Supplementary file 5: Risk of bias assessments for included studies

Prabhakaran 2018

Domain	Risk of bias	Support for judgement
Random sequence generation *(selection bias)*	**Low risk**	"An independent biostatistician performed central computer-based randomization of CHCs stratified by states (Haryana and Karnataka) and within each state by the availability of NCD nurses recruited under NPCDCS." "using block randomisation (with a block size of 2)"
Allocation concealment *(selection bias)*	**Low risk**	Unit of allocation was an institution. Allocation performed on all units at the start of the study.
Baseline outcome measurements similar	**Low risk**	Measurement of outcomes was conducted in a standardised way. Outcomes were pre-defined and subjective
Baseline characteristics similar	**Low risk**	The EUC arm had a higher proportion of participants with peripheral vascular disease (4.4% versus 0.3%), self-reported tobacco use (17.5% versus 10.0%) and alcohol use (12.3% versus 7.8%), and higher mean SBP (157.0 mm Hg versus 152.5 mm Hg). Outcome measures adjusted for relevant baseline characteristics.
Incomplete outcome data	**Low risk**	No incomplete outcome data suspected. Number of participants in whom the outcomes were assessed were mentioned in a general manner.
Blinding of participants and personnel *(performance bias)*	**High risk**	**Outcome group: All/** "Given the nature of the cluster-randomized trial design, neither personnel nor participants were blinded to the intervention."
Blinding of outcome assessment *(detection bias)*	**Unclear**	**Outcome group: All/** "Assessments at study end were carried out by independent outcome assessors" "It was difficult to blind independent assessors who carried out the end-of-study evaluations"
Protection against contamination	**Low risk**	**Outcome group: All/** low possibility of contamination across clusters
Selective Outcome reporting	**Low risk**	Data on cost-effectiveness mentioned in protocol but not reported in full report of the study, because primary outcome do not differ substantially, otherwise all primary and secondary outcomes reported
Recruitment bias *(e.g. individuals are recruited to the trial after the clusters have been randomized)*	**Unclear**	Patients were recruited after randomisation. Of eligible participants, n=165 in the intervention group and n=193 in the control group were not enrolled in the trial.
Baseline differences clusters	**Unclear**	Characteristics of cluster not described
Loss of clusters	**Low risk**	No loss of clusters reported
Incorrect analysis	Low **risk**	Adjusted for clustering
Comparability *(with RCTs randomised by individuals)*	**Low risk**	No similar studies randomised by individuals found in our search.

Fairall 2016

Domain	Risk of bias	Support for judgement
Random sequence generation *(selection bias)*	**Low risk**	"Randomisation was completed by the trial statistician using nQuery Advisor after recruitment of clinics, independently of the managers giving permission for the clinics to be included in the trial, and prior to patient recruitment and implementation of the intervention."
Allocation concealment *(selection bias)*	**Low risk**	Unit of allocation was an institution. Allocation performed on all units at the start of the study. "Randomisation was completed by the trial statistician using nQuery Advisor after recruitment of clinics, independently of the managers giving permission for the clinics to be included in the trial, and prior to patient recruitment and implementation of the intervention"
Baseline outcome measurements similar	**Low risk**	No differences between groups reported: Baseline BP and HbA1C similar
Baseline characteristics similar	**Unclear**	Baseline characteristics seem similar, but no statistical tests reported
Incomplete outcome data	**Low risk**	Loss to follow-up similar across groups and less than 20%
Blinding of participants and personnel *(performance bias)*	**High risk**	**Outcome group: All** **"Blinding of the intervention was not possible at the clinic level due to the nature of the intervention"**
Blinding of outcome assessment *(detection bias)*	**Unclear**	**Outcome group: All** No blinding of outcome assessors reported Outcome assessors not blinded. This might have influenced BP readings, but not HbA1C (blood test)
Protection against contamination	**Unclear**	**Outcome group: All** Contamination of study arms unlikely. Control clinics might have had access to the guidelines although cluster randomisation took place
Selective Outcome reporting	**Low risk**	**No selective outcome reporting suspected, all** outcomes **listed in the methods section are also** reported **in the results section** – All pre-specified outcomes listed in the trial registration record reported on
Recruitment bias	**Low risk**	"Randomisation was completed by the trial statistician using nQuery Advisor after recruitment of clinics, independently of the managers giving permission for the clinics to be included in the trial, and prior to patient recruitment and implementation of the intervention" All patients were enrolled after the clusters were randomised. However, all eligible patients were included in the study.
Baseline differences (clusters)	**Low risk**	Control clinics had more nurses per clinic and more pharmacies on site compared to the intervention group, but patient load was also higher in the control clinics. Ratio of nurses to patients was similar in both groups
Loss of clusters	**Low risk**	All clinics completed the trial
Incorrect analysis	**Low risk**	Analysis conducted on individual level, but results adjusted for cluster effects. "The cluster randomisation design was accounted for using robust cluster variance-covariance estimates."
Compatibility *(with RCTs randomised by individuals)*	**Low risk**	No similar studies randomised by individuals found in our search
Other bias	**Unclear**	"Midway through the trial, the district health department launched a 3-mo campaign called Chronic Disease Season in all clinics to improve NCD recognition and care. Chronic Disease Season focused on hypertension and diabetes and involved both community and clinic health workers. The community-level interventions included several ªhealth screening daysº in which free blood pressure and finger-prick glucose measurements were offered at venues such as shopping centres and town halls" (Page 7, end)

