A survey of internists' recommendations for aspirin in older adults and barriers to evidence-based use

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Abstract

Recent trials suggest that aspirin for primary prevention may do more harm than good for some, including adults over 70 years of age. We sought to assess how primary care providers (PCPs) use aspirin for the primary prevention in older patients and to identify barriers to use according to recent guidelines, which recommend against routine use in patients over age 70. We surveyed PCPs about whether they would recommend aspirin in clinical vignettes of a 75-year-old patient with a 10-year atherosclerotic cardiovascular disease risk of 25%. We also queried perceived difficulty following guideline recommendations, as well as perceived barriers and facilitators. We

obtained responses from 372 PCPs (47.9% response). In the patient vignette, 45.4% of clinicians recommended aspirin use, which did not vary by whether the patient was using aspirin initially (p = 0.21); 41.7% believed aspirin was beneficial. Perceived barriers to guideline-based aspirin use included concern about patients being upset (41.6%), possible malpractice claims (25.0%), and not having a strategy for discussing aspirin use (24.5%). The estimated adjusted probability of rating the guideline as "hard to follow" was higher in clinicians who believed aspirin was beneficial (29.4% vs. 8.0%; p < 0.001) and who worried the patient would be upset if told to stop aspirin (26.7% vs. 12.5%; p = 0.001). Internists vary considerably in their recommendations for aspirin use for primary prevention in older patients. A high proportion of PCPs continue to believe aspirin is beneficial in this setting. These results can inform de-implementation efforts to optimize evidence-based aspirin use.

Keywords

Aspirin; Primary prevention; Cardiovascular disease; Surveys and questionnaires

Introduction

An estimated 25–45% of adults over age 40 in the United States (US) use aspirin for the primary prevention of atherosclerotic cardiovascular disease, [1–3] including nearly ten million patients over 70 years old [1]. Atherosclerotic cardiovascular disease includes coronary artery disease, cerebrovascular disease, and peripheral arterial disease. However, the evidence base to support aspirin use for this indication is tenuous. Early randomized trials of aspirin for primary prevention suggested that aspirin weakly reduced serious vascular events, and that this benefit was likely counterbalanced by increased bleeding events [4]. Accordingly, the US Food and Drug Administration has never approved the labelling of aspirin for the indication of primary prevention [5]. Over the past 20 years, the apparent benefits of aspirin for primary prevention have further diminished.

Large contemporary randomized controlled trials have not consistently shown aspirin to be beneficial in the context of declining smoking rates and improved blood pressure control and lipid management [5, 6]. In fact, for patients over 70 years old or with risk factors for bleeding, trials suggest net harm (driven by increased major intracranial and upper gastrointestinal bleeding) with the use of aspirin for primary prevention [8–12]. Informed by recent studies, the 2019 American College of Cardiology/American Heart Association (ACC/AHA) Guidelines recommend that aspirin "should not be administered on a routine basis for the primary prevention of atherosclerotic cardiovascular disease among adults > 70 years of age." [7] Recent guidelines from the United States Preventative Services Task Force also do not recommend prescribing aspirin for primary prevention for adults 60 years of age or older [8]. Considering the negative consequences of polypharmacy in older adults [9] and the risk for adverse drug events [10], reducing aspirin use when not clinically indicated is especially important.

Historically, shifts in the evidence base have often taken decades to change clinical practice [11]. To inform efforts to improve evidence-based use of aspirin, we surveyed internists to

evaluate current practices and perceptions of aspirin for primary prevention in older adults, as well as barriers and facilitators to stopping aspirin. Because of the high prevalence of aspirin use in older adults, we also explored whether the "the status quo bias," whereby providers are more likely to recommend continuing a therapy for patients already prescribed it, bears on the use of aspirin for primary prevention. [12]

Methods

We conducted a survey study to explore four specific research questions:

- How often do internists initiate a discussion of aspirin as part of a health maintenance visit?

- How often do internists recommend aspirin for primary prevention of atherosclerotic cardiovascular disease in older adults?

- What are internists' beliefs about and barriers and facilitators to avoiding aspirin use for primary prevention in older adults?

- Does clinical inertia lead internists to continue aspirin for primary prevention for a patient in whom they would not start it de novo?

