

Can Recombinant Zoster Vaccine Administration Decrease the Use of Herpes Zoster-Related Pain Medication across Randomized Controlled Studies?

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Disclosures

- **Joon Hyung Kim, Martina Kovac, Srikanth Emmadi, Alemnew F. Dagnew, Desmond Curran and Anne Schuind** were employed by the GSK group of companies at the time the studies were designed, initiated and/or conducted and declare financial and non-financial relationships and activities. **MK, AD, and AS** are currently employed by PPD, the Bill & Melinda Gates Medical Research Institute, and PATH, respectively. **JHK, MK, AD, DC and AS** hold/held shares/stock options in GSK as part of their remuneration. **Robert Johnson** reports personal and consulting fees from GSK both during the conduct of the study and outside the submitted work. **Anthony L. Cunningham** received honoraria paid to his institution from GSK, Merck Sharp & Dohme (Merck), and BioCSL/Sequirus outside the submitted work. **Keith Sullivan** receives consulting fees from Magenta, Kiadis, GSK, Talaris, and Xenikos outside the submitted work.
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Acknowledgments

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Background

Herpes zoster (HZ) or shingles

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Older adults or the immunocompromised are at increased risk of HZ infection, severe disease and complications^{1,2}



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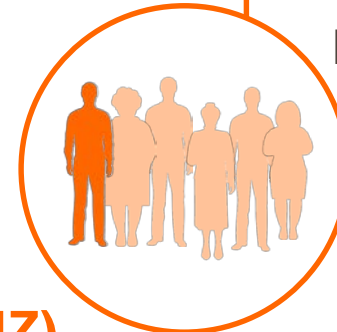
Has a major impact on patients' quality of life³

Background

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~1 OF 6
patients with HZ still have some pain 2 years after onset⁴



Herpes zoster (HZ) or shingles

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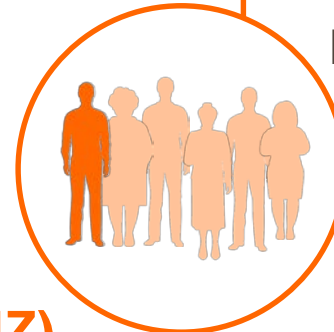


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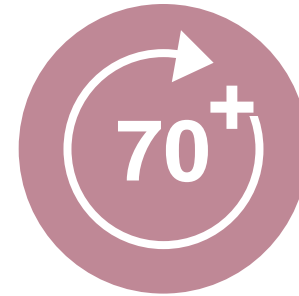
Has a major impact on patients' quality of life³



Opioids and other analgesics may be prescribed for pain relief but there are concerns about long-term effects and potential misuse⁴



Background: 3 randomized, placebo-controlled, phase 3 clinical efficacy trials of RZV in older and immunocompromised adults



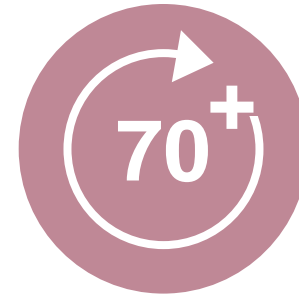
ZOE-50
(NCT01165177)¹

ZOE-70
(NCT01165229)²

ZOE-HSCT
(NCT01610414)³

	ZOE-50 (NCT01165177) ¹	ZOE-70 (NCT01165229) ²	ZOE-HSCT (NCT01610414) ³
Age			
% Efficacy against HZ (95% CI)			
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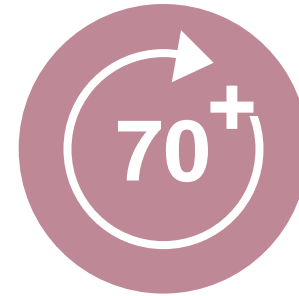
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Age	≥50 years		
% Efficacy against HZ (95% CI)	97.2%* (93.7; 99.0)		
HZ cases in RZV group (n)	9 (7,340)		
HZ cases in placebo group (n)	254 (7,413)		

