

4.1.2. Combining ITNs and IRS

Clinical Question/ PICO

Population: Adults and children living in areas with ongoing malaria transmission

Intervention: Pyrethroid-like indoor residual spraying (IRS) plus insecticide-treated nets (ITNs)
Comparator: ITNs

Summary

IRS in addition to ITNs:

Four RCTs were included in the systematic review. Studies were conducted in Benin, Eritrea, Gambia and United Republic of Tanzania.
 IRS in addition to ITNs probably has little or no effect on malaria incidence compared to ITNs alone (Rate Ratio: 1.17; 95% CI (0.92–1.46); two studies; moderate certainty evidence)
 IRS in addition to ITNs may have little or no effect on parasite prevalence compared to ITNs alone (Odds Ratio: 1.04; 95% CI (0.73–1.48); four studies; low certainty evidence)
 It is unknown whether IRS in addition to ITNs reduces the EIR compared to ITNs alone (Rate Ratio: 0.57; 95% CI (0.26–1.25); two studies; very low certainty evidence)

IRS in addition to ITNs probably has little or no effect on anaemia prevalence compared to ITNs alone (Odds Ratio: 1.04; 95% CI (0.83–1.30); two studies; moderate certainty evidence)

A review conducted in 2014 on the deployment of IRS in combination with ITNs (specifically pyrethroid-only LLINs) provided evidence that, in settings where there is high coverage with ITNs and where these remain effective, IRS may have limited utility in reducing malaria morbidity and mortality.

WHO guidance was developed accordingly to emphasize the need for good-quality implementation of either ITNs or IRS, rather than deploying both in the same area (54).

Outcome Timeframe	Study results and measurements	Comparator ITNs	Intervention Pyrethroid-like IRS plus ITNs	Certainty of the Evidence (Quality of evidence)	Plain language summary
Malaria incidence	Relative risk 1.17 (CI 95% 0.92 – 1.46) Based on data from 5,249 participants in 2 studies. (Randomized controlled)	600 per 1000 Difference:	700 per 1000 100 more per 1000 (CI 95% 50 fewer – 280 more)	Moderate Due to serious imprecision ¹	IRS using pyrethroid-like insecticides in addition to pyrethroid ITNs probably has little or no effect on malaria incidence compared to pyrethroid ITNs alone.
Malaria prevalence	Odds Ratio 1.04 (CI 95% 0.73 – 1.48) Based on data from 34,530 participants in 4 studies. (Randomized controlled)	180 per 1000 Difference:	190 per 1000 10 more per 1000 (CI 95% 40 fewer – 70 more)	Low Due to serious inconsistency, Due to serious imprecision ²	IRS using pyrethroid-like insecticides in addition to pyrethroid ITNs may have little or no effect on parasite prevalence compared to pyrethroid ITNs alone
Entomological inoculation rate	Relative risk 0.57 (CI 95% 0.26 – 1.25) Based on data from participants in 2 studies. (Randomized controlled)	1,170 per 1000 Difference:	670 per 1000 500 fewer per 1000 (CI 95% 870 fewer – 290 fewer)	Very low Due to serious inconsistency, Due to very serious imprecision ³	We did not know if there was an effect on the EIR of IRS using pyrethroid-like insecticides in addition to pyrethroid ITNs compared to pyrethroid ITNs alone.
Anaemia prevalence (haemoglobin <8g/dl)	Odds Ratio 1.04 (CI 95% 0.83 – 1.3) Based on data from 12,940 participants in 2	50 per 1000	50 per 1000	Moderate Due to serious imprecision ⁴	IRS using pyrethroid-like insecticides in addition to pyrethroid ITNs probably has little or no

Outcome Timeframe	Study results and measurements	Comparator ITNs	Intervention Pyrethroid-like IRS plus ITNs	Certainty of the Evidence (Quality of evidence)	Plain language summary
	studies. (Randomized controlled)	Difference:	0 fewer per 1000 (CI 95% 10 fewer – 10 more)		effect on anaemia prevalence compared to pyrethroid ITNs alone

1. **Imprecision: serious.**
2. **Inconsistency: serious. Imprecision: serious.**
3. **Inconsistency: serious. Imprecision: very serious.**
4. **Imprecision: serious.**

References

53. Choi L, Pryce J, Garner P : Indoor residual spraying for preventing malaria in communities using insecticide-treated nets. Cochrane Database of Systematic Reviews 2019;(5): [Pubmed Journal Website](#)