SYSTEMATIC REVIEW AND QUALITY ASSESSMENT OF CLINICAL AND ECONOMIC EVIDENCE FOR SUPERABSORBENT WOUND DRESSINGS IN A POPULATION WITH CHRONIC ULCERS

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1. Background

- Chronic ulcers, including pressure injuries, diabetic foot ulcers, and venous/arterial leg ulcers, fail to heal in an orderly manner through the usual stages of haemostasis, inflammation, proliferation, and maturation.
- These ulcers often experience prolonged inflammation and can take years to heal.
- Differences in the exudate of acute versus chronic ulcers, such as elevated pro-inflammatory components and proteases, further complicate healing.
- Chronic ulcers significantly affect patients' quality of life and impose a heavy economic burden on healthcare systems.
- Effective management of exudate, crucial for optimal healing, involves the use of specialized dressings designed to handle and retain high volumes of fluid, thereby reducing infection risks and promoting faster healing.
- Despite their importance, systematic reviews (SLR) assessing the clinical efficacy and cost-effectiveness of superabsorbent dressings for chronic ulcers are lacking, highlighting a critical area for research and clinical focus.

2. Methods

- The SLRs were conducted adhering to multiple established guidelines to ensure robustness and transparency:
- Guidelines Followed: PRISMA, NICE's methodology checklist, CRD's guidance, Cochrane Handbook, and EUnetHTA guidelines. The review is registered with PROSPERO (CRD42021286124).
- Eligibility Criteria Adjustment: Initially proposed to include populations with over 80% of patients having chronic ulcers, this was adjusted to over 50% to broaden study inclusion.
- **Search Strategy**:
  - Databases Searched: Embase, MEDLINE, the Cochrane Library, CINAHL, The Cost Effectiveness Analysis Registry, and Econ papers.
  - Additional Sources: Health technology databases, NICE, other national and international health technology assessment bodies, and bibliographies of relevant publications.
  - Tools Used: Ovid platform and 'Connected Papers' web application to ensure comprehensive coverage.
- **Screening and Data Extraction**:
  - Performed by two independent reviewers using Covidence, with discrepancies resolved by a senior investigator.
  - Data were extracted into standardized Excel templates and validated internally.
- **Quality Assessment:**
  - Employed multiple checklists appropriate to study designs, including the Cochrane RoB 2 for RCTs and the Drummond checklist for economic evaluations.
- **Statistical Analysis:**
  - Studies were evaluated for inclusion in meta-analysis or indirect treatment comparisons based on design and data compatibility.

3. Results

The clinical SLR resulted in 14 publications being included after rigorous screening, while the economic SLR included seven publications.

Clinical Studies Overview

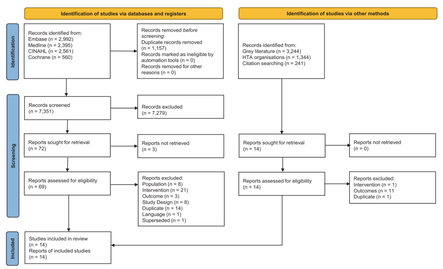

Figure 1. SLR PRISMA flow diagram (clinical studies)
Abbreviations: HTA: Health technology assessment; SLR: systematic literature review

- Number of Studies: 14 publications, predominantly case series (11), complemented by one RCT, one matched observational cohort study, and one retrospective cohort study.
- Common Origin: Majority from the UK (8).
- Interventions Studied: Nine different superabsorbent dressings evaluated across studies.
- Patient Diversity: Studies mainly involved patients with various ulcer etiologies; total patient count ranged from 937 to 439 across studies.

