



**MacNeal
Hospital**

IAFP Resident Virtual Summit 5/29/19

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**Efficacy of Current Interventions for
Improving Follow-up Rate after
Abnormal Pap Smear**

Introduction

- 1) Background research
- 2) Study Design
- 3) Patient population set up
- 4) Statistical significance calculations
- 5) Magnitude of statistical correlation calculations
- 6) Conclusions
- 7) Study Limitations
- 8) Future Studies

Background

***Interactive telephone counseling most effective intervention, patient reminders second most effective strategies for improving FUR after abnormal cervical CA screening**

K.RobinYabroffM.B.A.aJon F.KernerPh.D.bJeanne S.MandelblattM.D., M.P.H.c1 Effectiveness of Interventions to Improve Follow-up after Abnormal Cervical Cancer Screening. Preventive Medicine, Volume 31, Issue 4, October 2000, Pages 429-439

***Distributing information to patients, telephone reminders, and expanding the follow-up timeline improves FUR in postpartum patients**

Fowler Jessica D. MD; Varma, Vanita RN, MSW, FNP-BC; Siedel, Katie MPH, MSW; Rodriguez, Janelle MS; Batra, Priya MD, MS
Obstetrics & Gynecology: May 2016 doi: 10.1097/01.AOG.0000483885.36730.9c

***Policies of sending pre-appointment reminders and contacting patients who miss appointments has small but potentially important benefit on FUR**

Liu Q, Abba K, Alejandria MM, Sinclair D, Balanag VM, Lansang MA. Reminder systems to improve patient adherence to tuberculosis clinic appointments for diagnosis and treatment. Cochrane Database Syst Rev. 2014;(11):CD006594. Published 2014 Nov 18.
doi:10.1002/14651858.CD006594.pub3

***SMS and phone call reminders significantly improved FUR in 13 RCTs**

Lin H, Wu X. Intervention strategies for improving patient adherence to follow-up in the era of mobile information technology: a systematic review and meta-analysis. PLoS One. 2014;9(8):e104266. Published 2014 Aug 6. doi:10.1371/journal.pone.0104266



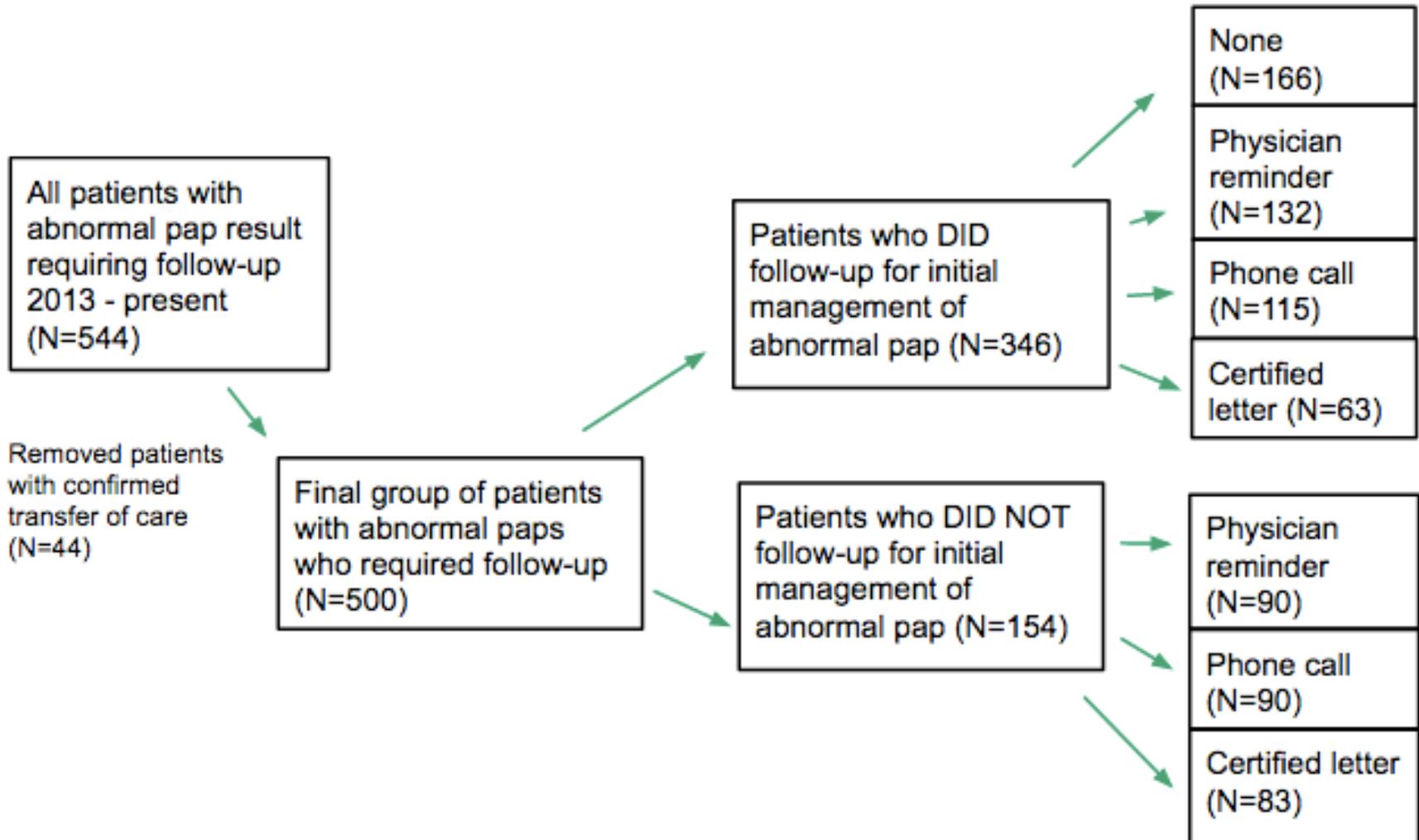
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Study Design