Participants

In partnership with the American College of Physicians (ACP), we conducted an Internet-based survey of a national sample of United States physicians. This was done using the Internal Medicine Insider research panel, which is maintained by the ACP Research Center. The panel consists of physicians in the United States who have volunteered to participate in survey studies and is regularly adjusted to be representative of ACP member demographics and membership class (trainee vs. member vs. fellow vs. master). The panel has been widely used for prior health services research [13, 14]. At the time of the survey, the panel contained 2542 members, of whom 2032 were non-trainees in practice. We invited all panel members who had previously reported practicing in the fields of general medicine or geriatrics and who were not in medical training, numbering 796. Clinicians who entered the online survey and reported not providing primary care to patients were ineligible, as were trainees.

Measures

We developed a 23-item questionnaire modelled off a previously published survey that was used to explore prescribing and deprescribing practices related to antihyperglycemic drugs. [15]

The Center for Bioethics and Social Sciences in Medicine at the University of Michigan, which includes faculty with expertise in clinician decision-making, provided guidance in the development of the survey. It was pre-tested using the think-aloud method with 3 internal medicine trainees and 2 internists to ensure usability and comprehension of the questions, after which the survey was revised to improve clarity.

Survey content

The fielded survey can be found in Supplement 1. Participants were first presented with one of two patient vignettes. Both started with the description of a similar patient: "You are seeing a 75-year-old man in your clinic for his annual health maintenance exam. He has no history of cardiovascular disease or gastrointestinal bleeding. You have been diligent about optimizing his cardiovascular risk factors. His estimated 10-year risk of atherosclerotic cardiovascular disease is 25%". However, in half of the vignettes, the patient was noted to not be taking aspirin (the "off-aspirin vignette"), and in the other half, the patient was noted to have taken aspirin 81 mg daily for the past 3 years (the "on-aspirin vignette"). Participants were randomized 1:1 to either the off-aspirin or on-aspirin vignette. Participants were unaware there was randomization or two forms. Participants were next asked how likely they would be to initiate a discussion about aspirin use if the patient did not bring it up (on a four-point Likert-type scale from very likely to very unlikely), and then whether they would recommend that the patient use aspirin, with the response options of stop aspirin/ continue aspirin or start aspirin/do not start aspirin, depending on vignette presented.

Next, all participants were presented with the "on-aspirin vignette," and then asked to rate the anticipated difficulty in that case of following the 2019 ACC/AHA guidance statement that "low-dose aspirin should not be administered on a routine basis for primary prevention of atherosclerotic cardiovascular disease among adults > 70 years of age," with a four-point Likert-type scale from very easy to very difficult.

Finally, participants were asked their perceptions of aspirin use (Table 2) for the patient in the "on-aspirin vignette," followed by questions about potential barriers and facilitators to evidence-based aspirin use with a four-point Likert-type scale (strongly disagree to strongly agree). Basic demographic information was also elicited (Table 1).

Survey distribution

Invitations to participate were first sent to 796 panel members believed to be eligible for participation on August 17, 2020. Four additional reminders were sent to non-respondents before the survey was closed on September 7, 2020. Respondents received points redeemable for a $10 gift card.

Statistical analyses

All responses on a four-point Likert-type scale were dichotomized at the midpoint (e.g., likely vs. unlikely) to simplify the presentation of results. To evaluate for possible "inertial effects," we used logistic regression to examine the association of recommending aspirin treatment (as a dependent variable) with whether the clinician was randomized to the vignette in which the patient was initially using aspirin or not. We analyzed factors associated with perceived difficulty following guidelines on aspirin use in older patients using logistic regression and included all questions on barriers and facilitators as covariates, in addition to clinician age, gender, specialty, and practice setting. For variables associated with the outcome at a level of $p < 0.05$, we then estimated the probability of the outcome at different levels of the covariate using marginal estimates from the same logistic regression model. As a sensitivity analysis to examine the effect of dichotomizing the dependent

variable, we also replicated this regression analysis using a generalized ordered logistic model. We used Stata 15.0 for all analyses.

The study was determined to be exempt from review by the University of Michigan Institutional Review Board.

Results

Sample characteristics

Complete surveys were analyzed for 372 respondents, for a response rate of 47.9% (372/776), after excluding 20 invited individuals from the denominator who were unreachable or otherwise ineligible (Supplemental Figure 1). A slight majority of respondents were male (57.0%; Table 1). Nearly all respondents identified internal medicine as their specialty (91.7%), while 7.3% identified geriatrics. Respondents commonly practiced in group, academic, or solo practice settings (39.0%, 19.4%, and 15.3% respectively) and spent over 6 half-days per week providing primary care (58.3%). Most clinicians were 41–60 years old (54.6%).