3. Results

Publication (year)	Country	Sample Size	Study Design	Intervention(s)	Study Population	Outcomes of Interest Reported
Allymamod (2011)	UK	16	Case Series	DryMax Extra	LUs	Colonisation with antimicrobial resistant pathogens, Pain Scores
Atkin (2020)	UK	49	Case Series	Zetuvit Plus Silicone	Mixed aetiology ulcers, VLUs, and DFUs	Time between dressing change, Wear time distribution, Pain Scores
Barrett (2018)	UK	50	Case Series	Zetuvit Plus	VLUs, PUs, and DFUs	Dressing changes, Time between dressing change, Pain Scores
Barrett (2020)	UK	52	Case Series	Zetuvit Plus Silicone Border	VLUs, PUs, DFUs, and malignant wounds	Dressing changes, Wear time distribution
Hindhede (2012)	Belgium	30	Case Series	DryMax Extra	VLUs, PUs, arterial ulcer, etc.	Partial and complete wound closure, Pain Scores
Lloyd-Jones (2011)	UK	9	Case Series	Eclypse Adherent	Sacral PUs	Time between dressing change, Pain Scores
Münter (2018)	Germany	171	Prospective Case Series	Vliwasorb Pro	VLUs, PUs, DFUs, etc.	Dressing related AEs
Panca (2013)	UK	439	Retrospective Matched Cohort	DryMax Extra, Kerramax, etc.	VLUs	Complete wound closure, Time to complete wound closure, Dressing changes, Time between dressing changes, Change in size of unhealed wounds, Mortality
Probst (2022)	Switzerland	77	RCT, Open-Label	Curea P1 Duo Active	VLUs, DFUs, arterial leg ulcers, etc.	Colonisation with antimicrobial resistant pathogens, Wound area reduction
Tickle (2013)	UK	12	Case Series	Flivasorb Adhesive	Sinus ulcers, LUs, DFUs, traumatic ulcers	Dressing changes
van Leen (2014)	UK, Netherlands	29	Case Series	Sorbion sachet S, Sorbion Sana	LUs, Pus	Complete wound closure, Pain Scores
Verrall (2010)	UK	19	Case Series	Flivasorb	VLUs, PUs, arterial ulcer, chest wound	Dressing changes, Colonisation with antimicrobial resistant pathogens, Wound area reduction
Faucher (2012)	France	15	Prospective Case Series	Vliwasorb	PUs, VLUs, mixed ulcers, etc.	Dressing changes, All-cause AEs
Hermans (2015)	USA	38	Retrospective Cohort	Sorbion sachet S, VAC therapy (NPWT)	VLUs, PUs, surgical wounds	Dressing changes, Wound area reduction, Pain Scores

Table 1. Study characteristics (clinical studies)
Abbreviations: AE: adverse event; CMC: carboxymethylcellulose; DFU: diabetic foot ulcer; LU: leg ulcer; NPWT: negative pressure wound therapy; PU: pressure ulcer; RCT: randomised controlled trial; SLR: systematic literature review; UK: United Kingdom; USA: United States of America; VAC: vacuum-assisted closure; VLU: venous leg ulcer.

Publication (year)	Age (years), mean (SD)	Sex, n (%)	Ulcer duration, mean (SD)	Ulcer size (cm²), mean (SD)
Allymamod (2011)	NR	Male: 7 (NR) Female: 9 (NR)	>6 weeks	30-50
Atkin (2020)	Male: 73.6 (9.5)	Male: 31 (NR) Female: 78.2 (12.4)	>1 week Female:	NR
Barrett (2018)	Male: 74.71 (15.47)	Male: 18 (NR) Female: 78 (14.78)	NR Female:	NR
Hindhede (2012)	69 (16.2)	NR	NR	NR
Lloyd-Jones (2011)	NR	Male: 4 (NR) Female: 5 (NR)	NR	NR
Münter (2018)	69 (35)	Male: 86 (50.3) Female: 13 (8.89)	13 (8.89)	44.96 (126.84)
Panca (2013)	DryMax Extra: 71.7 (95% CI: 67.1, 76.3)	NR	DryMax Extra: 6.8 months (95% CI: 5.8, 7.8)	DryMax Extra: 241.9 (95% CI: 190.5, 293.3)
	Flivasorb: 74.9 (95% CI: 72.6, 77.3)	NR	Flivasorb: 6.5 months (95% CI:3.9, 9)	Flivasorb: 245.8 (95% CI: 201.9, 289.8)
	Kerramax: 70.3 (95% CI: 67.1, 73.4)	NR	Kerramax: 9.9 months (95% CI: 6.8, 13)	Kerramax: 277.3 (95% CI: 240.4, 314.3)
	Sorbion Sachet S: 74.3 (95% CI: 71.6, 77.1)	NR	Sorbion Sachet S: 19.8 months (95% CI: 14.4, 25.3)	Sorbion Sachet S: 209.7 (95% CI: 177.9, 241.6)
	CMC: 74.3 (95% CI: 71.5, 77)	NR	CMC: 3.5 months (95% CI:2.4, 4.6)	CMC: 62.6 (53.9, 71.4)
Probst (2022)	77.5 (12.6)	Male: 34 (44.2) Female: 43 (55.8)	23 months	NR
Tickle (2013)	NR	NR	NR	NR
Van Leen (2014)	Patients with PUs: 64.6 (NR) Patients with LUs: 71.7 (NR)	PUs: • Male: 4 (NR) • Female: 7 (NR) LUs: • Male: 13 (NR) • Female: 7 (NR)	NR	NR
Verrall (2010)	66.5 (NR)	Male: 8 (NR) Female: 11 (NR)	1.5 years (NR)	NR
Faucher (2012)	69.7 (10.36)	Male: 6 (40) Female: 9 (60)	NR	NR
Hermans (2015)	Sorbion Sachet S: 61.3 (NR) • NPWT: 68.3 (NR)	Male: • Sorbion Sachet S: 15 (NR) • NPWT: 8 (NR)	NR	Sachet S: 227.2 (NR) NPWT: 94.5 (NR)