Havlir 2019

Domain	Risk of bias	Support for judgement
Random sequence generation (selection bias)	**Low risk**	Adequate method – mix of methods used, including computer generated, coin tossing and drawing of lots See description in protocol (p45 version 2.0 (Nov 2012)
Allocation concealment (selection bias)	**Low risk**	Communities were matched and randomised within each pair. Method adequate to not be able to predict allocation
Baseline outcome measurements similar	**Unclear**	No baseline outcome measurements for HIV and hypertension control Page 25, online supplement to article
Baseline characteristics similar	**Low risk**	No obvious difference observed
Incomplete outcome data	**Unclear**	Unclear for HIV and Hypertension cohort, not clear how many at baseline.
Blinding of participants and personnel (performance bias)	**High risk**	No blinding of participants and personnel due to the nature of the intervention. Can influence behaviour of both participants and personnel
Blinding of outcome assessment (detection bias)	**Unclear**	Not reported
Protection against contamination	**Unclear**	Distance from other potential trial communities taken into consideration as part of the eligibility criteria. Migration in and out of communities
Selective Outcome reporting	**Unclear**	Not clear whether dual control of HIV and Hypertension/NCDS was pre-specified
Recruitment bias	**Low risk**	Communities were recruited (selected) before randomisation. Participants were recruited after randomisation, but a household census and Community health campaigns to reach most people in community
Baseline differences (clusters)	**Unclear**	No description of clusters, but cluster pairs were matched for randomisation
Loss of clusters	**Low risk**	No loss of clusters
Incorrect analysis	**Unclear**	Not clear whether adequately adjusted for clustering
Compatibility (with RCTs randomised by individuals)	**Low risk**	No similar studies using individual randomisation found in our search
Other bias	**Unclear**	Primary endpoint should have been 5-year cumulative HIV incidence, but this was shortened to 3 years as the WHO recommendation on ART therapy changed

Rawat 2018

Domain	Risk of bias	Support for judgement
Intervention was independent of other changes	**Low risk**	No other intervention identified. Also, clinics were excluded if they were identified as 'priority sites' that were specifically designed to deliver ART.
The shape of the intervention effect was pre-specified	**High risk**	The shape of the intervention effect was not pre-specified.
The intervention was unlikely to affect data collections	**Low risk**	Data was collected from TIER.net (3 interlinked electronic registers) and the District Health Information System (DHIS) for data collected before and after the intervention
Knowledge of the allocated intervention *(adequately prevented during the study)*	**Low risk**	Outcomes were based on indicators monitored by the Free State Department of Health. Methods of data collection were similar before and after the intervention, therefore the intervention did not affect data collection.
Incomplete outcome data was likely to bias results	**Unclear**	Post-intervention data for diabetes outcomes only available for 18 months post intervention. For other outcomes there is data for 30 months.
Outcomes were reported selectively	**Low risk**	All outcomes reported in the methods section were reported in the results section
Other risks of bias	**Low risk**	No other risks of bias identified. As integration took place at various intervals, seasonality assumed not to have an effect.

Ameh 2017

Domain	Risk of bias	Support for judgement
Intervention was independent of other changes	**Low risk**	No other changes reported.
The shape of the intervention effect was pre-specified	**Low risk**	Point of analysis is the point of intervention
The intervention was unlikely to affect data collections	**Unclear**	It can be assumed that the re-organisation of care delivery also affected data collection in the intervention facilities
Knowledge of the allocated intervention *(adequately prevented during the study)*	**Low risk**	Data was collected retrospectively from patient records. Patients were recruited in June 2013, and data collected from Jan 2011 to June 2013. Methods of data collection were similar before and after the intervention and the intervention did not affect data collection.
Incomplete outcome data was likely to bias results	**Low risk**	No incomplete outcome data suspected. No attrition or missing cases reported, only data for diabetes patients was not reported because there were too few cases (n=4).
Outcomes were reported selectively	**Low risk**	No selective outcome reporting suspected. All outcomes reported in the methods section are reported in the results section
Other risk of bias	**Low risk**	No other sources of bias identified