Management in the patient vignettes

In the on-aspirin vignette, 149/187 (79.2%) respondents were likely to discuss aspirin, and 91/187 (48.7%) would recommend continuing aspirin (Fig. 1). In the off-aspirin vignette, 90/185 (48.6%) respondents were likely to discuss aspirin, and 78/185 (42.2%) would suggest starting aspirin. Clinicians in the on-aspirin vignette were more likely to discuss aspirin (odds ratio 4.14, p < 0.001; Fig. 1), but no more likely to recommend aspirin use (odds ratio 1.30, p = 0.21). Among all respondents, 45.4% of clinicians recommended aspirin use.

When all respondents were presented with the on-aspirin vignette, 155 (41.7%) agreed/ strongly agreed that the patient would benefit from aspirin; in a separate question, 210 (56.4%) agreed/strongly agreed that the patient would be harmed by continuing aspirin.

Barriers and facilitators to following ACC/AHA Guideline for patients > 70 years old—When presented with the 2019 ACC/AHA guideline recommending against routine use of aspirin for primary prevention among patients > 70 years old, 19.1% indicated that it would be somewhat/very difficult following this recommendation in their practice.

Most respondents agreed that educational materials would be helpful to discuss aspirin use with their patients (320/372, 86.0%) and that patients would prefer their clinicians decide if their aspirin should be stopped (264/372, 71.0%). The most commonly endorsed barriers to deprescribing aspirin for primary prevention were the patient potentially being upset (41.7%), the potential for a future malpractice claim (25.0%), not having a strategy for discussing stopping aspirin (24.5%), and insufficient time to discuss it (21.5%; Table 2).

In multivariable logistic regression analysis, respondents were more likely to view following the ACC/AHA guideline as difficult to follow if they believed aspirin was beneficial (< 0.001; Table 3), or believed that the patient would be upset if told to stop aspirin (p =

0.001). In contrast, respondents were less likely to view it as difficult if they viewed aspirin as harmful (p = 0.02). In a sensitivity analysis using a generalized ordered logistic model, results were similar.

Discussion

In the context of increasing evidence to avoid use of aspirin for primary prevention in older patients, this survey of US primary care providers found widely divergent views on the perceived benefits of this practice, with roughly 2/5 believing it is beneficial and 3/5 believing it is harmful. Furthermore, 19.1% of internists expressed the view that it would be difficult adhering to guidelines recommending against the use of primary prevention aspirin in older patients. Clinicians who viewed aspirin as beneficial for primary prevention in older patients, and who believed that patients would be upset if told to stop aspirin, were more likely to view adherence to the guideline as difficult. We did not identify a "status quo bias" that would lead clinicians to continue aspirin for patients who were previously prescribed it. Our study highlights the need for interventions that improve the delivery of evidence-based aspirin care.

To our knowledge, this is the first survey of US primary care providers' views of aspirin use for primary prevention in older patients since the publication of three seminal trials on this topic [16–20]. A survey of 104 clinicians in Lebanon [21] found high levels of awareness of the various guidelines on primary prevention aspirin use (not limited to older patients). The most common barriers to implementing cardiovascular disease guidelines in primary care were found to be lack of patient compliance (93.3%), lack of financial coverage or reimbursement of the tests/services (90.2%), and the abundance of varying recommendations (88.9%). While recent data on clinician perceptions of aspirin are limited, it is clear that aspirin continues to be used frequently for primary prevention in older adults [1]. Prior data also show that the topic of aspirin often goes undiscussed in clinic visits, consistent with our findings [1]. Our results illuminate the reasons for these practices.

