UCSF School of Pharmacy

Vaccination Distribution to Populations Living in Congregate Settings

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Presentation Outline

1. Introduction
2. Objectives
3. Study Design and Methods
4. Results
5. Conclusions

Introduction:

- Vaccines can prevent spread of communicable diseases
- The existence of a vaccine does not guarantee widespread distribution that will create herd immunity.
- Poor healthcare access is prevalent in groups living in congregate settings, such as:
  - Homeless shelters
  - Refugee camps
  - Prisons and jails
  - Nursing homes

Objective:

We sought to identify interventions targeting congregate settings that could increase vaccination rates

These findings could potentially be used to create a program to distribute a future COVID-19 vaccine

Study Design: Systematic Review

A systematic review of vaccination distribution models in congregate settings was conducted.

Research Criteria:

Databases: PubMed, Embase, Web of Science, CINAHL

Search Criteria: Healthcare outcomes & vaccination outcomes in response to an intervention
Inclusion Criteria: RCT studies, English language, published in any time period, outcomes assessing vaccination rates or seropositivity rates
Exclusion Criteria: non-RCT studies, not conducted in a congregate setting

Data Synthesis and Strategy: all analysis was conducted with Covidence and Review Manager 5.1

Analysis completed: PRISMA flow chart, forest plots, risk of bias tables

Determining Risk of Bias

Areas of Potential Bias

- random sequence generation
- allocation concealment
- blinding of participants and personnel
- blinding of outcomes
- selective reporting
- incomplete outcome data

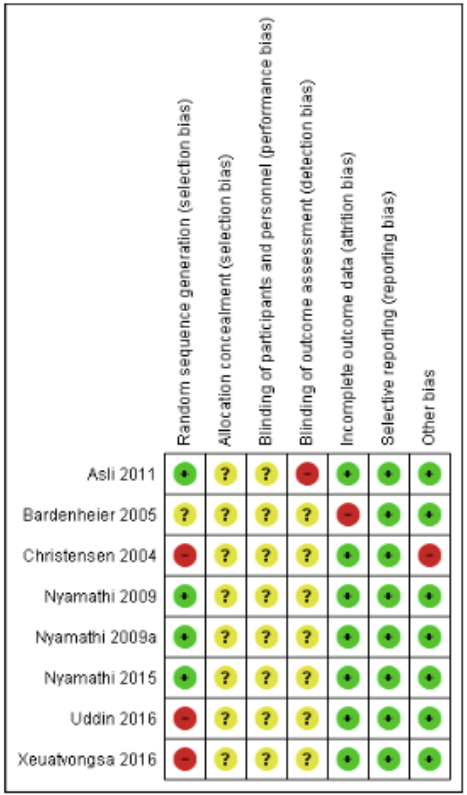

Figure 4. *Risk of Bias Summary*

Methods of Analysis

1. Search was completed in each of the databases as titles and abstracts
   - duplicates were excluded
   - data was coded.
2. Covidence software was used to extract the following:
   - risk of bias
   - a compilation of similar outcomes
   - a subgroup analysis of relevant but different outcomes.
3. Outcomes extracted were related to vaccination rate changes in response to implemented health policies.

Results:

Study Screening

1344 studies imported for screening → 312 duplicates removed

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1032 studies screened → 987 studies irrelevant

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44 full text articles assessed for eligibility → 36 studies ineligible

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8 studies included in final analysis

Approaches used in included studies:

1. Use of a shorter vaccine schedule to improve adherence and completion
2. Use of phone intervention to track and monitor vaccination progress
3. Use of volunteer and professional health care providers to improve vaccine education and administration

Review Manager (RevMan)

Once all the information had been extracted in Covidence, it was imported into RevMan.

RevMan is software that helps take compiled extracted data and use it to draft text, run statistical analysis, and manage references.

Risk of Bias Summary

Risk of Bias Level for Study	Asli 2011	Bardenheier 2005	Christensen 2004	Nyamathi 2009	Nyamathi 2009a	Nyamathi 2015	Uddin 2016	Xeuatvongsa 2016
Random sequence generation	Low	Unclear	High	Low	Low	Low	High	High
Allocation concealment	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear
Blinding of participants and personnel	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear
Blinding of outcome assessment	High	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear
Incomplete outcome data	Low	Unclear	Low	Low	Low	Low	Low	Low
Selective reporting	Low	High	Low	Low	Low	Low	Low	Low
Other Bias	Low	Low	High	Low	Low	Low	Low	Low