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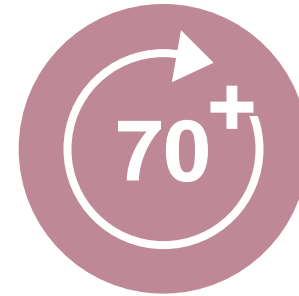
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HZ cases in RZV group (n)	9 (7,340)	23 (6,541)	
HZ cases in placebo group (n)	254 (7,413)	223 (6,622)	

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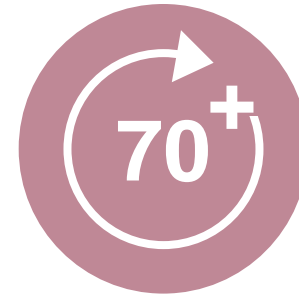
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Age	≥50 years	≥70 years	≥18 years (transplant population)
% Efficacy against HZ (95% CI)	97.2%* (93.7; 99.0)	89.8% (84.2; 93.7)	68.2% (55.6; 77.5)
HZ cases in RZV group (n)	9 (7,340)	23 (6,541)	49 (870)
HZ cases in placebo group (n)	254 (7,413)	223 (6,622)	135 (851)

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Aim

Did RZV have an impact in the few people who developed confirmed HZ (“breakthrough cases”) after RZV vaccination in the **ZOE-50**, **ZOE-70** and **ZOE-HSCT** studies?



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Efficacy of RZV vaccination in breakthrough cases on:

**Duration of
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Secondary endpoint (all studies)

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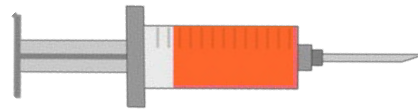
Use of HZ-related pain medication



Secondary endpoint (**ZOE-50**, **ZOE-70**)
Tertiary endpoint (**ZOE-HSCT**)

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Duration of clinically significant HZ-related pain



Secondary endpoint (all studies)

Use of HZ-related pain medication



Secondary endpoint (**ZOE-50**, **ZOE-70**)
Tertiary endpoint (**ZOE-HSCT**)

Duration of HZ-related pain medication use



Secondary endpoint (**ZOE-50**, **ZOE-70**)
Tertiary endpoint (**ZOE-HSCT**)

Methods



Zoster Brief Pain Inventory (ZBPI) questionnaire (only confirmed HZ cases were evaluated)

No Pain
Score: 0

Pain as bad as you can
imagine
Score: 10



Clinically significant pain

ZBPI questions:

- Least pain in the last 24 hours
- Worst pain in the last 24 hours
- Average pain in the last 24 hours
- Pain right now