Prior studies have identified several triggers for deprescribing of cardiovascular drugs in older adults, including adverse drug reactions, identification of potentially unnecessary polypharmacy, and the recognition of prescribing cascades (whereby side effects from one medication result in initiation of additional medications, with their own potential side effects) [22]. Advancing patient age and the potential for adverse drug reactions also may prompt medication discontinuation [22]. For aspirin deprescribing specifically, our study suggests that the greatest barrier to avoiding aspirin for primary prevention of CVD in older patients is the persistent belief that aspirin is beneficial. Additional education regarding the risks/benefits of aspirin in older patients may be useful, in addition to dissemination of guidelines on this topic from other organizations, such as the US Preventive Services Task Force. Our finding that clinicians have concerns about patients becoming upset if recommended to deprescribe aspirin is notable. In fact, data would suggest most patients are open to deprescribing. In a nationally representative survey of Medicare beneficiaries, 67% wanted to reduce the number of medications they used, and 92% reported willingness to discontinue 1 medication if their physician said it was possible. [23]

Aspirin overuse has been a persistent problem, especially among older patients [24]. However, little is known about barriers and facilitators to de-prescribing aspirin when it is no longer clinically indicated. We anticipated that medication inertia would be one potential barrier to de-prescribing aspirin, with clinicians being reluctant to suggest changing a patient's aspirin regimen in the absence of complications. However, we did not observe an inertial effect [25]. It is possible that the inertia observed in clinical practice is actually a reflection of aspirin not being routinely discussed during health maintenance visits. While some studies have explored strategies to increase evidence-based aspirin use for primary or secondary prevention [26, 27], there remains a paucity of data on how to reduce unnecessary aspirin use, which likely has unique challenges [28]. These include the ability to obtain aspirin without a prescriptions, changing guidelines on aspirin use over time, and patients being reluctant to discontinue aspirin in the absence of a complication.

In the United States, the AHA/ACC guidelines [7] and the United States Preventative Services Task Force provide general recommendations for the use of aspirin for primary prevention. It is probable that these guidelines require local adaptation and implementation for routine clinical practice. Shared decision making also remains important. It is possible that some patient populations have not been studied enough to determine if recent guidelines can be applied to their care. For example, patients with a high coronary artery calcium score may benefit from aspirin closer to a secondary prevention cohort. Additionally, patients with a strong family history of coronary artery disease may require unique consideration. Further research should focus on the development of implementation strategies for these guidelines.

Our study has several limitations. First, as with any survey, there is the potential for non-response bias and conformity bias. It is uncertain what effect these biases would have on the results. The response rate was 47.9% and we did not have full data to determine if non-responders differed significantly from responders. Second, it is not clear if the survey responses reflect real world practice patterns; nonetheless, they provide important insights about clinicians' knowledge and perceptions. Third, these results may not be generalizable outside of internal medicine specialists in the United States.

These limitations notwithstanding, our findings can guide future efforts to improve the quality of care for the more than 40% of patients over age 70 who use aspirin for primary prevention [1–3, 29, 30]. First, since a large proportion continue to believe primary prevention aspirin is indicated for older patients, many clinicians clearly have not received the message contained in the most recent ACC/AHA guidelines. Since simple education alone is often ineffective, clinicians are likely to benefit from proactive implementation strategies to improve appropriate use of aspirin, for example point-of-care alerts. Based on our findings, it will be necessary to embed evidence and guidelines (strategies for persuasion) when such alerts, or similar strategies, are implemented. There may also be a role for population health management in closing the gap in inappropriate aspirin use. Clinicians should be encouraged that when they make recommendations to patients about aspirin use, they are highly influential on patient behavior. [3, 29–31]

Conclusion

Nearly half of primary care providers suggest starting or continuing aspirin for a 75-year-old patient, despite recent evidence that such use may be net harmful and guidelines recommending against routine use of aspirin for such patients. Moving forward, clinicians are likely to benefit from tools to facilitate the implementation of guideline recommendations[7, 32, 33] in routine clinical practice. Ultimately, while aspirin use needs to be individualized, it is important that aspirin be de-prescribed when anticipated risk exceeds benefit. Future research should continue to define the barriers to and facilitators of evidence-based aspirin care. This information may serve as the foundation for interventions to reduce potential aspirin overuse.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Funding

References

1. O'Brien CW, Juraschek SP, Wee CC (2020) Prevalence of aspirin use for primary prevention of cardiovascular disease in the united states: results from the 2017 national health interview survey. Ann Intern Med 171:596–598

2. Stuntz M, Bernstein B (2017) Recent trends in the prevalence of low-dose aspirin use for primary and secondary prevention of cardiovascular disease in the United States, 2012–2015. Prev Med Rep 5:183–186 [PubMed: 28070474]