Table 2. Baseline patient and ulcer characteristics (clinical studies)
Abbreviations: AE: adverse event; CMC: carboxymethylcellulose; DFU: diabetic foot ulcer; LU: leg ulcer; NPWT: negative pressure wound therapy; PU: pressure ulcer; RCT: randomised controlled trial; SLR: systematic literature review; UK: United Kingdom; USA: United States of America; VAC: vacuum-assisted closure; VLU: venous leg ulcer.

Cost-Effectiveness Overview

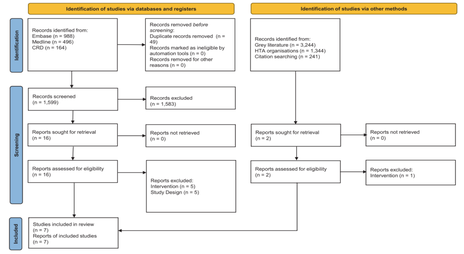

Figure 2. SLR PRISMA flow diagram (health economic studies)
Abbreviations: HTA: Health technology assessment; SLR: systematic literature review

3. Results (continued)

- Number of Studies: Seven studies, including five cost-utility analyses, one cost-description, and one cost-comparison analysis.
- Geographic Distribution: Studies from the UK, Germany, USA, and France.
- Methodological Approaches: Majority employed Markov models with a typical cycle length of one week; study perspectives varied from NHS to payer and societal views.

Publication (year)	Country	Type of economic analysis	Intervention	Comparator(s)	Study population	Discounting
Barrett (2018)	UK (NR)	Cost-comparison, before-after model	Zetuvit Plus	NR	VLUs; PUs, arterial wound, chest wound, wet legs, surgical wound	NR
Panca (2013)	UK (NHS)	Cost-utility, decision-tree model	Sorbion Sachet S	• DryMax Extra • Flivasorb • Kerramax	VLUs	NR
Veličković (2020)	UK (NHS)	Cost-utility, Markov model	Zetuvit Plus Silicone	SoC: • Other superabsorbent (36%) • Antimicrobials (30%) • Foams (20%) • Alginates (9%) • Other dressings (5%)	LUs	6 months
Veličković (2021)	Germany (Payer & societal)	Cost-utility, Markov model	Zetuvit Plus Silicone	SoC: • Other superabsorbents (29%) • Silicone/Zetuvit Plus Silicone Border • Antimicrobials (26%) • Foams (20%) • Alginates (5%) • Other dressings (19%)	LUs	6 months
Walzer (2018)	UK (NHS)	Cost-utility, Markov model	Sorbion Sachet S	• Zetuvit Plus • DryMax Extra • KerraMax Care • Eclypse	VLUs	1 year
Hermans (2015)	USA (Hospital)	Cost-comparison, simple-comparison model	Sorbion Sachet S	VAC therapy (NPWT)	VLUs, PUs, DFUs and surgical wounds	NR
Veličković (2022)	France (HAS national payer)	Markov model, Cost-utility	Zetuvit Plus Silicone	Mix of foam dressings: • Mepilex Border Flex Carré • Silicone Border • Aquacel Foam • Aquacel Foam Pro • Allevyn Life • Biatain Silicone • Allevyn Gentle Border • Urgotul Border • Urgostart Plus Border	LUs	6 months

