision and is not liable in any action for damages for releasing the data requested by the board if the data are released pursuant to a written request under this subdivision, unless the information is false and the provider giving the information knew, or had reason to believe, the information was false. Information obtained under this subdivision is classified as private under sections 13.01 to 13.87.

Subd. 7. **Tax clearance certificate.** (a) In addition to the provisions of subdivision 1, the board may not issue or renew a license if the commissioner of revenue notifies the board and the licensee or applicant for a license that the licensee or applicant owes the state delinquent taxes in the amount of $500 or more. The board may issue or renew the license only if (1) the commissioner of revenue issues a tax clearance certificate and (2) the commissioner of revenue or the licensee or applicant forwards a copy of the clearance to the board. The commissioner of revenue may issue a clearance certificate only if the licensee or applicant does not owe the state any uncontested delinquent taxes.

(b) For purposes of this subdivision, the following terms have the meanings given.

(1) "Taxes" are all taxes payable to the commissioner of revenue, including penalties and interest due on those taxes.

(2) "Delinquent taxes" do not include a tax liability if (i) an administrative or court action that contests the amount or validity of the liability has been filed or served, (ii) the appeal period to contest the tax liability has not expired, or (iii) the licensee or applicant has entered into a payment agreement to pay the liability and is current with the payments.

(c) In lieu of the notice and hearing requirements of subdivision 1, when a licensee or applicant is required to obtain a clearance certificate under this subdivision, a contested case hearing must be held if the licensee or applicant requests a hearing in writing to the commissioner of revenue within 30 days of the date of the notice provided in paragraph (a). The hearing must be held within 45 days of the date the commissioner of revenue refers the case to the Office of Administrative Hearings. Notwithstanding any law to the contrary,
the licensee or applicant must be served with 20 days' notice in writing specifying the time and place of the hearing and the allegations against the licensee or applicant. The notice may be served personally or by mail.

(d) The board shall require all licensees or applicants to provide their Social Security number and Minnesota business identification number on all license applications. Upon request of the commissioner of revenue, the board must provide to the commissioner of revenue a list of all licensees and applicants, including the name and address, Social Security number, and business identification number. The commissioner of revenue may request a list of the licensees and applicants no more than once each calendar year.

Subd. 8. Limitation. No board proceeding against a regulated person shall be instituted unless commenced within seven years from the date of the commission of some portion of the offense or misconduct complained of except for alleged violations of subdivision 1, paragraph (t).

History: 1971 c 485 s 3; 1974 c 31 s 1; 1975 c 213 s 1; 1976 c 222 s 34; 1981 c 83 s 1; 1982 c 581 s 24; 1985 c 21 s 1; 1985 c 247 s 7,25; 1986 c 444; 1Sp1986 c 1 art 7 s 7; 1Sp1986 c 3 art 1 s 82; 1987 c 384 art 2 s 1; 1988 c 557 s 2; 1989 c 184 art 2 s 3; 1992 c 559 art 1 s 3; 1992 c 577 s 1; 1Sp1994 c 1 art 2 s 3,4; 1995 c 18 s 4-8; 1996 c 334 s 4; 1997 c 103 s 1; 1999 c 227 s 22; 2001 c 137 s 7; 2002 c 361 s 3; 2004 c 146 art 3 s 6; 2004 c 198 s 16; 2005 c 56 s 1; 2007 c 147 art 10 s 15; 2014 c 291 art 4 s 58; 2016 c 119 s 6,7; 2017 c 56 s 3
147.038 CANCELLATION OF LICENSE IN GOOD STANDING.

Subdivision 1. **Board approval; reporting.** A person holding an active license to practice medicine in the state may, upon approval of the board, be granted license cancellation if the board is not investigating the person as a result of a complaint or information received or if the board has not begun disciplinary proceedings against the person. Such action by the board shall be reported as a cancellation of a license in good standing.

Subd. 2. **Fees nonrefundable.** A person who receives board approval for license cancellation is not entitled to a refund of any license fees paid for the licensure year in which cancellation of the license occurred.

Subd. 3. **New license after cancellation.** If a person who has been granted board approval for license cancellation desires to resume the practice of medicine in Minnesota, that person must obtain a new license by applying for licensure and fulfilling the requirements then in existence for obtaining an initial license to practice medicine in Minnesota.

**History:** *1991 c 106 s 3*
147.039 CANCELLATION OF LICENSE FOR NONRENEWAL.

The Board of Medical Practice shall not renew, reissue, reinstate, or restore a license that has lapsed on or after January 1, 1989, and has not been renewed within two annual license renewal cycles starting July 1, 1991. A licensee whose license is canceled for nonrenewal must obtain a new license by applying for licensure and fulfilling all requirements then in existence for an initial license to practice medicine in Minnesota.

History: 1991 c 106 s 4