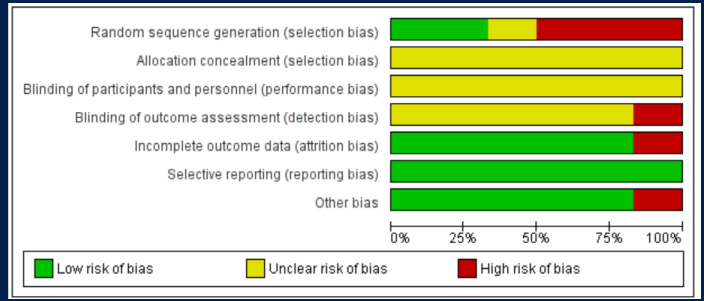
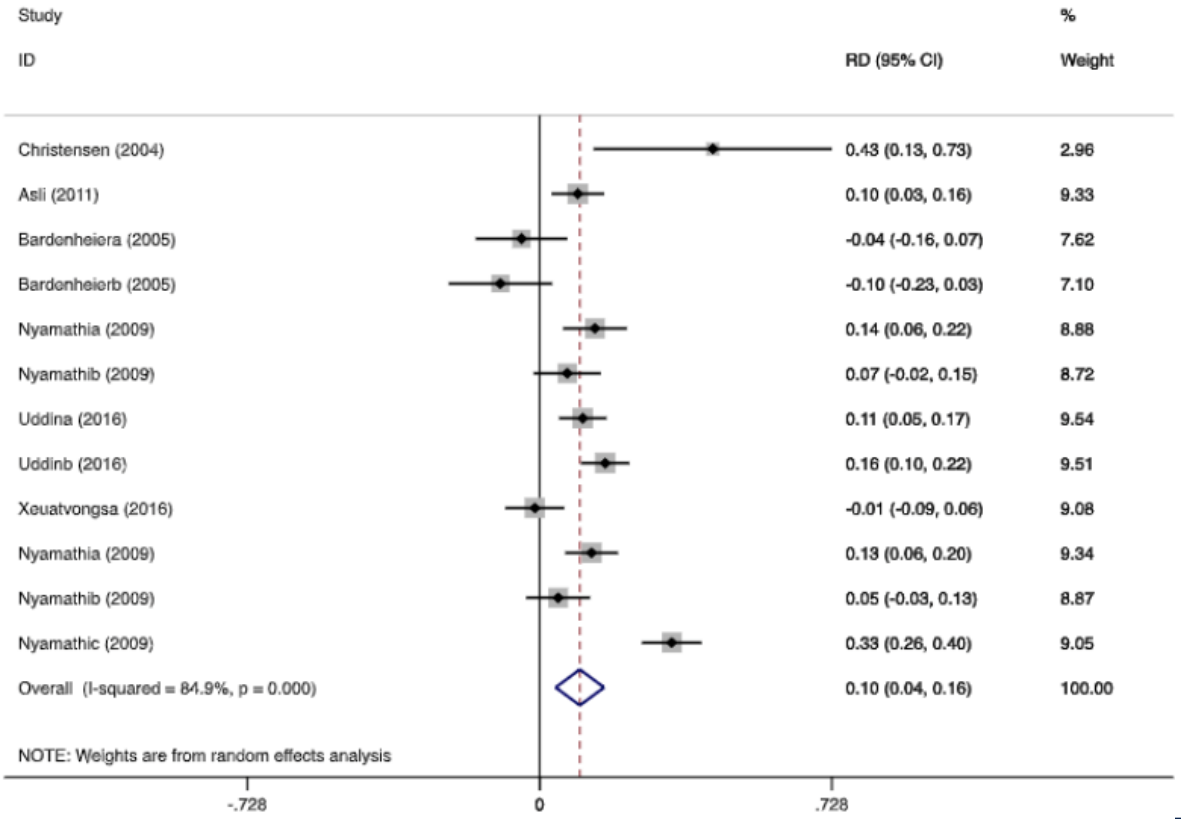


Figure 3. *Risk of Bias Smmary*

Overall Trends



Overall Trends

Study	RD	[95% Conf.	Interval]	% Weight
Christensen (2004)	0.432	0.135	0.728	2.96
Asli (2011)	0.095	0.029	0.161	9.33
Bardenheiera (2005)	-0.045	-0.159	0.069	7.62
Bardenheierb (2005)	-0.098	-0.226	0.031	7.10
Nyamathia (2009)	0.138	0.059	0.217	8.88
Nyamathib (2009)	0.069	-0.015	0.153	8.72
Uddina (2016)	0.108	0.049	0.167	9.54
Uddinb (2016)	0.164	0.104	0.224	9.51
Xeuatvongsa (2016)	-0.012	-0.085	0.062	9.08
Nyamathia (2009)	0.130	0.064	0.195	9.34
Nyamathib (2009)	0.046	-0.033	0.126	8.87
Nyamathic (2009)	0.329	0.255	0.404	9.05
D+L pooled RD	0.100	0.040	0.161	100.00

Heterogeneity chi-squared = 73.09 (d.f. = 11) p = 0.000
I-squared (variation in RD attributable to heterogeneity) = 84.9%
Estimate of between-study variance Tau-squared = 0.0090

Test of RD=0 : z= 3.26 p = 0.001

Conclusions

Our results indicate that:

1. Patient connections with healthcare providers (e.g. through phone apps) increase vaccination
2. Accelerated vaccine schedules can increase completion rates
3. Talking with communities can remove social and cultural barriers

Other points

- More quality studies are needed to identify methods that maximize uptake of vaccines
- These findings would be relevant if/when a vaccine for SARS-CoV-2 is created

Limitations:

In order to control for consistency, the search was limited to English language Randomized Control Trials dating from 1900 to present. As a result, relevant studies with a different research methodology may have been missed.

Questions?