

# Os estudos de 2022/23 que mudam a prática na perspetiva...

...da Medicina Geral e Familiar

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# Global Health and Healthcare Strategic Outlook: Shaping the Future of Health and Healthcare

World Economic Forum in collaboration with L.E.K.Consulting

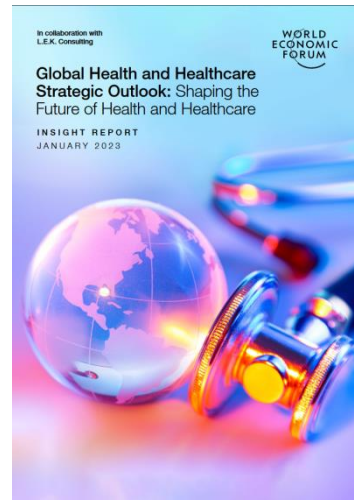


FIGURE 1 | Recent trends in global health and healthcare – while COVID-19 triggered growth, it also brought about health, economic, political and environmental challenges

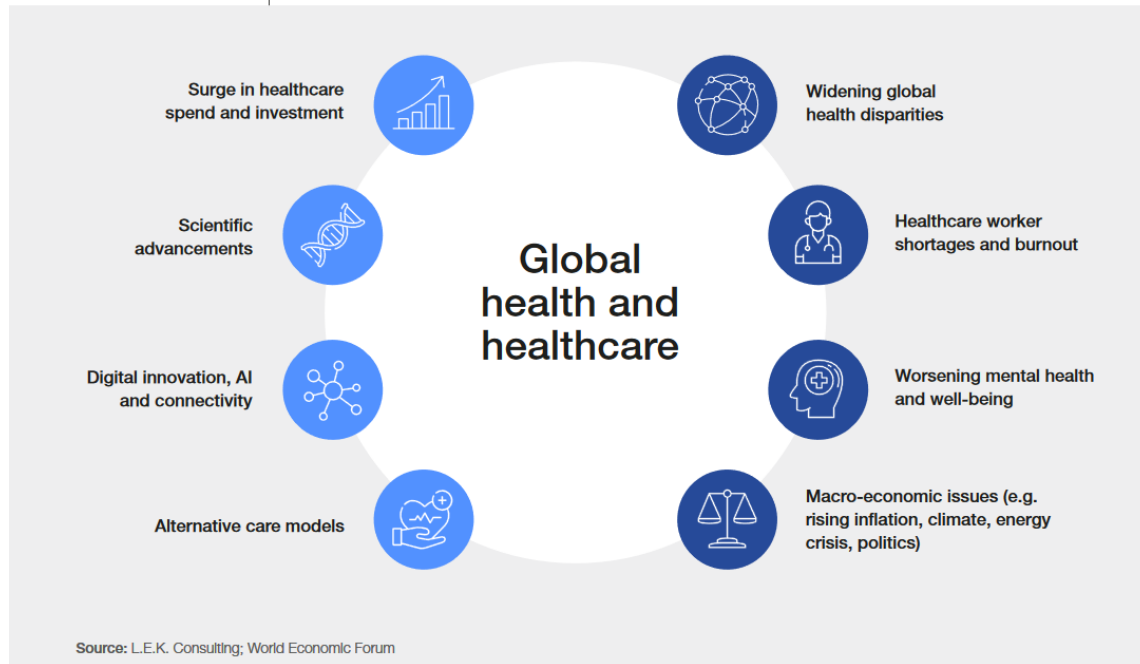


FIGURE 2 | The vision for health and healthcare in 2035 is formed of four main strategic pillars, with equity as the foundational goal

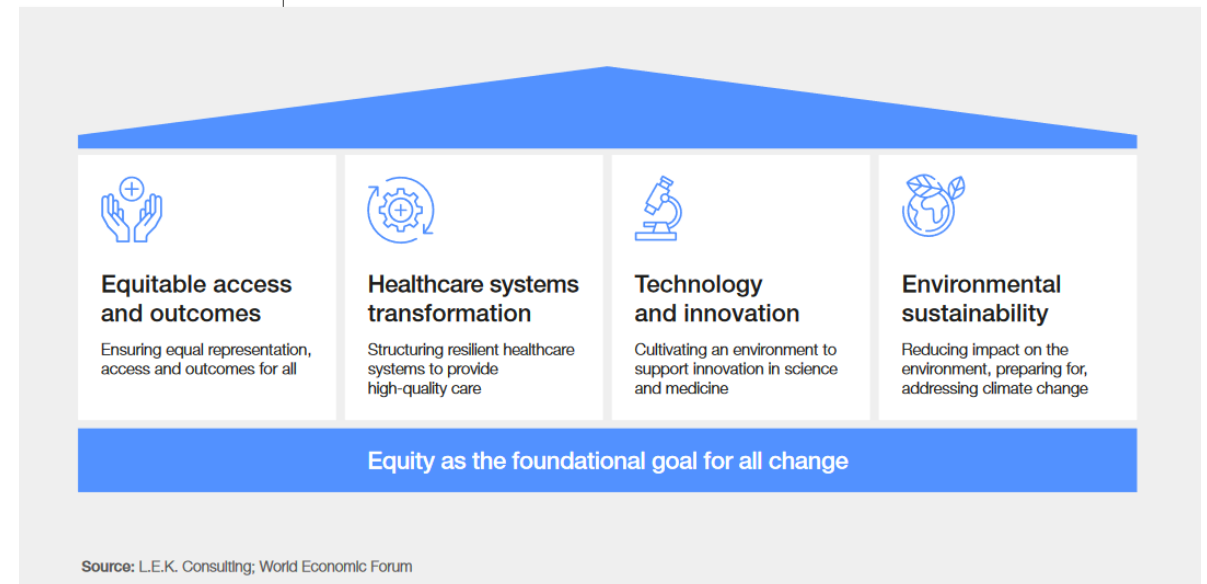
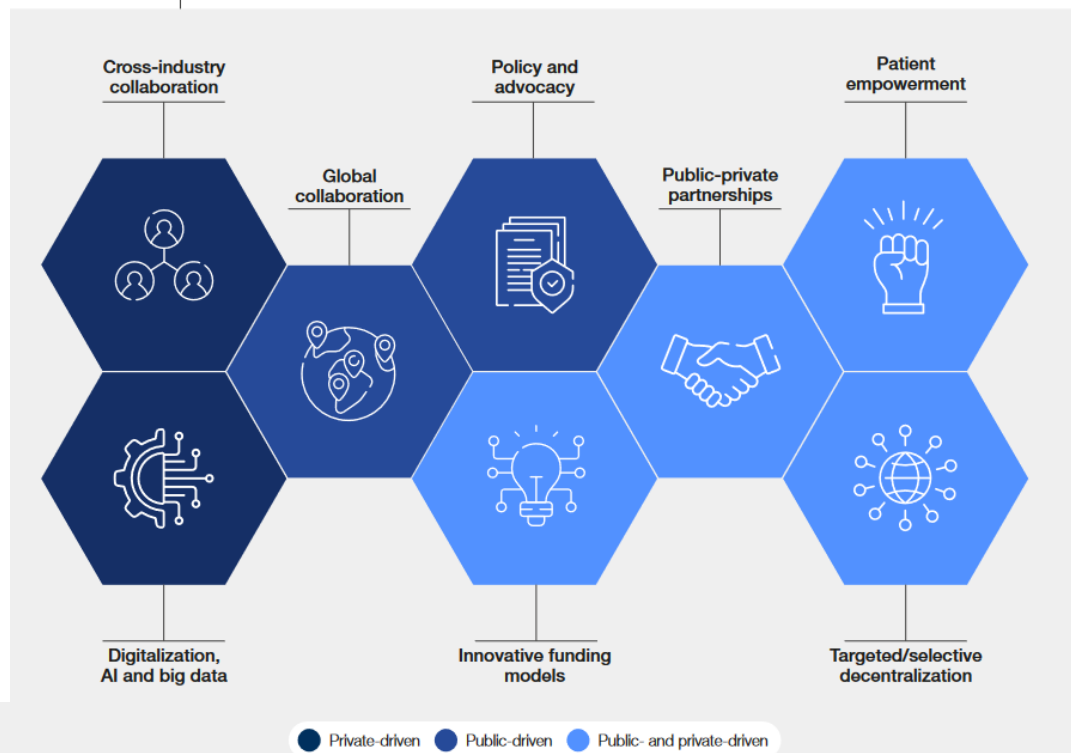