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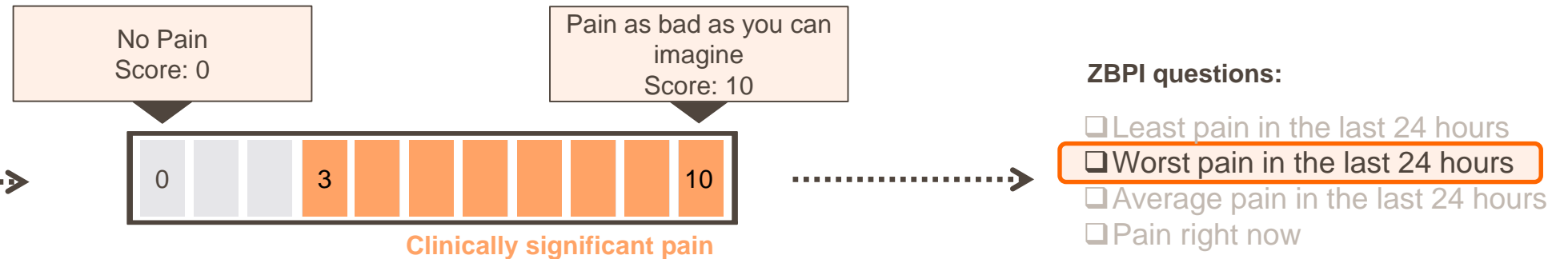
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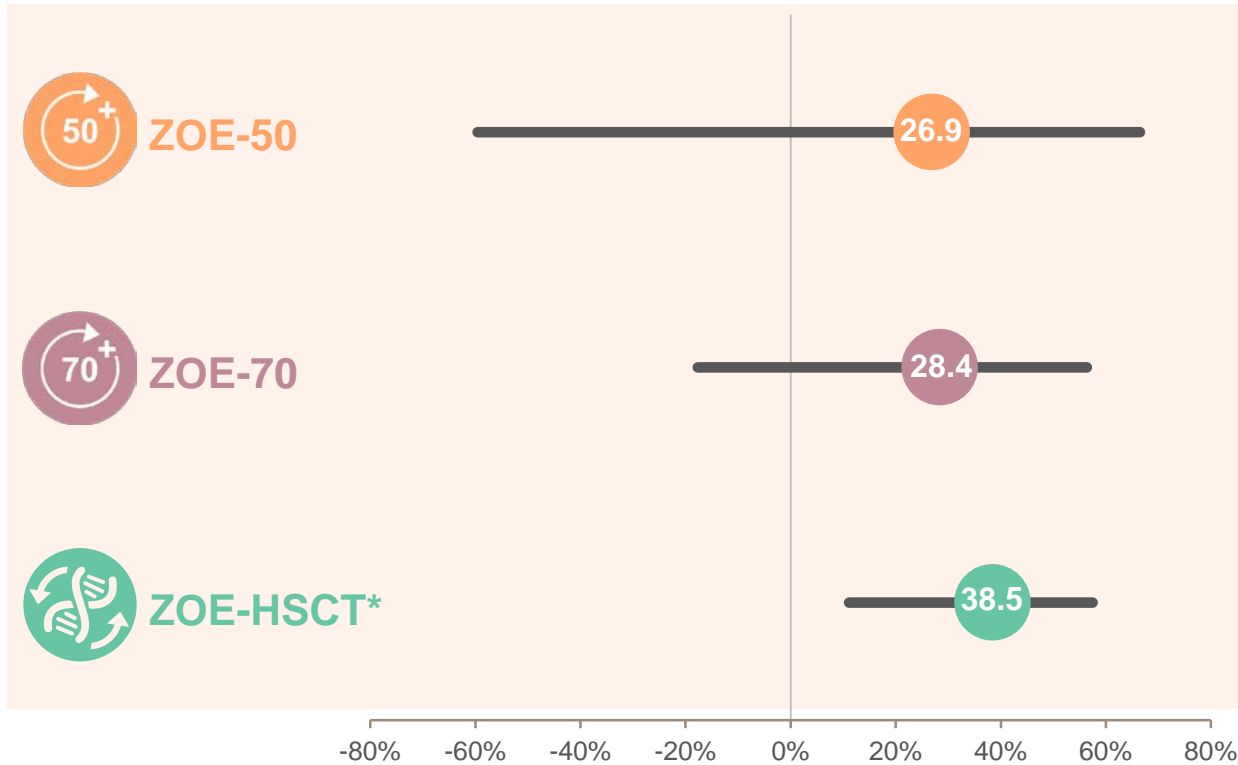


Medication use for HZ-related pain (only confirmed HZ cases were evaluated)

Manual classification of all HZ-related medications during each episode (**post-hoc**)

Results: RZV can reduce the duration of clinically significant HZ-related pain

Efficacy in reducing duration of clinically significant pain (95% CI)