3. Williams CD, Chan AT, Elman MR, Kristensen AH, Miser WF, Pignone MP, Stafford RS, McGregor JC (2015) Aspirin use among adults in the U.S.: results of a national survey. Am J Prev Med 48:501–508 [PubMed: 25891049]

4. Baigent C, Blackwell L, Collins R, Emberson J, Godwin J, Peto R, Buring J, Hennekens C, Kearney P, Meade T, Patrono C, Roncaglioni MC, Zanchetti A, Collaboration AT (2009) Aspirin in the primary and secondary prevention of vascular disease: collaborative meta-analysis of individual participant data from randomised trials. Lancet 373:1849–1860 [PubMed: 19482214]

5. Raber I, McCarthy CP, Vaduganathan M, Bhatt DL, Wood DA, Cleland JGF, Blumenthal RS, McEvoy JW (2019) The rise and fall of aspirin in the primary prevention of cardiovascular disease. Lancet 393:2155–2167 [PubMed: 31226053]

6. Ridker PM (2018) Should aspirin be used for primary prevention in the post-statin era? N Engl J Med 379:1572–1574 [PubMed: 30332575]

7. Arnett DK, Blumenthal RS, Albert MA, Buroker AB, Goldberger ZD, Hahn EJ, Himmelfarb CD, Khera A, Lloyd-Jones D, McEvoy JW, Michos ED, Miedema MD, Muñoz D, Smith SC, Virani SS, Williams KA, Yeboah J, Ziaeian B (2019) 2019 ACC/AHA guideline on the primary prevention of cardiovascular disease: a report of the american college of cardiology/american heart association task force on clinical practice guidelines. Circulation 140:e596–e646 [PubMed: 30879355]

8. US Preventive Services Task Force (2022). Aspirin Use to Prevent Cardiovascular Disease: US Preventive Services Task Force Recommendation Statement. JAMA. 327(16):1577–1584. 10.1001/jama.2022.4983 [PubMed: 35471505]

9. Halli-Tierney AD, Scarbrough C, Carroll D (2019) Polypharmacy: evaluating risks and deprescribing. Am Fam Physician 100:32–38 [PubMed: 31259501]

10. Pretorius RW, Gataric G, Swedlund SK, Miller JR (2013) Reducing the risk of adverse drug events in older adults. Am Fam Physician 87:331–336 [PubMed: 23547549]

11. Crossing the Quality Chasm (2001) A new health system for the 21st century. National Academies Press, Washington (DC)

12. Suri G, Sheppes G, Schwartz C, Gross JJ (2013) Patient inertia and the status quo bias: when an inferior option is preferred. Psychol Sci 24:1763–1769 [PubMed: 23873580]

13. Ganguli I, Chang Y, Weissman A, Armstrong K, Metlay JP (2016) Ebola risk and preparedness: a national survey of internists. J Gen Intern Med 31:276–281 [PubMed: 26289923]

14. Perez SL, Weissman A, Read S, Smith CD, Colello L, Peter D, Nickel WUS (2019) Internists' perspectives on discussing cost of care with patients: structured interviews and a survey. Ann Intern Med 170:S39–S45 [PubMed: 31060057]

15. Caverly TJ, Fagerlin A, Zikmund-Fisher BJ, Kirsh S, Kullgren JT, Prenovost K, Kerr EA (2015) Appropriate prescribing for patients with diabetes at high risk for hypoglycemia: national survey of veterans affairs health care professionals. JAMA Intern Med 175:1994–1996

16. Bowman L, Mafham M, Wallendszus K, Stevens W, Buck G, Barton J, Murphy K, Aung T, Haynes R, Cox J, Murawska A, Young A, Lay M, Chen F, Sammons E, Waters E, Adler A, Bodansky J, Farmer A, McPherson R, Neil A, Simpson D, Peto R, Baigent C, Collins R, Parish S, Armitage J, Group ASC (2018) Effects of aspirin for primary prevention in persons with diabetes mellitus. N Engl J Med 379:1529–1539 [PubMed: 30146931]

17. McNeil JJ, Nelson MR, Woods RL, Lockery JE, Wolfe R, Reid CM, Kirpach B, Shah RC, Ives DG, Storey E, Ryan J, Tonkin AM, Newman AB, Williamson JD, Margolis KL, Ernst ME, Abhayaratna WP, Stocks N, Fitzgerald SM, Orchard SG, Trevaks RE, Beilin LJ, Donnan GA, Gibbs P, Johnston CI, Radziszewska B, Grimm R, Murray AM, Group AI (2018) Effect of aspirin on all-cause mortality in the healthy elderly. N Engl J Med 379:1519–1528 [PubMed: 30221595]