FIGURE 3 | There are several issues and barriers where public and private stakeholders play a role, and each given barrier impacts the ability to achieve goals in multiple pillars

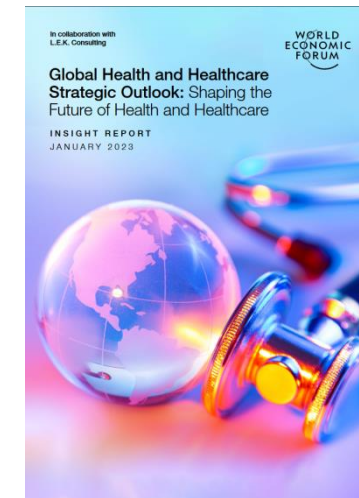
Issues and barriers to address for achieving goals in each pillar	Equitable access and outcome	Healthcare systems transformation	Technology and innovation	Environmental sustainability
Challenges with funding and reimbursement	●	●	●	●
Baseline health and wellness and global discrepancies	●	●		●
Healthcare literacy and trust in industry	●	●	●	
Skilled labour shortage and hospital capacity constraints	●	●		
Deteriorating mental health and well-being	●	●		
Data interoperability and confidentiality	●	●	●	
Connectivity to internet and lack of digital infrastructure	●		●	
Maintenance and scalability of required pandemic capacity		●		
Ensuring patient centricity and high quality care in decarbonization				●
Supply chain issues	●	●	●	●
Restrictions/lack of incentives for innovation	●		●	
Limited diversity in health data and gaps in data/evidence generation	●		●	●
Pace of regulatory change	●	●	●	●
Limited standardization in measuring outcomes over time	●	●	●	
Disproportionate impact of climate issues on health of LMICs		●		●

Source: L.E.K. Consulting; World Economic Forum

FIGURE 4 | Levers that private and public stakeholders are employing to address issues and barriers in health and healthcare



Source: L.E.K. Consulting; World Economic Forum



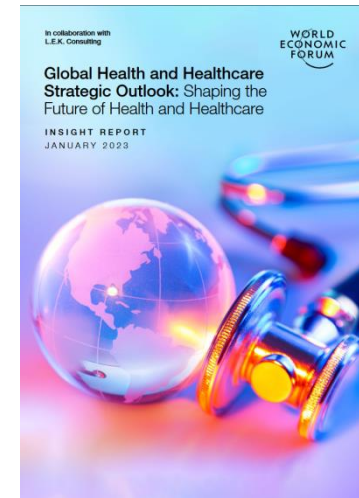
# Conclusões

In 2023, private stakeholders should:

1. Implement the WHO guidelines on mental health at work and other evidence-based research to preserve, monitor and remediate employee welfare
2. Incentivize private industry investment to drive innovation in medicine development and commercialization, supply chain optimization and healthcare delivery
3. Mandate that environmental, social and governance pillars are embedded equally into the health and healthcare industry...standardize expectations across the industry in collaboration with public bodies

Public stakeholders should:

1. Internationally cooperate to create an environment that facilitates and promotes distributed supply chains via a global network
2. Redesign systems to focus on the value of outcomes achieved over the volume of services delivered and embed the financing of value through linking resource allocation, resource use and outcomes achieved across communities. Implement policies that ensure the changes are at the system level but allow for local autonomy and flexibility in funding models. Define a clear set of short-, medium- and long-term impact measures to allow for national data aggregation and evidencing of system-level impact. Educate all stakeholders, including patients, physicians, payers and policy-makers to ensure alignment and embed value as the norm
3. Mitigate national divergences in data regulations by converging an international body that sets out rules and guidelines to harmonize data use and its applications within health and healthcare



# Effectiveness of Strategies for Nutritional Therapy for Patients with Type 2 Diabetes and/or Hypertension in Primary Care: A Systematic Review and Meta-Analysis

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Affiliations + expand

PMID: 35409925 PMCID: PMC8998242 DOI: 10.3390/ijerph19074243

A central aspect to the management of type 2 Diabetes Mellitus (T2DM) and hypertension is promoting a healthy lifestyle, and nutritional therapy (NT) can support patients achieving glycemic control and blood pressure targets. This systematic review aimed to evaluate the effectiveness of NT in the management of patients with T2DM and/or hypertension in primary care. Primary outcomes were HbA1c, systolic blood pressure (SBP) and diastolic blood pressure (DBP). Thirty-nine studies were included, thirty on T2DM and nine on hypertension.

With a moderate quality of evidence, educational/counseling programs and food replacement programs in primary care likely reduce HbA1c on patients with T2DM (mean difference (MD): -0.37, 95% CI: -0.57 to -0.17, 7437 patients, 27 studies; MD: -0.54, 95% CI: -0.75 to -0.32, 440 patients, 2 studies, respectively).

Mediterranean diet for T2DM was accessed by one study, and no difference between the groups was found.

Educational and counseling programs likely reduce DBP in patients with hypertension (MD: -1.79, 95% CI: -3.46, -0.12, 2840 patients, 9 studies, moderate quality of the evidence), but the effect in SBP was unclear due to risk of bias and imprecision.

Nutritional therapy strategies (i.e., educational/counseling programs and food replacement programs) in primary care improved HbA1c in patients with T2DM and DBP in individuals with hypertension.

**NT programs tailored for the primary care should be encouraged.**



## Hypertension and the Role of Dietary Fib

Prakash Nepali <sup>1</sup>, Surya Suresh <sup>2</sup>, Gauri Pikale <sup>3</sup>, Sharan Jhaveri <sup>4</sup>, Chaithany Mridul Bansal <sup>6</sup>, Rabia Islam <sup>7</sup>, Aditya Chanpura <sup>8</sup>

Affiliations + expand

PMID: 35417736 DOI: 10.1016/j.cpcardiol.2022.101203

While the American Heart Association recommends a intake of 25-30 g/day, an average person's average di intake in western countries is around 15 g/day.<sup>4</sup> Lack of fibers is being hypothesized as the factor accelerating i not only cardiovascular events but also many gastroint other metabolic anomalies.

Healthy gut flora can reduce inflammation and hence is s of having a blood pressure-lowering effect.