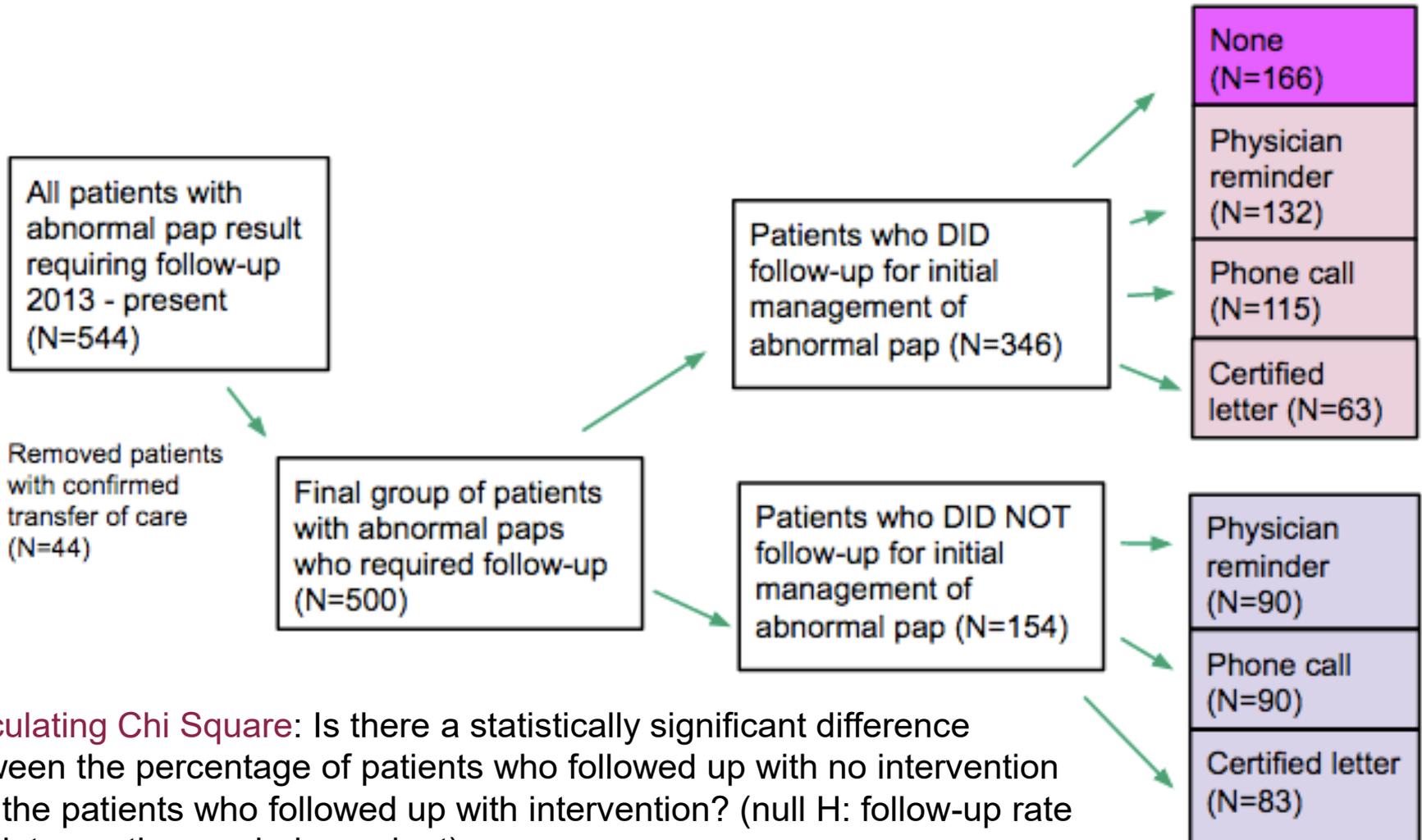
- 544 clinic patients since 2013 with abnormal paps
- 72% of those patients have had appropriate follow-up or transferred care
- Only 33% followed up without additional intervention
- Interventions:
 - No intervention required (pt contacted with results and follows up appropriately)
 - Physician reminder
 - Phone call to schedule appointment
 - Certified letter
- Question: Are our current interventions effective, and if so, how effective are they?