Table 3. Study characteristics (economic studies)
Abbreviations: DFU, diabetic foot ulcer; HAS, Haute Autorité de Santé; LU, leg ulcer; NA, not applicable; NHS, National Health Service; NPWT, negative pressure wound therapy; NR, not reported; PU, pressure ulcer; SLR, systematic literature review; SoC, standard of care; UK, United Kingdom; USA, United States of America; VAC, vacuum-assisted therapy; VLU, venous leg ulcer. aThis source publication uses the Resposorb brand name.

Quality and Risk Assessment:

- Clinical SLR: The sole RCT showed a high risk of bias; cohort studies varied in risk levels. Case series had mixed quality ratings across specific domains.
- Cost-Effectiveness SLR: Generally high quality with varied scores on the Drummond checklist across studies.

Overview of Ulcer Closure Using Superabsorbent Dressings

Case Series on Various Ulcer Etiologies:

- Partial Closure: 43% of ulcers nearly healed.
- Complete Closure: 20% achieved full healing by study's end.
- Wound Types Analyzed: Included haematoma ulcer, lymphatic leaks, postoperative ulcers, skin tears, and venous leg ulcers (VLUs).

Retrospective Cohort Study on VLUs:

- Complete Closure Rates: Ranged from 39% to 56% over six months.
- Closure Time: Mean time to complete closure varied from 2.1 to 3.3 months.

Case Series on Non-Healing Ulcers:

- Outcomes for Pressure Ulcers (PUs): Healing occurred as follows:
- 1 patient in Week 4
- 1 patient in Week 5
- 2 patients in Week 6
- Note: No data on complete healing for 16 patients with lymphatic ulcers

Properties and Impact of Superabsorbent Dressings on Dressing Change Frequency

Reduction in Dressing Changes:

- Superabsorbent dressings significantly decreased the number of dressing changes across various studies.
- A study on 16 patients with mixed chronic wounds found a reduction from baseline by up to 44 fewer changes at 4 weeks.
- Observational data on 19 patients showed a reduction from 3.2 to 1.8 changes per week post-introduction of the superabsorbent dressing.
- In a group of 12 patients, frequency shifted from daily changes to twice weekly after just 3 days of use.
- Comparison Studies: Hermans et al. noted an average of 13 changes with superabsorbent dressings compared to 12 with Negative Pressure Wound Therapy (NPWT), indicating comparable efficacy.
- A large cohort of 439 patients experienced dressing changes every 2-4 days over 6 months.

Longer Wear Times:

- Prospective studies reported mean wear times ranging from 3.7 days, with most patients (58.1%) changing dressings less than every 4 days.
- Shifts to longer wear times observed, especially when using dressings with silicone adhesive interfaces, resulting in 72% of patients changing dressings every third day or longer.

Infection Control and Antibiotic Use with Superabsorbent Dressings

Infection Signs and Colonization:

- Four studies, including a randomized controlled trial (RCT), found no clinical signs of infection in patients using superabsorbent dressings.
- Verral et al. reported no clinical infections among 19 patients with various ulcer types over a 4-week period.

3. Results (continued)

- Despite observations of odor, infection, and critical colonization in a portion of ulcers, superabsorbent dressings were associated with reductions in these parameters over time.

Antibiotic Usage:

- One study highlighted a decrease in antibiotic use among all patient groups using superabsorbent dressings, with reductions ranging from 19% to 32%.
- This decrease reflects the dressing's efficacy in managing infection risk, contributing to reduced antibiotic dependency.

Efficacy of Superabsorbent Dressings in Ulcer Size Reduction: Insights from Various Studies

Randomized Controlled Trial (RCT) Findings:

- A significant mean ulcer area reduction was noted in patients treated with superabsorbent dressings compared to those using non-adhesive hydrocellular foam dressings (1.96 cm^2 vs. 0.76 cm^2).
- The mean percentage difference in ulcer size reduction between the groups was 29.8%.

Observational Study Outcomes:

- One study observed a mean ulcer size reduction of 7.92 cm^2 over four weeks in patients with highly exuding ulcers.
- Hermans et al. reported a relative reduction of 42% in ulcer size with superabsorbent dressings compared to 33% with Negative Pressure Wound Therapy (NPWT).