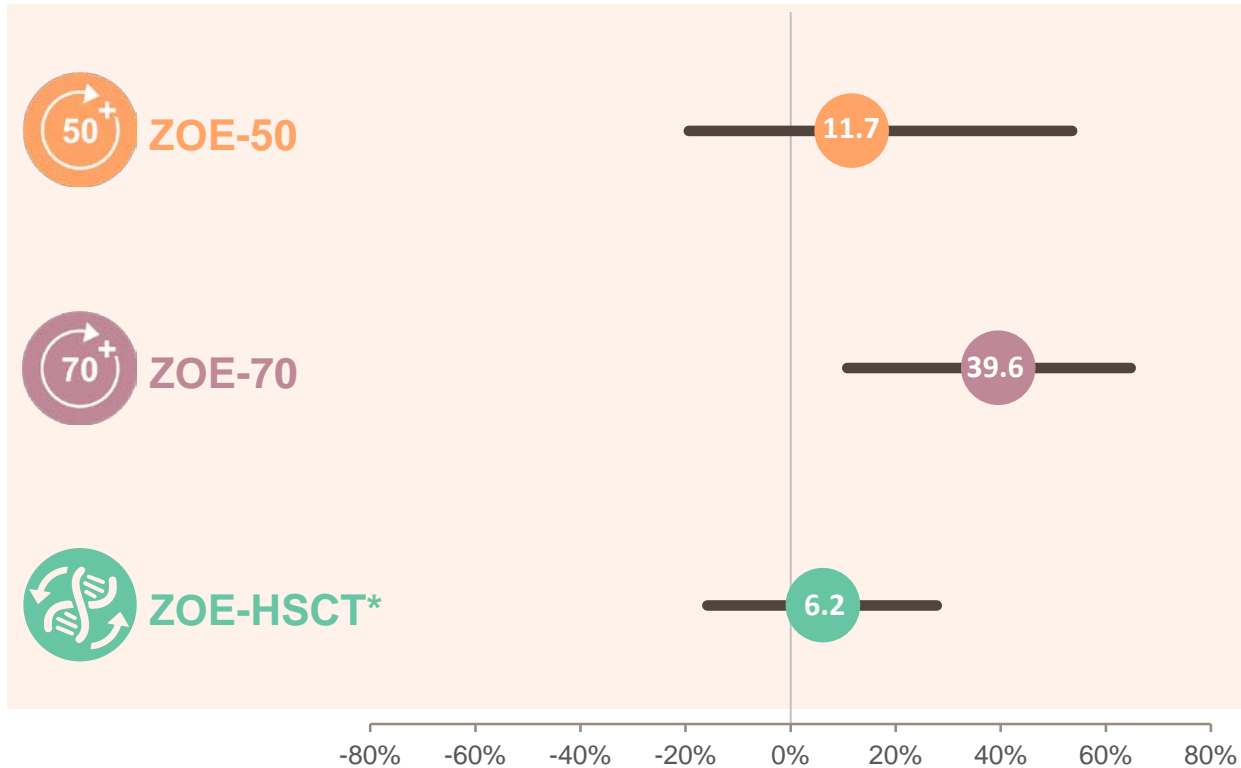


	N	n	t _{med} (days)	T (days)
RZV	9	7	11.0	146
Placebo	254	221	15.0	6705
RZV	23	18	13.5	628
Placebo	223	198	19.0	9633
RZV	49	37	14.0	892
Placebo	135	120	24.0	6275

Vaccine efficacy was assessed by COX proportional hazard model. *This analysis excluded pain linked to a confirmed HZ case after the start of relapse treatment. **N**, number of participants with at least 1 confirmed HZ episode; **n**, number of participants with at least 1 confirmed HZ episode and at least 1 day of clinically significant HZ-related pain; **t_{med}**, median duration of clinically significant HZ-related pain; **T**, sum of the duration of clinically significant HZ-related pain (T=1 for participants without pain).