### Non-Pharmacologic Treatment:

Non-Pharmacologic treatment	Process	Reduction in BP
Weight loss	Aim to reduce at least 1 kg for adults who are overweight. Results in 1 mm Hg BP reduction for every kg lost	Reduction of SBP by 5 mm Hg in hypertensive patients and 2-3 mm Hg in normotensive patients.
Dietary Approaches to Stop Hypertension (DASH) dietary pattern	Consume a diet rich in fruits, vegetables, whole grains, and low-fat dairy products with reduced content of saturated and total fat	Reduction of SBP by 11 mm Hg in hypertensive patients and 3 mm Hg in normotensive patients.
Dietary sodium	Consume sodium < 1500 mg/d	Reduction of SBP by 5-6 mm Hg in hypertensive and 2-3 mm Hg in normotensive patients
Dietary Potassium	Consume potassium 3500-5000 mg/d through a potassium-rich diet	Reduction of SBP by 4-5 mm Hg in hypertensive and 2 mm Hg in normotensive patients.
Physical activity	Doing aerobics or dynamic resistance exercises 90-150 min/week and isometric resistance exercises 3 sessions/week (8-10 weeks)	Reduction of SBP by 5-8 mm Hg in hypertensive and 2-4 mm Hg in normotensive patients
Moderation in alcohol consumption	Alcohol consumption for men <math>\leq 2</math> drinks/d and women <math>\leq 1</math> drink/d	Reduction of SBP by 4 mm Hg in hypertensive and 3 mm Hg in normotensive patients

## Health Effects of Red Wine Consumption: A Narrative Review of an Issue That Still Deserves Debate

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Affiliations + expand

PMID: 37111141 PMCID: [PMC10146095](#) DOI: [10.3390/nu15081921](#)

## Association between Wine Consumption with Cardiovascular Disease and Cardiovascular Mortality: A Systematic Review and Meta-Analysis

Maribel Lucerón-Lucas-Torres <sup>1</sup>, Alicia Saz-Lara <sup>1</sup>, Ana Díez-Fernández <sup>1</sup>, Irene Martínez-García <sup>1</sup>, Vicente Martínez-Vizcaino <sup>1 2</sup>, Iván Cavero-Redondo <sup>1 2</sup>, Celia Álvarez-Bueno <sup>1 3</sup>

Affiliations + expand

PMID: 37375690 PMCID: [PMC10303697](#) DOI: [10.3390/nu15122785](#)

A strong controversy persists regarding the effect of red wine (RW) consumption and health. Guidelines for the prevention of cardiovascular diseases (CVD) and cancers discourage alcohol consumption in any form, but several studies have demonstrated that low RW intake may have positive effects on CVD risk.

Notably, beneficial effects were observed on oxidative stress, inflammation, and nephropathy markers, with a modest decrease in CVD risk in five out of seven studies that evaluated the effect of RW consumption.

This research revealed that wine consumption has an inverse relationship to cardiovascular mortality, CVD, and CHD. Age, the proportion of women in the samples, and follow-up time did not influence this association. Interpreting these findings with prudence was necessary because increasing wine intake might be harmful to individuals who are vulnerable to alcohol because of age, medication, or their pathologies.

# Micronutrient Supplementation and Cardiovascular Risk

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Affiliations + expand

PMID: 36480969 DOI: 10.1016/j.jacc.2022.09.048

**Background:** Healthy diet and lifestyle can reduce cardiovascular disease (CVD) risks has been well established.

**Objectives:** The goal of this study was to create a systematic evidence-based map that systematically summarizes the effects of micronutrient supplementation on CVD risk factors.

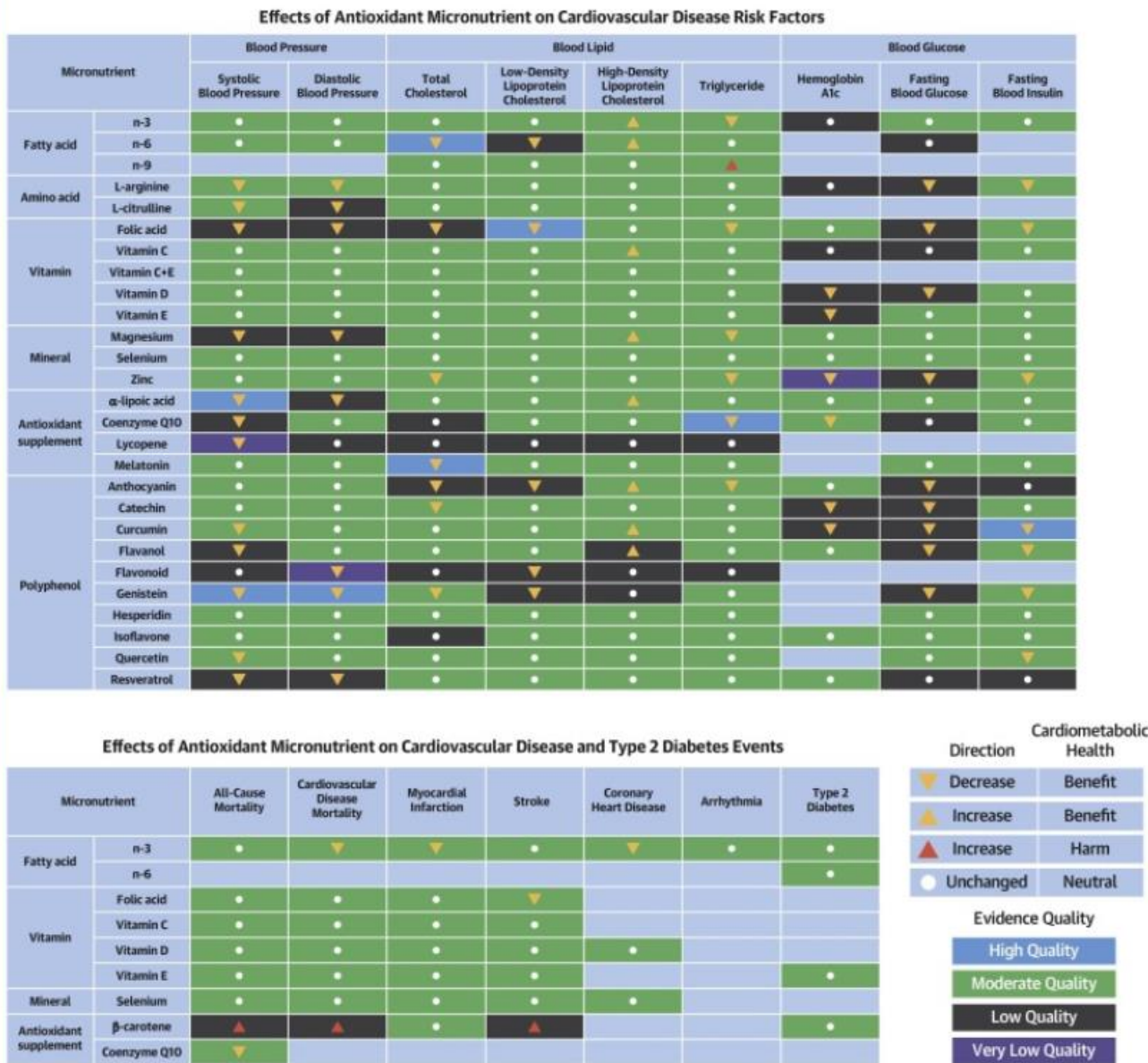
**Methods:** This study conducted a systematic review of randomized controlled intervention trials of micronutrient supplementation on CVD risk factors.