18. McNeil JJ, Wolfe R, Woods RL, Tonkin AM, Donnan GA, Nelson MR, Reid CM, Lockery JE, Kirpach B, Storey E, Shah RC, Williamson JD, Margolis KL, Ernst ME, Abhayaratna WP, Stocks N, Fitzgerald SM, Orchard SG, Trevaks RE, Beilin LJ, Johnston CI, Ryan J, Radziszewska B, Jelinek M, Malik M, Eaton CB, Brauer D, Cloud G, Wood EM, Mahady SE, Satterfield S, Grimm R, Murray AM, Group AI (2018) Effect of aspirin on cardiovascular events and bleeding in the healthy elderly. N Engl J Med 379:1509–1518 [PubMed: 30221597]

19. McNeil JJ, Woods RL, Nelson MR, Reid CM, Kirpach B, Wolfe R, Storey E, Shah RC, Lockery JE, Tonkin AM, Newman AB, Williamson JD, Margolis KL, Ernst ME, Abhayaratna WP, Stocks N, Fitzgerald SM, Orchard SG, Trevaks RE, Beilin LJ, Donnan GA, Gibbs P, Johnston CI, Ryan J, Radziszewska B, Grimm R, Murray AM, Group AI (2018) Effect of aspirin on disability-free survival in the healthy elderly. N Engl J Med 379:1499–1508 [PubMed: 30221596]

20. Gaziano JM, Brotons C, Coppolecchia R, Cricelli C, Darius H, Gorelick PB, Howard G, Pearson TA, Rothwell PM, Ruilope LM, Tendera M, Tognoni G, Committee AE (2018) Use of aspirin to reduce risk of initial vascular events in patients at moderate risk of cardiovascular disease (ARRIVE): a randomised, double-blind, placebo-controlled trial. Lancet 392:1036–1046 [PubMed: 30158069]

21. Halabi Z, Osman M, Hoteit R (2020) Primary care physicians' awareness and perceptions on adherence to primary cardiovascular disease prevention guidelines in lebanon: a cross-sectional study. Chronic Illn. 10.1177/1742395320983879

22. Krishnaswami A, Steinman MA, Goyal P, Zullo AR, Anderson TS, Birtcher KK, Goodlin SJ, Maurer MS, Alexander KP, Rich MW, Tjia J (2019) Geriatric cardiology section leadership council ACoC. Deprescribing in older adults with cardiovascular disease. J Am Coll Cardiol 73:2584–2595 [PubMed: 31118153]

23. Reeve E, Wolff JL, Skehan M, Bayliss EA, Hilmer SN, Boyd CM (2018) Assessment of attitudes toward deprescribing in older medicare beneficiaries in the United States. JAMA Intern Med 178:1673–1680 [PubMed: 30326004]

24. VanWormer JJ, Miller AW, Rezkalla SH (2014) Aspirin overutilization for the primary prevention of cardiovascular disease. Clin Epidemiol 6:433–440 [PubMed: 25506245]

25. Steinman MA, Landefeld CS (2018) Overcoming inertia to improve medication use and deprescribing. JAMA 320:1867–1869 [PubMed: 30422182]

26. Banerjee A, Khandelwal S, Nambiar L, Saxena M, Peck V, Moniruzzaman M, Faria Neto JR, Quinto KC, Smyth A, Leong D, Werba JP (2016) Health system barriers and facilitators to medication adherence for the secondary prevention of cardiovascular disease: a systematic review. Open Heart 3:e000438

27. Oldenburg NC, Duval S, Luepker RV, Finnegan JR, LaMarre H, Peterson KA, Zantek ND, Jacobs G, Straka RJ, Miller KH, Hirsch AT (2014) A 16-month community-based intervention to increase aspirin use for primary prevention of cardiovascular disease. Prev Chronic Dis 11:E83 [PubMed: 24831287]

28. Norton WE, Chambers DA (2020) Unpacking the complexities of de-implementing inappropriate health interventions. Implement Sci 15:1–7 [PubMed: 31900167]