Results: RZV can reduce HZ-related pain medication use

Efficacy in reducing pain medication use (95% CI)

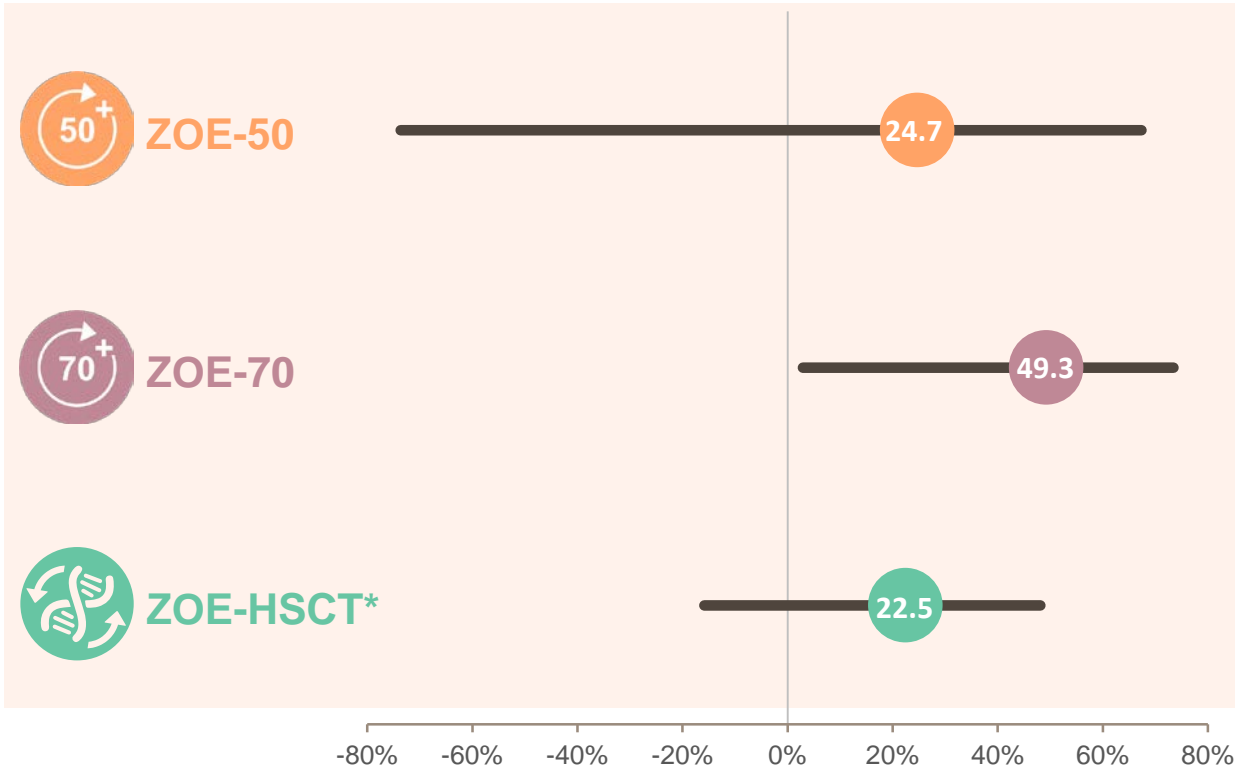


	N	n	n _{med}
RZV	9	6	13
Placebo	254	190	529
<hr/>			
RZV	23	10	31
Placebo	223	160	631
<hr/>			
RZV	49	32	65
Placebo	135	94	262

Vaccine efficacy was assessed by asymptotic standardized unconditional binomial test. *This analysis excluded pain medication linked to a confirmed HZ case after the start of relapse treatment. **N**, number of participants with at least 1 confirmed HZ episode; **n**, number of participants with at least 1 confirmed HZ episode who took at least 1 HZ-related pain medication; **n_{med}**, number of HZ-related pain medications.