A total of 884 randomized controlled trials involving 883,627 participants were included. Micronutrient supplementation with n-3 fatty acid, vitamin D, magnesium, zinc, α-lipoic acid, flavanol, genistein, and quercetin showed beneficial effects on reducing CVD risk factors. Specifically, n-3 fatty acid supplementation decreased stroke mortality (relative risk [RR]: 0.93; 95%CI: 0.78-0.92), and coronary heart disease mortality (RR: 0.95; 95%CI: 0.78-1.15), CVD mortality events (RR: 0.95; 95%CI: 1.01-1.17). β-carotene supplementation increased CVD mortality events (RR: 1.05-1.15), CVD mortality events (RR: 1.05-1.15), CVD mortality events (RR: 1.05-1.15).

## Conclusions

Micronutrient supplementation of some but not all micronutrients may reduce CVD risk factors. This study highlights the importance of micronutrient supplementation on CVD risk factors and the benefits and risks to promote and maintain cardiovascular health.

## CENTRAL ILLUSTRATION: A Comprehensive Heat Map Summarizing Micronutrient Supplementation on Cardiometabolic Health





> [Nutr Metab \(Lond\)](#). 2023 Aug 11;20(1):33. doi: 10.1186/s12986-023-00753-0.

## Association between dietary supplement use and mortality among US adults with diabetes: a longitudinal cohort study

Rong Hua <sup>1</sup>, Chun Sing Lam <sup>1</sup>, Natural Chu <sup>2</sup>, Aimin Yang <sup>2 3</sup>, Elaine Chow <sup>2 3 4</sup>, Yin Ting Cheung <sup>5</sup>

Affiliations + expand

PMID: 37568221 PMCID: [PMC10416493](#) DOI: [10.1186/s12986-023-00753-0](#)

**Methods:** This study analyzed data from National Health and Nutrition Examination Survey (NHANES) 1999-2018. Supplement users referred to adults with diabetes who reported the use of any dietary supplements in the last 30 days, and with a cumulative duration of  $\geq 90$  days.

**Conclusions:** Our results derived from real-world data suggested that overall supplement use was not associated with any mortality benefit in patients with diabetes. However, there is preliminary evidence that suggests a protective effect of amino acid use on all-cause mortality, and a benefit of fatty acids and glucosamine supplement use on CVD mortality.

[Front Pharmacol.](#) 2022; 13: 820971.

Published online 2022 Mar 17. doi: [10.3389/fphar.2022.820971](https://doi.org/10.3389/fphar.2022.820971)

PMCID: PMC8968913

PMID: [35370756](https://pubmed.ncbi.nlm.nih.gov/35370756/)

## Glucosamine as a Treatment for Osteoarthritis: What If It's True?

[Thierry Conrozier](#)<sup>✉\*</sup> and [Thomas Lohse](#)

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More recent data suggest that GlcN may be effective in the primary prevention of OA in sportsmen. There is no controversy concerning the safety of GlcN which does not differ to that of placebo. Several studies have recently revealed an unexpected effect of GlcN on cardiovascular mortality. After adjusting for confounding factors, the regular consumption of GlcN correlated with a 27% reduction in mortality and a 58% reduction in deaths from cardiovascular causes.

These data confirm animal studies demonstrating a protective effect of GlcN against cancer and cardiovascular diseases due to modulation of the O-GlcNAcylation pathway. Disorders in O-GlcNAcylation are involved in diabetes, obesity and cancers, which all feature chronic low-grade inflammation (CLGI). By regulating CLGI, GlcN may be beneficial to the symptoms of OA, its outcome and to that of the concomitant chronic pathologies, making GlcN as a valuable candidate for the treatment of OA in patients with metabolic syndrome, diabetes or cardiovascular diseases.

[Clin Transl Med.](#) 2022 Mar; 12(3): e762.

Published online 2022 Mar 28. doi: [10.1002/ctm2.762](https://doi.org/10.1002/ctm2.762)

PMCID: PMC8958344

PMID: [35343077](https://pubmed.ncbi.nlm.nih.gov/35343077/)

## Glucosamine facilitates cardiac ischemic recovery via recruiting Ly6C<sup>low</sup> monocytes in a STAT1 and O-GlcNAcylation-dependent fashion

[Wenjing Zhou](#),<sup>1, #</sup> [Xuan Jiang](#),<sup>2, #</sup> [Qingsong Tang](#),<sup>1, #</sup> [Liang Ding](#),<sup>1</sup> [Weizhang Xiao](#),<sup>1</sup> [Jingjing Li](#),<sup>1</sup> [Yong Wu](#),<sup>1</sup>

[Hai-Bin Ruan](#),<sup>3, 4</sup> [Zhenya Shen](#),<sup>1</sup> and [Weiqian Chen](#)<sup>1</sup>

> [Cell Mol Biol \(Noisy-le-grand\)](#). 2023 Apr 30;69(4):46-52. doi: [10.14715/cmb/2023.69.4.7](https://doi.org/10.14715/cmb/2023.69.4.7).

## Glucosamine effects on platelet aggregation of type 2 diabetes mellitus patients: in vitro assays

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[Hernández-Cruz Pedro Antonio](#)<sup>4</sup>, [Hernández-Juárez Jesús](#)<sup>5</sup>

Affiliations + expand

PMID: 37329549 DOI: [10.14715/cmb/2023.69.4.7](https://doi.org/10.14715/cmb/2023.69.4.7)

In conclusion, GlcN inhibited the platelet aggregation induced by ADP and thrombin for both study groups and increased O-GlcNAc in platelets from T2D patients. Further studies are required to evaluate the possible use of GlcN as an antiplatelet agent.

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# Association Between Glucosamine Use and the Risk of Incident Heart Failure

The UK Biobank Cohort Study and Mendelian Randomization Analysis

Jiazhen Zheng, PhD • Daniel Nyarko Hukportie, PhD • Yingchai Zhang, PhD • ... Can Ni, PhD •

Gregory Y.H. Lip, MD • Shaojun Tang, PhD • Show all authors

Published: July 07, 2023 • DOI: <https://doi.org/10.1177/09546795231191177>

## Patients and Methods

We included 479,650 participants with or without glucosamine supplement use and without HF at baseline from the UK Biobank study. Using 12 single-nucleotide polymorphisms associated with glucosamine use, we constructed a genetic risk score to HF, a weighted genetic risk score was calculated. We evaluated the association between glucosamine use and HF by Cox regression models after inverse probability of treatment weighting. A validation and mediation analysis were performed through two-sample Mendelian randomization. The study was from May 18, 2006, to February 16, 2018.

## Conclusion

Regular glucosamine supplementation was associated with a lower risk of HF regardless of genetic risk status, and to a lesser extent, coronary heart disease and stroke mediated this effect. The results may inform novel pathway for prevention and intervention toward HF.

## Results

Among 479,650 participants, the median age was 56.0 (IQR, 50.0-62.0) years, and the median duration of follow-up was 9.0 (IQR, 8.3-9.8) years, we identified 10,000 incident cases of HF. In multivariable analyses, the hazard ratio for HF in glucosamine users for HF was 0.87 (95% CI, 0.82-0.92). These associations were stronger in males (HR, 0.82; 95% CI, 0.77-0.87) and those with a favorable lifestyle ( $P < .05$  for interaction). Mendelian randomization showed that taking glucosamine was protective against HF (HR, 0.92; 95% CI, 0.87 to 0.96). The mediated proportion of coronary heart disease and stroke were 10.5% (95% CI, 7.6% to 13.4%) and 14.4% (95% CI, 10.8% to 18.0%), respectively. The two-mediator combination accounted for 22.7% (95% CI, 17.2% to 28.2%) of the effect of glucosamine use. These findings suggest a potential preventive role in the atherosclerosis pathway.