29. Pignone M, Anderson GK, Binns K, Tilson HH, Weisman SM (2007) Aspirin use among adults aged 40 and older in the United States: results of a national survey. Am J Prev Med 32:403–407 [PubMed: 17478266]

30. Kolber M, Sharif N, Marceau R, Szafran O (2013) Family practice patients' use of acetylsalicylic acid for cardiovascular disease prevention. Can Fam Physician 59:55–61 [PubMed: 23341662]

31. Persell SD, Zei C, Cameron KA, Zielinski M, Lloyd-Jones DM (2010) Potential use of 10-year and lifetime coronary risk information for preventive cardiology prescribing decisions: a primary care physician survey. Arch Intern Med 170:470–477 [PubMed: 20212185]

32. Piepoli MF, Hoes AW, Agewall S, Albus C, Brotons C, Catapano AL, Cooney MT, Corrà U, Cosyns B, Deaton C, Graham I, Hall MS, Hobbs FDR, Løchen ML, Löllgen H, Marques-Vidal P, Perk J, Prescott E, Redon J, Richter DJ, Sattar N, Smulders Y, Tiberi M, van der Worp HB, van Dis I, Verschuren WMM, Binno S, Group ESCSD (2016) European guidelines on cardiovascular disease prevention in clinical practice: the sixth joint task force of the european society of cardiology and other societies on cardiovascular disease prevention in clinical practice (constituted by representatives of 10 societies and by invited experts)developed with the special contribution of the european association for cardiovascular prevention & rehabilitation (EACPR). Eur Heart J 37:2315–2381 [PubMed: 27222591]

33. Bibbins-Domingo K, Force USPST (2016) Aspirin use for the primary prevention of cardiovascular disease and colorectal cancer: U.S. preventive services task force recommendation statement. Ann Intern Med 164:836–845 [PubMed: 27064677]

Highlights

- Aspirin is no longer routinely suggested for primary prevention for adults over age 70.

- We conducted a national survey of primary care providers to assess aspirin use for older adults and barriers to guideline concordant use.

- Providers vary considerably in their recommendations on aspirin.

- Efforts are needed to optimize evidence-based aspirin use for this population.
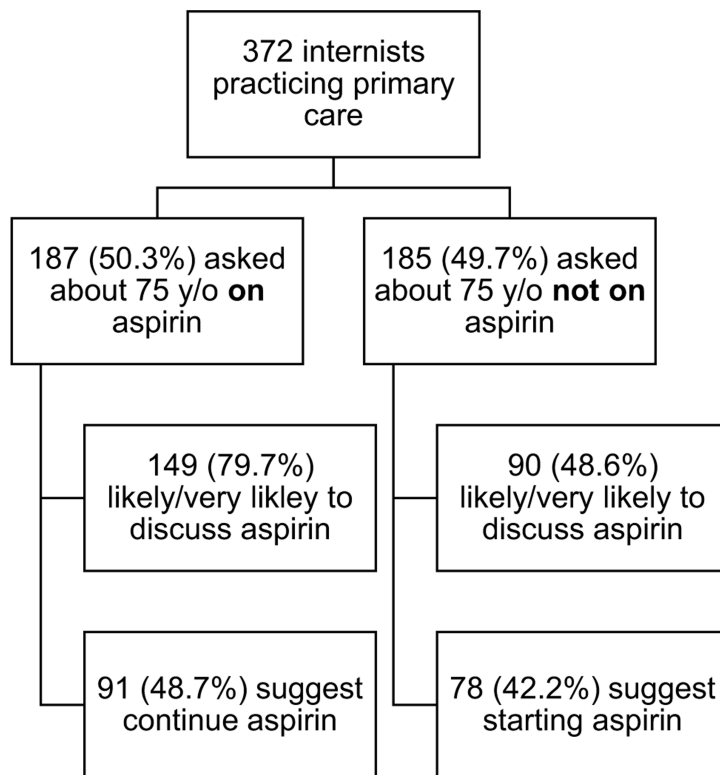
Fig. 1.
Flow chart of randomized vignette responses
Vignette: You are seeing a 75-year-old man in your clinic for his annual health maintenance exam. He has no history of cardiovascular disease or gastrointestinal bleeding. You have been diligent about optimizing his cardiovascular risk factors. His estimated 10-year risk of atherosclerotic cardiovascular disease is 25%
Abbreviations: y/o, year old.