Longitudinal Assessments:

- Panca et al. found that in a six-month period, ulcer size in the carbomethylcellulose (CMC) dressing group increased by 43%, whereas reductions in the superabsorbent dressing groups ranged from 22% to 53%.
- A specific focus on pressure ulcers (PUs) and leg ulcers (LUs) showed significant reductions in mean surface areas from baseline to Week 8.

Pressure Ulcer Scale for Healing (PUSH) Scores:

- In a multicenter case series, PUSH scores, which evaluate ulcer size, exudate level, and tissue type, showed a decrease from an average of 11.05 to 5.0 over an 8-week period with the use of superabsorbent dressings.

Safety and Pain Management with Superabsorbent Dressings: Adverse Events and Pain Reduction

Adverse Events (AEs):

- Low Incidence of AEs: Three studies highlighted minimal adverse events associated with superabsorbent dressings.
- Faucher et al. and Münter et al. both reported no all-cause or dressing-related adverse events during their respective studies involving prospective evaluations and clinician surveys.
- A larger retrospective study with 439 patients noted low mortality rates (1% to 5%) associated with the use of superabsorbent dressings, suggesting these are safe for managing chronic ulcers.

Pain Management Outcomes:

- Significant Reduction in Pain Scores: Seven studies, primarily using a visual analogue scale (VAS) for measurement, reported on pain outcomes, with substantial reductions in pain levels observed.
- Hermans et al. reported the most significant pain reduction, with superabsorbent dressing users experiencing a decrease in pain levels by an average of 3.1 points from baseline, compared to a 0.5 point reduction with vacuum-assisted closure (VAC) therapy.
- Van Leen et al.'s case series found that patients with pressure ulcers (PUs) saw reductions in background pain scores by 1.77 to 3.02 points over 4 and 8 weeks, respectively, and similar reductions during dressing changes.
- In patients with leg ulcers (LUs), there were also notable reductions in pain both in the background and at the time of dressing changes, further illustrating the comfort provided by superabsorbent dressings.

Economic Outcomes of Superabsorbent Dressings: Cost-Utility Analyses from Multiple Countries

UK Evaluation:

Studies have shown that superabsorbent dressings not only improve healing rates and quality of life (QoL) but also reduce healthcare costs compared to other dressing types.

Barrett 2018 reported savings of £1179 over 2 weeks for 10 patients, indicating significant cost-efficiency.

German Evaluation:

A similar cost-utility analysis in Germany found that superabsorbent dressings lead to better health outcomes and lower costs for treating moderate to high exuding leg ulcers.

French Evaluation :

In France, superabsorbent dressings compared favorably against foam dressings in VLUs, showing dominance by offering better health outcomes at a reduced cost.

US Evaluation

Hermans et al. identified savings in the use of superabsorbent dressings over Negative Pressure Wound Therapy (NPWT), with cost savings being $44.13 per percentage of surface area reduction and $20.79 per volume reduction.

Findings from Systematic Reviews:

Gaps in Clinical and Cost-Effectiveness Evidence:

- Both the clinical and cost-effectiveness systematic literature reviews (SLRs) revealed a small number of studies, generally of low quality, highlighting a clear need for more robust research on superabsorbent dressings for chronic ulcers.
- The clinical SLR particularly noted an absence of studies on hospital outcomes such as length of stay, readmissions, and procedures like skin grafts and surgical debridement. There was also limited evidence concerning ulcer closure and safety outcomes.
- Due to the low quality of evidence, it was not feasible to conduct statistical analyses on the data collected.

Cost-Effectiveness Insights:

Cost-utility analyses suggest that superabsorbent dressings are more cost-effective than standard dressings for managing chronic ulcers, indicating potential for broader use and implementation in clinical practice.

4. CONCLUSIONS

- The limited quantity and quality of current studies underscore a significant opportunity for further research into the clinical effectiveness and cost benefits of superabsorbent wound dressings.
- The existing evidence, although sparse, points towards potential advantages in using these dressings for chronic ulcer management.
- The groundwork laid by these SLRs, through their systematic and thorough search strategies, sets a high standard for future research efforts.