# Glucosamine and Chondroitin Use and Mortality Among Adults in the United States from 1999 to 2014

Jenna Bhimani <sup>1</sup>, Kelli O'Connell <sup>1</sup>, Deborah Kuk <sup>1 2</sup>, Mengmeng Du <sup>1</sup>, Sandi L Navarro <sup>3</sup>, Elizabeth D Kantor <sup>1</sup>

Affiliations [+ expand](#)

PMID: 36971848 PMCID: PMC10457612 (available on 2024-08-01) DOI: [10.1089/jicm.2022.0783](#)

**Introduction:** Glucosamine and chondroitin are commonly used dietary supplements, but not always, used in combination. Previous observational studies have suggested that glucosamine and chondroitin are associated with reduced risk of several chronic diseases, including cancer- and respiratory disease-specific mortality.

**Methods:** Nationally representative data from the National Health and Nutrition Examination Survey (NHANES) were used to examine the association between glucosamine and chondroitin use and mortality. Participants include 38,021 adults aged 18 years and older in the detailed NHANES between 1999 and 2014. Participants were followed for death through linkage with the National Death Index through the end of 2015, over which time 4905 deaths occurred. Adjusted hazard ratios (HRs) for overall and cause-specific mortality were estimated using Cox regression models.

**Conclusion:** The lack of significant relationship between glucosamine and chondroitin use and all-cause or cause-specific mortality after adjusting extensively for multiple covariates in this nationally representative adult population was in contrast to prior literature. Given the limited power to explore the cause-specific mortality, future well-powered studies will be needed to better understand the potential association with cardiovascular-specific mortality.

se appearing to be inversely associated with mortality in multivariate models, no association was observed for cancer-specific mortality: HR = 1.02; 95% CI: 0.87–1.19. For respiratory disease-specific mortality, HR = 1.04, 95% CI: 0.87–1.24. For cardiovascular-specific mortality, HR = 0.76; 95% CI: 0.61–0.94.

# Glucosamine Use Is Associated with a Higher Risk of Cardiovascular Diseases in Patients with Osteoarthritis: Results from a Large Study in 685,778 Subjects

Huan Yu <sup>1</sup>, Junhui Wu <sup>1 2</sup>, Hongbo Chen <sup>1 2</sup>, Mengying Wang <sup>1</sup>, Siyue Wang <sup>1</sup>, Ruotong Yang <sup>1</sup>, Siyan Zhan <sup>1</sup>, Xueying Qin <sup>1</sup>, Tao Wu <sup>1</sup>, Yiqun Wu <sup>1</sup>, Yonghua Hu <sup>1 3</sup>

Affiliations + expand

PMID: 36145069 PMCID: [PMC9506459](#) DOI: [10.3390/nu14183694](#)

A retrospective, population-based cohort study was performed, based on the Beijing Medical Claim Data for Employees from 1 January 2010 to 31 December 2017. Patients newly diagnosed with osteoarthritis were selected and divided into glucosamine users and non- glucosamine users.

New-onset cardiovascular diseases (CVD) events, coronary heart diseases (CHD), and stroke, were identified during the observational period.

Glucosamine usage was significantly associated with CVD (HR: 1.10; 95% CI: 1.08–1.11) and CHD (HR: 1.12; 95% CI: 1.09–1.15), but not with stroke (HR: 1.03; 95% CI: 0.99–1.06).

In this longitudinal study, adherent usage of glucosamine was significantly associated with a higher risk for cardiovascular diseases in patients with osteoarthritis.

> [J Clin Endocrinol Metab.](#) 2023 May 17;108(6):e216-e222. doi: 10.1210/clinem/dgac750.

## Proton Pump Inhibitor Use and Risks of Cardiovascular Disease and Mortality in Patients With Type 2 Diabetes

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Affiliations + expand

PMID: 36573284 DOI: [10.1210/clinem/dgac750](#)

> [Front Cardiovasc Med.](#) 2022 Feb 25;9:767987. doi: 10.3389/fcvm.2022.767987. eCollection 2022.

## Updated Insights on Cardiac and Vascular Risks of Proton Pump Inhibitors: A Real-World Pharmacovigilance Study

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Affiliations + expand

PMID: 35282344 PMCID: [PMC8913586](#) DOI: [10.3389/fcvm.2022.767987](#)

Our data suggest that PPI use is associated with higher risks of CVD events and mortality among patients with T2D. The benefits and risks of PPI use should be carefully balanced among patients with T2D, and monitoring of adverse CVD events during PPI therapy should be enhanced.

PPIs may inflict various CVEs, particularly those involving the vascular system, on the users. Given the wide range of onset times and different toxicity profiles for various PPI medications, they should be prescribed with caution.

> [Int J Epidemiol.](#) 2023 Jun 6;52(3):899-907. doi: 10.1093/ije/dyac196.

# Proton pump inhibitors and myocardial infarction: an application of active comparators in a self-controlled case series

Celine S L Chui <sup>1 2 3</sup>, Ka Shing Cheung <sup>4 5</sup>, Jeremy P Brown <sup>6</sup>, Ian J Douglas <sup>6</sup>, Ian C K Wong <sup>3 7 8</sup>, Esther W Chan <sup>3 7</sup>, Angel Y S Wong <sup>6</sup>

Affiliations + expand

PMID: 36259933 PMCID: PMC10244046 DOI: 10.1093/ije/dyac196

> [Am J Gastroenterol.](#) 2022 Jul 1;117(7):1063-1071. doi: 10.14309/ajg.0000000000000000  
Epub 2022 May 4.

# Proton Pump Inhibitors and Risk of Cardiovascular Disease: A Self-Controlled Case Series Study

Ju-Young Park <sup>1 2</sup>, Joonsang Yoo <sup>3</sup>, Jimin Jeon <sup>3</sup>, Jinkwon Kim <sup>3</sup>, Sangwook Kang <sup>1</sup>

Affiliations + expand

PMID: 35505518 DOI: 10.14309/ajg.0000000000001809

**Methods:** We conducted a SCCS using a population-wide database from Hong Kong from 2003-2014. Adult with  $\geq 1$  outpatient oral PPI prescription or H2 receptor

**Discussion:** Negative findings during the observation period suggest that the association between PPIs and MI is likely due to protopathic bias.

**Methods:** We conducted an SCCS study using the National Health Insurance Service Health Screening cohort in Korea (2003-2015). The

**Conclusions:** We observed no difference in risk of MI associated with PPIs compared with baseline using H2RA as the active comparator. The elevated risk of MI associated with PPIs is likely due to protopathic bias. More studies are required to explore the feasibility of using active comparators in SCCS to address protopathic bias in addition to confounding.

adjusted incidence rate ratio between periods with and without exposure to PPI among patients with primary outcomes.