Results: RZV can reduce the duration of HZ-related pain medication use

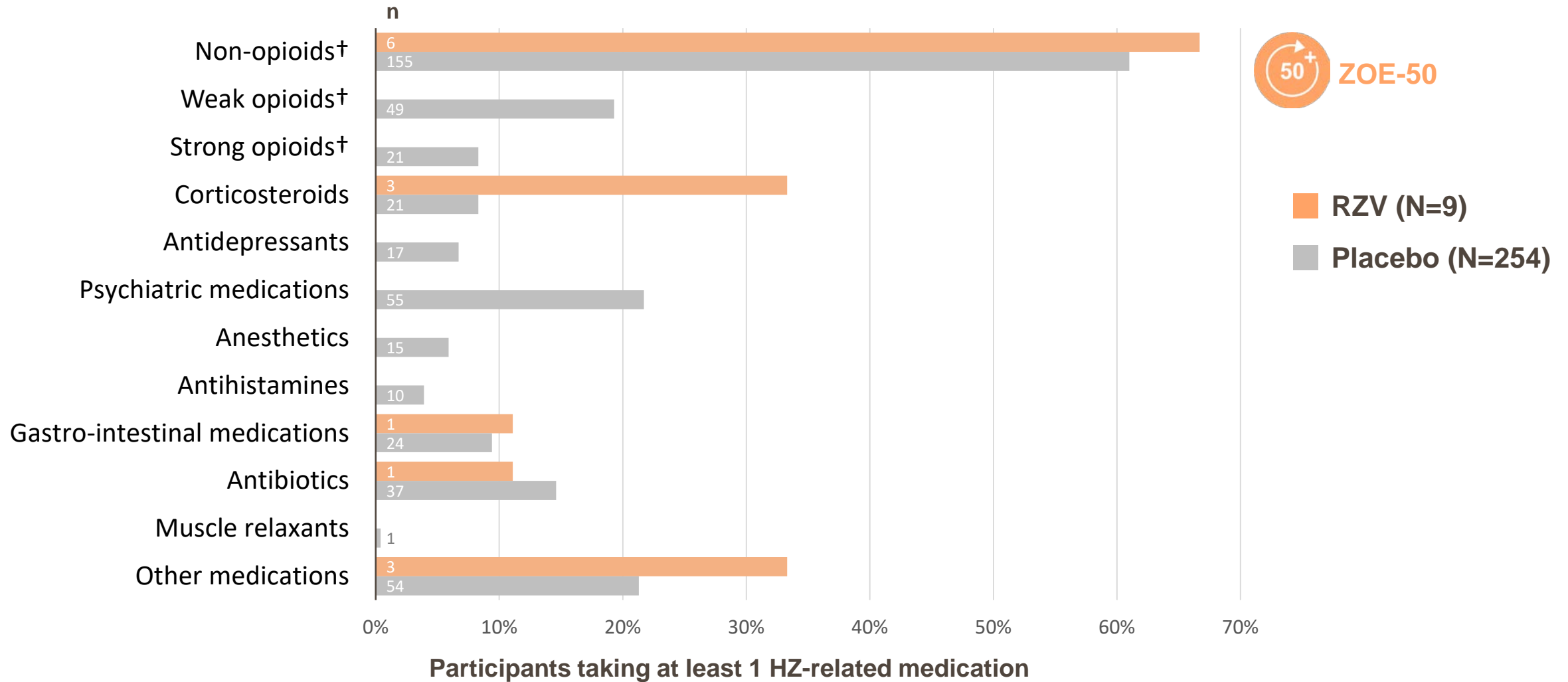
Efficacy in reducing duration of pain medication use (95% CI)



	N	n	t _{med} (days)	T (days)
RZV	9	6	21.0	159
Placebo	254	190	22.0	14,524
RZV	23	10	30.0	1108
Placebo	223	160	38.0	31,949
RZV	49	32	21.5	1917
Placebo	135	94	47.5	15,465