References

1. Allymamod A. Evaluation of a 16-patient study using DryMax extra in four leg ulcer clinics. Wounds UK. 2011;7(4):57-61.
2. Atkin L, Barrett S, Chadwick P, et al. Evaluation of a superabsorbent wound dressing, patient and clinician perspective: a case series. 2020.
3. Barrett S. An observational study of a superabsorbent polymer dressing evaluated by clinicians and patients. J Wound Care. 2018;27(2):91-100.
4. Barrett S, Rippon M, Rogers A. Treatment of 52 patients with a self-adhesive siliconised superabsorbent dressing: a multicentre observational study. 2020.
5. Hindhede A, Meuleneire F. A clinical case-series evaluation of a superabsorbent dressing on exuding wounds. J Wound Care. 2012;21(11):574-582.
6. Lloyd-Jones M. The role of Eclypse Adherent SacralA^ ® in managing sacral pressure ulcers. Br J Community Nurs. 2011;16: S38-S42.
7. Münter K-C, De Lange S, Eberlein T, Andriessen A, Abel M. Handling properties of a superabsorbent dressing in the management of patients with moderate-to-very high exuding wounds. J Wound Care. 2018;27(4):246-253.
8. Tickle J, Gregory L. Case series: the management of moderate to high exudate in chronic wounds. Br J Nurs. 2013;22:P19.
9. van Leen M, Rondas A, Neyens J, Cutting K, Schols JM. Influence of superabsorbent dressings on non-healing ulcers: a multicentre case series from The Netherlands and the UK. J Wound Care. 2014;23(11):543-550.
10. Verrall D, Coulborn A, Bree-Aslan C. Evaluating a super absorbent dressing (Flivasorb) in highly exuding wounds. Br J Nurs. 2010;19(7):449-453.
11. Faucher N, Safar H, Baret M, Philippe A, Farid R. Superabsorbent dressings for copiously exuding wounds. Br J Nurs. 2012; 21(12 Suppl):S22-S28.
12. Probst S, Saini C, Rosset C, Skinner MB. Superabsorbent charcoal dressing versus silver foam dressing in wound area reduction: a randomised controlled trial. J Wound Care. 2022;31(2): 140-146.
13. Panca M, Cutting K, Guest JF. Clinical and cost-effectiveness of absorbent dressings in the treatment of highly exuding VLUs. J Wound Care. 2013;22(3):109-118.
14. Hermans MH, Kwon Lee S, Ragan MR, Laudi P. Results of a retrospective comparative study: material cost for managing a series of large wounds in subjects with serious morbidity with a hydrokinetic fiber dressing.
15. Veličković VM, Chadwick P, Rippon MG, et al. Cost-effectiveness of superabsorbent wound dressing versus standard of care in patients with moderate-to-highly exuding leg ulcers. J Wound Care. 2020;29(4):235-246.
16. Veličković VM, Szilcz M, Milosevic Z, Godfrey T, Siebert U. Cost-effectiveness analysis of superabsorbent wound dressings in patients with moderate-to-highly exuding leg ulcers in Germany. Int Wound J. 2021;19:447-459.
17. Walzer S, Droschel D, Vollmer L, Atkin L, Ousey K. A cost-effectiveness analysis of a hydration response technology dressing in the treatment of venous leg ulcers in the UK. J Wound Care. 2018;27(3):166-172.
18. Veličković VM, Prieto PA, Krga M, Jorge AM. Superabsorbent wound dressings versus foams dressings for the management of moderate-to-highly exuding venous leg ulcers in French settings: an early stage model-based economic evaluation. J Tissue Viability. 2022;31(3):523-530.

Disclosures

Tom Macmillan, Isobel Munro, Neil Webb, and Dr Emma Lones are employees of Source Health Economics which received consultancy fees for the systematic literature review. Amy Crompton was an employee of Source Health Economics at the time the systematic literature review was conducted. Dr Vladica M. Veličkovic; Dr Viviane Fernandes Carvalho, and Yana Arlouskaya are employees of HARTMANN GROUP. Pablo Arija Prieto was an intern student at HARTMANN GROUP at the time the systematic literature review was conducted. Dr Sebastian Probst is part of the HARTMANN GROUP advisory board for development of digital health applications. Dr Szijarto Attila, Dr David Bardos, Dr YunNan Lin, Dr HaoYu Chiao disclose no conflict of interest in relation to this research.

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