# The Safety of Long-Term Proton Pump Inhibitor Use on Cardiovascular Health: A Meta-Analysis

Dalel Jeridi <sup>1</sup>, Anna Pellat <sup>1 2</sup>, Claire Ginestet <sup>1 2</sup>, Antoine Assaf <sup>1 2</sup>, Rachel Hallit <sup>1 2</sup>, Felix Corre <sup>1 2</sup>, Romain Coriat <sup>1 2</sup>

Affiliations + expand

PMID: 35887860 PMCID: PMC9322047 DOI: 10.3390/jcm11144096

**Introduction:** Proton pump inhibitors (PPIs) are one of the most prescribed classes of drugs worldwide as a first-line treatment of acid-related disorders. Although adverse effects are rare and rapidly reversible after a short exposure, concerns have been recently raised about a greater toxicity on cardiovascular health after a longer exposure, especially when combined with clopidogrel. We aimed to evaluate the safety of long-term PPI use on cardiovascular health in patients with known atheromatous cardiovascular disease.

**Conclusions:** The overall results of this meta-analysis showed that long-term PPI use was not associated with an increased risk of adverse cardiovascular events.

However, inconsistent results were found for combined PPI/clopidogrel therapy. These results should be considered with caution in light of the significant heterogeneity, the limited number of included studies, and the lack of adjustment for potential confounders.

# Approach to atrial fibrillation: Essentials for primary care

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Affiliations + expand

PMID: 37072207 PMID: PMC10112727 DOI: 10.46747/cfp.6904245

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**Objective:** To support family physicians in preventing atrial fibrillation (AF) in patients at risk and in identifying and managing those with established AF; and to summarize key recommendations for ideal screening and care of patients.

**Conclusion:** Most patients with AF can be managed effectively in primary care. Family physicians not only play an important role in ensuring patients with AF receive timely diagnoses, but they are also key to providing initial and ongoing care, especially in patients with comorbid conditions.

**Figure 2. Clinical evaluation of patients with AF**

**Complete AF history**

**Establish:**

- Date of first symptomatic attack and date of first objective confirmation
- Duration and frequency of episodes (eg, dominant pattern of AF)
- Presence and nature of symptoms related to AF
- Symptom severity (including impact on quality of life)

**Identify:**

1. Risk factors and triggers for AF
  - See Figure 1
2. Triggers for AF
  - Stimulants
  - Alcohol
  - Sleep deprivation
  - Emotional stress
  - Physical exertion
  - Sleep or nocturnal awakenings
  - Digestive

**Figure 3. Canadian Cardiovascular Society algorithm (CHADS-65) for stroke prevention in nonvalvular AF**

Age ≥65 years → Yes → OAC\*

**Figure 4. Approach to long-term rhythm control: Initial choice of AAD therapy is driven mainly by safety and tolerability. If the initial medication does not work, consider alternative agents.**

**Figure 5. Approach to long-term rate control: Choice of a specific rate-controlling regimen should be based on a patient's characteristics and the drug's efficacy and side-effect profile.**

**Long-term rate control\***

Inadequate symptom or heart rate control (resting heart rate >100 BPM)

LVEF ≤40%<sup>†</sup> → β-blocker<sup>‡</sup>

LVEF >40% → β-blocker<sup>‡</sup> or ND-CCB<sup>§</sup>

Inadequate symptom or heart rate control (resting heart rate >100 BPM)

Add digoxin<sup>¶</sup> (if β-blocker) or Add ND-CCB<sup>§</sup> or digoxin<sup>¶</sup> (if β-blocker) or Add β-blocker<sup>‡</sup> or digoxin<sup>¶</sup> (if ND-CCB)

Inadequate symptom or heart rate control (resting heart rate >100 BPM)

Consider rhythm control versus pacemaker implantation and AV junction ablation\*

**Figure 1. Modifiable risk factors associated with development of AF and treatment targets:**

- Sleep apnea:** CPAP for moderate-severe OSA
- Weight loss:** Target a weight loss of ≥10% to a BMI of less than 27 kg/m<sup>2</sup>.
- Diabetes:** Target an HbA<sub>1c</sub> of ≤7.0%.

**Footnote:** AF—atrial fibrillation, AV—atrioventricular, BPM—beats per minute, LVEF—left ventricular ejection fraction, ND-CCB—non-dihydropyridine calcium channel blocker. \*Consider AF symptom burden, possibility of adverse drug reactions, and patient preference. †Consider role of catheter ablation in patients with coexisting AF and heart failure. ‡Evidence-based β-blockers (bisoprolol, carvedilol, metoprolol) are recommended. §Diltiazem, verapamil. ¶Digoxin is most beneficial in addition to first-line agents in those who fail to achieve satisfactory symptom or heart rate control, or as monotherapy in sedentary individuals with side effects from or contraindications to first-line agents. Therapeutic drug monitoring may be useful in adjusting digoxin dose. \*\*Consider cardiac resynchronization therapy prior to AV junction ablation in those with reduced LVEF. Reprinted from the Canadian Journal of Cardiology<sup>7</sup> with permission from the Canadian Cardiovascular Society. Copyright © 2020.

# ECG-Based Deep Learning and Clinical Risk Factors to Predict Atrial Fibrillation

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[Free PMC article](#)

[Randomized Controlled Trial](#) > *Circulation*. 2022 Mar 29;145(13):946-954.

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## Screening for Atrial Fibrillation in Older Adults at Primary Care Visits: VITAL-AF Randomized Controlled Trial

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PMID: 35232217 PMCID: PMC8960369 DOI: 10.1161/CIRCULATIONAHA.121.057014

**Background:** Artificial intelligence (AI)-enabled analysis of 12-lead ECGs may facilitate efficient estimation of incident atrial fibrillation (AF) risk. However, it remains unclear whether AI provides meaningful and generalizable improvement in predictive accuracy beyond clinical risk factors for AF.

**Conclusions:** AI-based analysis of 12-lead ECGs has similar predictive usefulness to a clinical risk factor model for incident AF and the approaches are complementary. ECG-AI may enable efficient quantification of future AF risk.

**Background:** Undiagnosed atrial fibrillation (AF) may cause preventable strokes. Guidelines differ regarding AF screening recommendations. We tested whether point-of-care screening with a handheld single-lead ECG at primary care practice visits increases diagnoses of AF.

**Conclusions:** Screening for AF using a single-lead ECG at primary care visits did not affect new AF diagnoses among all individuals aged 65 years or older compared with usual care.

# Comparative Effectiveness and Safety Between Apixaban, Dabigatran, Edoxaban, and Rivaroxaban Among Patients With Atrial Fibrillation : A Multinational Population-Based Cohort Study

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Affiliations + expand

PMID: 36315950 DOI: 10.7326/M22-0511

**Background:** Current guidelines recommend in patients with atrial fibrillation (AF), but DOAC.

**Objective:** To do a large-scale comparison (rivaroxaban) in routine clinical practice.

**Design:** Multinational population-based

**Setting:** Five standardized electronic health records in France, Germany, the United Kingdom, and the

**Participants:** Patients who were newly diagnosed with AF and started on a new DOAC prescription.

**Measurements:** Database-specific hazard ratios for intracranial hemorrhage (ICH), gastrointestinal bleeding, and all-cause mortality were estimated using a Cox regression model with a random-effects model.

**Results:** A total of 527 226 new DOAC users met the inclusion criteria (apixaban,  $n = 281\,320$ ; dabigatran,  $n = 61\,008$ ; edoxaban,  $n = 12\,722$ ; and rivaroxaban,  $n = 172\,176$ ). Apixaban use was associated with lower risk for GIB than use of dabigatran (HR, 0.81 [95% CI, 0.70 to 0.94]), edoxaban (HR, 0.77 [CI, 0.66 to 0.91]), or rivaroxaban (HR, 0.72 [CI, 0.66 to 0.79]). No substantial differences were observed for other outcomes or DOAC-DOAC comparisons. The results were consistent for patients aged 80 years or older. Consistent associations between lower GIB risk and apixaban versus rivaroxaban were observed among patients receiving the standard dose (HR, 0.72 [CI, 0.64 to 0.82]), those receiving a reduced dose (HR, 0.68 [CI, 0.61 to 0.77]), and those with chronic kidney disease (HR, 0.68 [CI, 0.59 to 0.77]).