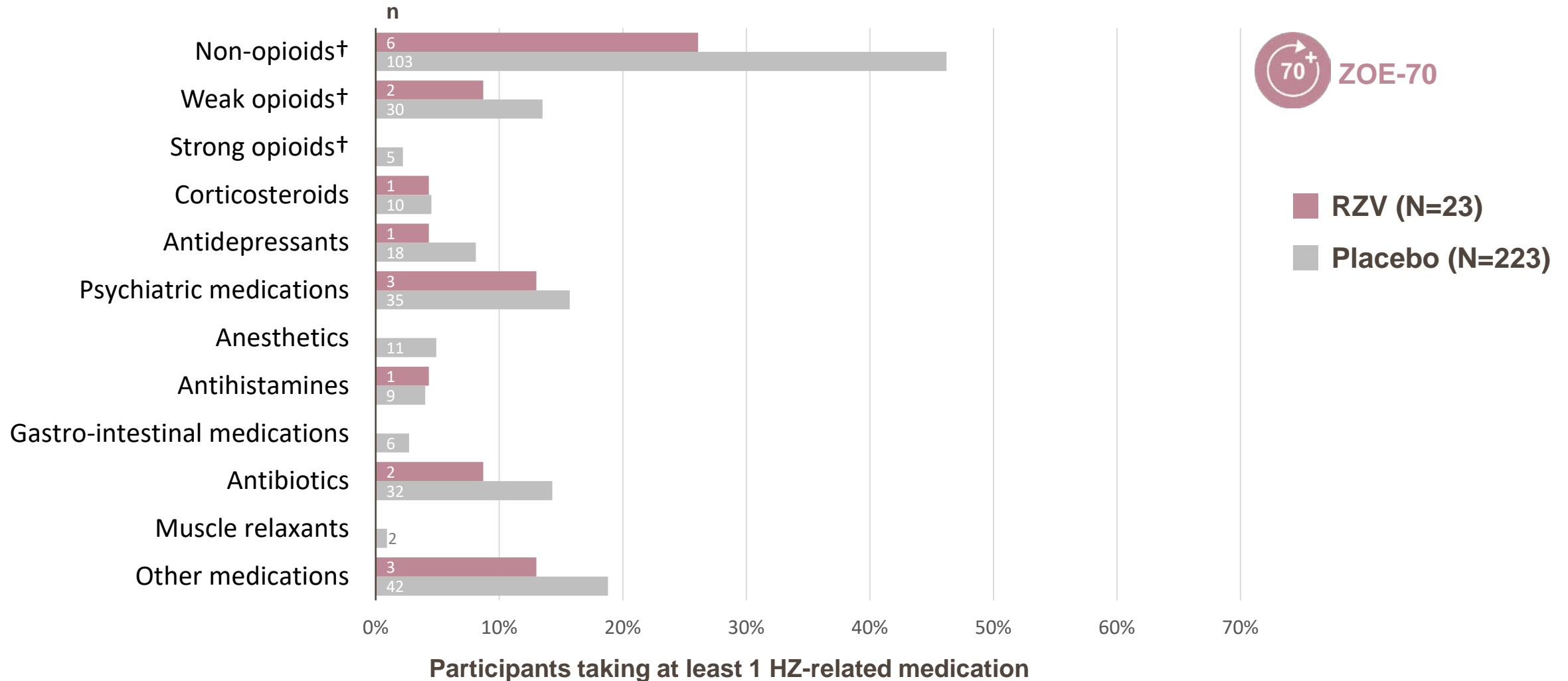
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Results: Proportion of participants with confirmed HZ by medicine type in ZOE-50