Table 1

Participant characteristics

Characteristic	n (%)
Gender	
Male	212 (57.0%)
Female	150 (40.%)
Prefer not to answer	10 (2.7%)
Training Level	
Attending	372 (100%)
Specialty	
Internal Medicine	341 (91.7%)
Geriatrics	27 (7.3%)
Other specialty	4 (1.1%)
Practice Setting	
Solo	57 (15.3%)
Group	145 (39.0%)
Academic	72 (19.4%)
Veterans Affairs Health System	18 (4.8%)
Military	10 (2.7%)
Hospital—Integrated Health System	35 (9.4%)
Hospital—Private Health System	35 (9.4%)
Time spent providing primary care per week	
1–2 half days	37 (10.0%)
3–4 half days	57 (15.3%)
5–6 half days	61 (16.4%)
> 6 half days	217 (58.3%)
Age	
40	68 (18.3%)
41–60	203 (54.6%)
> 60	97 (26.1%)
Missing	4 (1.1%)

Table 2

Perceptions of aspirin use in the hypothetical scenario of a 75-year-old patient using aspirin for primary prevention of atherosclerotic cardiovascular disease[a]

Question (number responding)	Disagree/Strongly disagree (%)	Agree/Strongly agree (%)
I think this patient would benefit if treated with aspirin 81 mg daily (n = 372)	217 (58.3%)	155 (41.7%)
I think this patient would be harmed if given aspirin 81 mg daily (n = 372)	162 (43.6%)	210 (56.5%)
It would be helpful to have patient education materials to discuss stopping aspirin 81 mg daily (n = 372)	52 (14.0%)	320 (86.0%)
Most patients like this prefer to have their provider decide whether their aspirin should be stopped (n = 372)	108 (29.0%)	264 (71.0%)
I would worry that this patient would be upset if I told him to stop his aspirin 81 mg daily (n = 372)	217 (58.3%)	155 (41.7%)
I would worry that stopping the patient's aspirin could leave me vulnerable to a future malpractice claim (n = 372)	279 (75.0%)	93 (25.0%)
I don't feel I have a good strategy for talking with the patient about stopping his aspirin 81 mg daily (n = 372)	281 (75.5%)	91 (24.5%)
I would not have the time to discuss the risks and benefits of stopping aspirin 81 mg daily (n = 372)	292 (78.5%)	80 (21.5%)
I would worry that telling the patient to stop the medication would cause him to trust me less in the future (n = 372)	299 (80.4%)	73 (19.6%)

[a]The scenario in the survey described the following patient: …. Imagine you are seeing a 75-year-old man in your clinic for his annual health maintenance exam. He has no history of cardiovascular disease or gastrointestinal bleeding. You have been diligent about optimizing his cardiovascular risk factors. He has taken aspirin 81 mg daily for the past 3 years for primary prevention of cardiovascular disease. His estimated 10-year risk of atherosclerotic cardiovascular disease is 25%. To what extent do you agree or disagree with the following statements about the patient's treatment with aspirin for primary prevention?

Table 3

Marginal estimates of the probability that it is difficult to follow recommendations against routine use of low-dose aspirin for primary prevention in patients age 70 and above[a,b]

Factor	Adjusted probability of rating the guidance on not using aspirin for patients over age 70 years as hard to follow (%)	P value
"I think this patient would benefit if treated with aspirin 81 mg daily"		–
Strongly disagree/disagree	8.0	<0.001
Strongly agree/agree	29.4	
"I think this patient would be harmed if given aspirin 81 mg daily"		–
Strongly disagree/disagree (Reference)	23.3	0.02
Strongly agree/agree	13.0	
"I would worry that this patient would be upset if told to stop his aspirin…"		–
Strongly disagree/disagree (Reference)	12.5	
Strongly agree/agree	26.7	0.001

Estimates are adjusted for all variables shown in Table 2, as well as practice characteristics, age, and gender, using a logistic regression model

[a] Participants were asked: In 2019, the American College of Cardiology/American Heart Association released new recommendations for use of aspirin for primary prevention. One of their recommendations was: "Low-dose aspirin should not be administered on a routine basis for primary prevention of atherosclerotic cardiovascular disease among adults > 70 years of age." How easy or difficult will it be for you to follow this recommendation most of the time in your practice?

[b] A total of 364 participants were included in the above regression analysis. 4 participants were dropped due to missing age and 4 due to their specialty perfectly predicting the outcome.