**Conclusion:** Among patients with AF, apixaban use was associated with lower risk for GIB and similar rates of ischemic stroke or systemic embolism, ICH, and all-cause mortality compared with dabigatran, edoxaban, and rivaroxaban. This finding was consistent for patients aged 80 years or older and those with chronic kidney disease, who are often underrepresented in clinical trials.

**Primary funding source:** None.



# Atrial Fibrillation and Dapagliflozin Efficacy in Patients With Preserved or Mildly Reduced Ejection Fraction

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Affiliations + expand

PMID: 36041668 DOI: 10.1016/j.jacc.2022.08.718

## Background

Atrial fibrillation (AF) is common in heart failure (HF), is associated with worse outcomes compared with sinus rhythm, and may modify

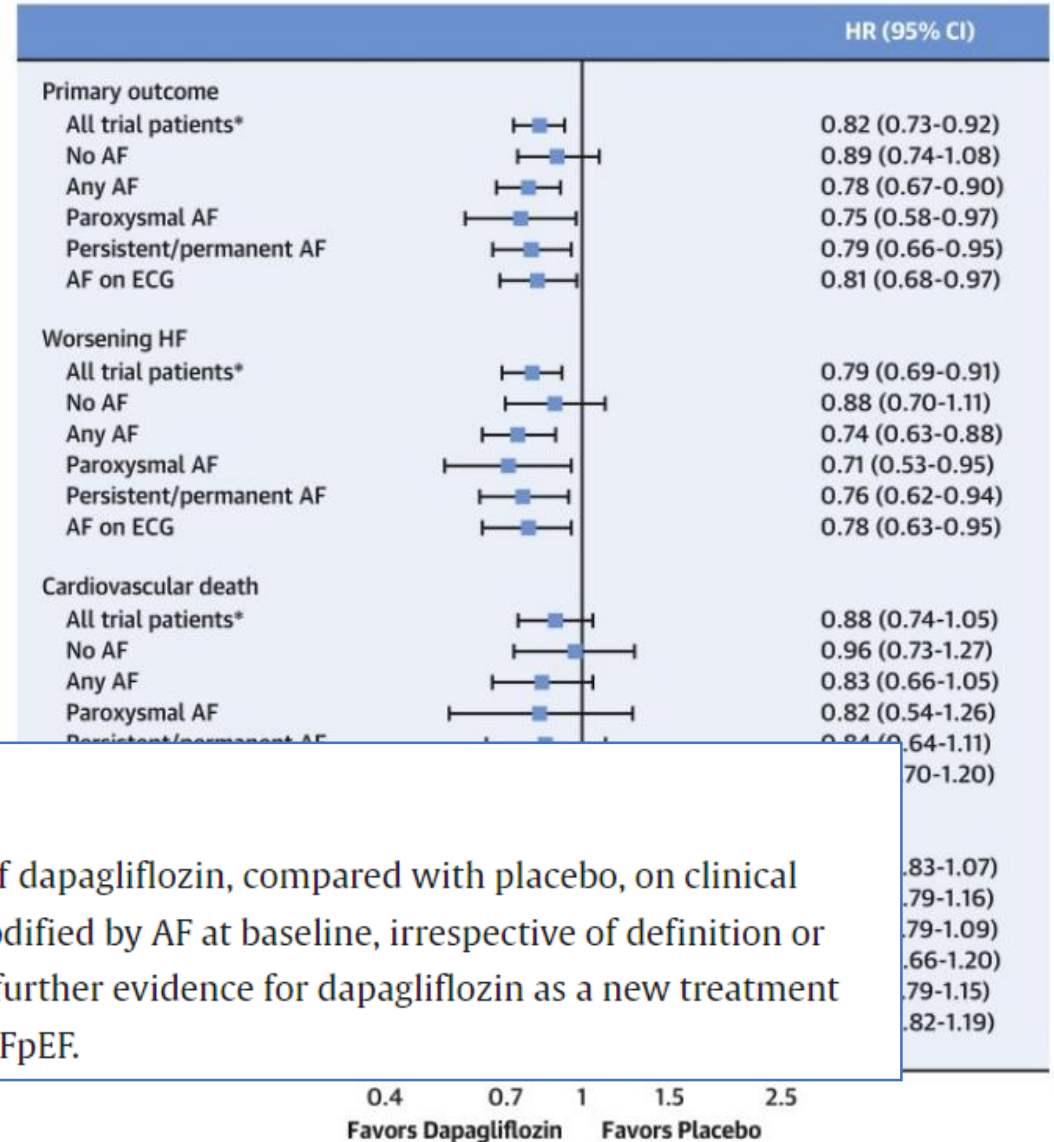
## Objectives

This study examined the effects of dapagliflozin in the DELIVER (Dapagliflozin Evaluation to Improve Ejection Fraction HeartFailure) trial.

## Conclusions

In DELIVER, the beneficial effects of dapagliflozin, compared with placebo, on clinical events and symptoms were not modified by AF at baseline, irrespective of definition or type of AF. These findings provide further evidence for dapagliflozin as a new treatment option for patients with HFmrEF/HFpEF.

### CENTRAL ILLUSTRATION: Effects of Dapagliflozin vs Placebo on Outcomes According to Atrial Fibrillation Status



Epub 2022 Jun 29.

# Safety outcomes of SGLT2i in the heart failure trials: A systematic review and Meta-analysis

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Affiliations + expand

PMID: 35777490 DOI: [10.1016/j.ijcard.2022.06.059](https://doi.org/10.1016/j.ijcard.2022.06.059)

**Aims:** Sodium-glucose co-transporter inhibitors (SGLT2i) are emerging as a new treatment for heart failure (HF) after demonstrating favorable clinical outcomes in several randomized controlled trials (RCTs). In this meta-analysis, we assessed the safety of SGLT2i in the trials that prespecified heart failure in their inclusion criteria.

**Materials and methods:** We searched the databases for RCTs comparing SGLT2i to placebo in heart failure patients. The primary outcome was the incidence of serious adverse events (SAEs). A sensitivity analysis according to the class of HF was also performed.

**Results:** The incidence of SAEs was significantly lower in the SGLT2i group (OR, 0.85; 95% CI, 0.77-0.92; P, 0.0002) and SAEs remained significantly lower after performing the sensitivity analysis (OR, 0.82; 95% CI, 0.75-0.89; P, <0.00001). Genital infections, urinary tract infections (UTIs), and hypotension were significantly higher in the SGLT2i group.

**Conclusions:** SGLT2i remain a safe option for patients with HF with a lower incidence of SAEs. However, since they increase the risk of genital infection, UTIs and hypotension, the risks vs benefits in each patient should be weighed when making a prescribing decision.

Review > [Int J Environ Res Public Health](#). 2022 Oct 24;19(21):13823.

doi: [10.3390/ijerph192113823](#).