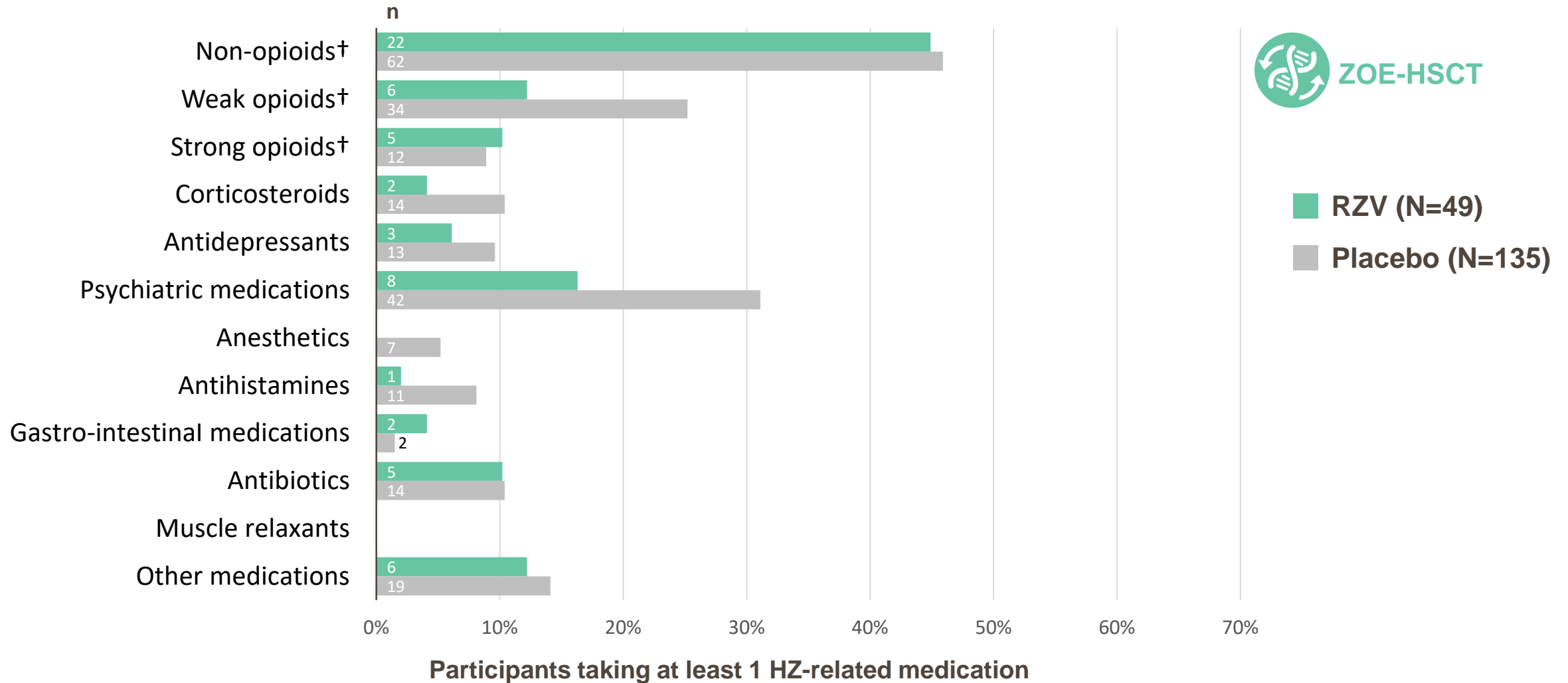
N, number of participants with at least 1 confirmed HZ episode; **n**, number of participants with at least 1 confirmed HZ episode taking at least 1 of the specified HZ-related medications; † Based on the World Health Organization's pain relief ladder [www.who.int/cancer/palliative/painladder/en/].

Results: Proportion of participants with confirmed HZ by medicine type in ZOE-70



N, number of participants with at least 1 confirmed HZ episode; **n**, number of participants with at least 1 confirmed HZ episode taking at least 1 of the specified HZ-related medications; † Based on the World Health Organization's pain relief ladder [www.who.int/cancer/palliative/painladder/en/].

Results: Proportion of participants with confirmed HZ by medicine type in ZOE-HSCT



This analysis excluded medication linked to a confirmed HZ case after the start of relapse treatment. **N**, number of participants with at least 1 confirmed HZ episode; **n**, number of participants with at least 1 confirmed HZ episode taking at least 1 of the specified HZ-related medications; † Based on the World Health Organization's pain relief ladder [www.who.int/cancer/palliative/painladder/en/].

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By preventing HZ through vaccination, RZV could potentially reduce exposure to opioids and other medication (see also abstract 902651).

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Even in cases when shingles develops in vaccinated people, RZV may reduce its severity and the need for pain relief. These additional benefits of vaccination improve the patient's quality of life and might mitigate the risk of overmedication.

Thank you