# Effectiveness and Cost-Effectiveness of Case Management in Advanced Heart Failure Patients Attended in Primary Care: A Systematic Review and Meta-Analysis

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Affiliations + expand

PMID: [36360704](#) PMCID: [PMC9656967](#) DOI: [10.3390/ijerph192113823](#)

**Aims:** Nurse-led case management (CM) may improve quality of life (QoL) for advanced heart failure (HF) patients. No systematic review (SR), however, has summarized its effectiveness/cost-effectiveness. We aimed to evaluate the effect of such programs in primary care settings in advanced HF patients. We examined and summarized evidence on QoL, mortality, hospitalization, self-care, and cost-effectiveness.

**Conclusions:** Nurse-led CM reduces all-cause hospital admissions and HF hospitalizations but not all-cause mortality. QoL improved at medium-term follow-up. Such programs could be cost-effective in high-income countries.

# Effectiveness and Cost-effectiveness of an Empowerment-Based Self-care Education Program on Health Outcomes Among Patients With Heart Failure: A Randomized Clinical Trial

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Affiliations + expand

PMID: 35380643 PMCID: PMC8984788 DOI: 10.1001/jamanetworkopen.2022.5982

In this randomized clinical trial, an empowerment approach led to clinically relevant improvement in symptom perception and self-care management among patients with heart failure. Its cost-effectiveness in improving these prognostic factors also benefits the patient-reported outcome.

The 12-week, group-based, empowerment-based education program included self-care assessment, goal-orientated actions in symptom recognition and response, fluid and dietary modification, and lifestyle management. Didactic education covered the same topics without empowerment strategies.



# High-power chargers for electric vehicles: are they safe for patients with pacemakers and defibrillators?

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Author Notes

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Published: 17 A

## Aims

Battery electric vehicle charging stations with high-power chargers and electromagnetic interference (EMI) from electric vehicle charging stations and their safety hazards.

A total of 130 CIED patients performed 561 charges with up to 350 kW of 4 electric cars and 1 test vehicle



- **CIED portfolio**
  - PM N = 44
  - ICD N = 64 (incl. S-ICD N = 33)
  - CRT N = 22
- **EMI worst-case scenario** with charging cable placed directly over the generator



## Methods and results

A total of 130 CIED patients performed 561 charges of four BEVs and a test vehicle (350 kW charge capacity) using high-power charging stations under continuous 6-lead electrocardiogram monitoring. The charging cable was placed directly over the CIED, and devices were programmed to maximize the chance of EMI detection. Cardiac implantable electronic devices were re-interrogated after patients charged all BEVs and the test vehicle for evidence of EMI. There were no incidences of EMI, specifically no over-sensing, pacing

## Conclusions

The use of electric cars with high-power chargers by patients with cardiac devices appears to be safe with no evidence of clinically relevant EMI. Reasonable caution, by minimizing the time spent in close proximity with the charging cables, is still advised as the occurrence of very rare events cannot be excluded from our results.

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# Prospective Observational Study on the Prevalence and Diagnostic Value of General Practitioners' Gut Feelings for Cancer and Serious Diseases

Bernardino Oliva-Fanlo<sup>1</sup>, Sebastia March<sup>2 3 4</sup>, Cristina Gadea-Ruiz<sup>5</sup>, Erik Stolper<sup>6 7</sup>, Magdalena Esteva<sup>3 4 8</sup>; CORap group

Affiliations + expand

PMID: 35088202 PMCID: PMC9111111

**Background:** General practitioners (GPs) play a key role in the diagnostic process. However, the diagnostic value of their gut feelings for cancer and serious diseases is not well understood.

**Objective:** To assess the prevalence and impact on patient diagnosis of GPs' gut feelings for cancer and serious diseases.

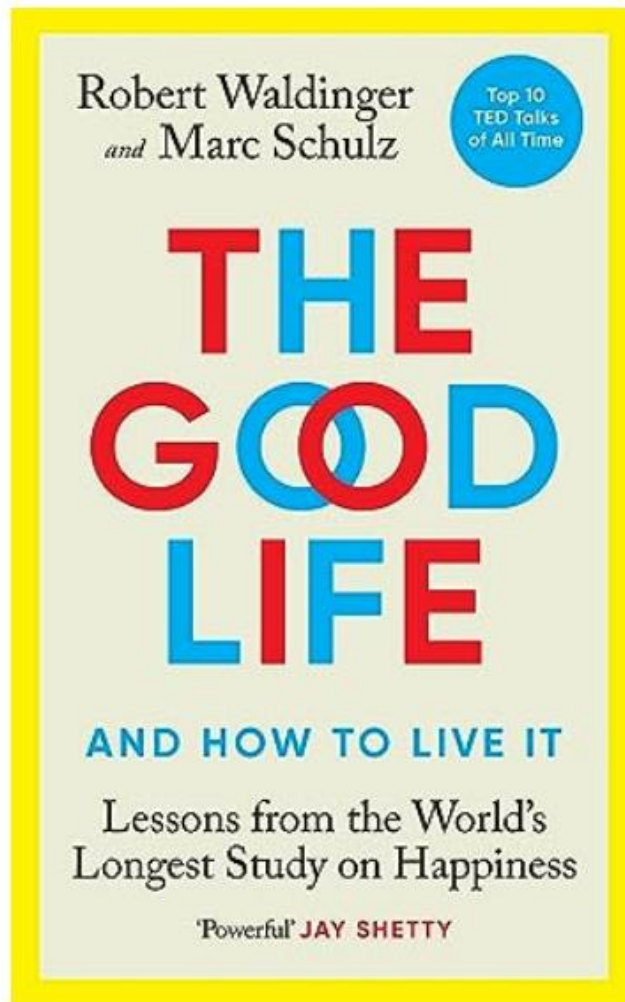
**Design:** This prospective observational study was performed using the Gut Feelings Questionnaire (GFQ).

**Participants:** Participants were GPs from a primary care network in a non-urban setting.

**Main measures:** Sociodemographic characteristics of the consultation; the presence and kind of gut feeling; the patient's subsequent contacts with the health system; and new cancer and serious disease diagnoses reported at 2 and 6 months post-consultation.

**Key results:** GPs experienced a gut feeling during 97% of the consultations: a sense of reassurance in 75% of consultations and a sense of alarm in 22% of consultations. A sense of alarm was felt at higher frequency given an older patient, the presence of at least one cancer-associated symptom, or a non-urban setting. GPs took diagnostic action more frequently after a sense of alarm. After 2 months, the sense of alarm had a sensitivity of 59% for cancer and other serious diseases (95% CI 47-71), a specificity of 79% (95% CI 77-82), a positive predictive value of 12% (95% CI 9-16), and a negative predictive value of 98% (95% CI 86-98).

**Conclusions:** Gut feelings are consistently present in primary care medicine, and they play a substantial role in a GP's clinical reasoning and timely diagnosis of serious disease. The sense of alarm must be taken seriously and used to support diagnostic evaluation in patients with a new reason for consultation.



<https://www.adultdevelopmentstudy.org/>

What is the key to a good life?

It is a question that preoccupies us all and one that the longest and most successful study of happiness ever conducted strives to answer. In this groundbreaking book, directors of the Harvard Study of Adult Development, Robert Waldinger and Marc Schulz, bring together over 80 years of research to reveal the true components of a happy, fulfilled life.

The Good Life makes clear that what truly makes a rich and happy life is not synonymous with financial success and achievement, but is rather the result of our relationships. This remarkable work brings together scientific precision, traditional wisdom, incredible real-life stories and actionable insights to prove once and for all that our own wellbeing and ability to flourish is absolutely within our control.



# Obrigado pela vossa atenção