Patient Population



Patient Population: testing for association



Calculating Chi Square: Is there a statistically significant difference between the percentage of patients who followed up with no intervention and the patients who followed up with intervention? (null H: follow-up rate and intervention are independent)

Chi Square Values - intervention overall

	Follow-up	No Follow-up
No intervention	166	334
Intervention	180	154

*no intervention -> $166/500 = 33.2\%$ of patients would have followed up with no additional intervention at all

Any Additional Intervention

- 53.8% of patients who required intervention DID follow-up
- Chi square is 35.3, which is significant at $p < .05$



Chi Square Values – Phone Call

	Follow-up	No Follow-up
No intervention	166	334
Intervention	115	90

*no intervention -> $166/500 = 33.2\%$ of patients would have followed up with no additional intervention at all

Phone Call

- 56% of patients who required intervention DID follow-up
- Chi square is 43.73, which is significant at $p < .05$



Chi Square Values – Certified Letter

	Follow-up	No Follow-up
No intervention	166	334
Intervention	63	83

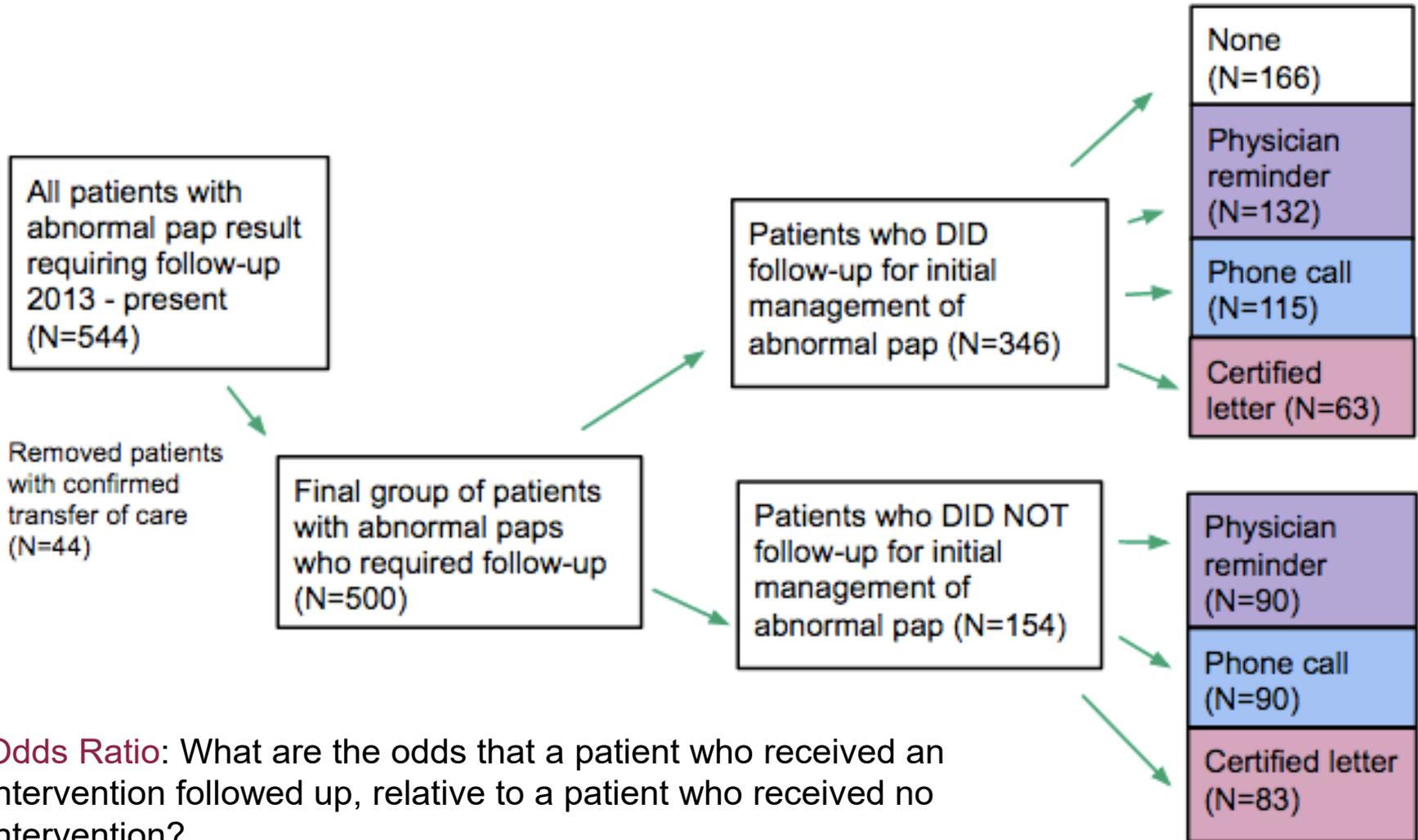
*no intervention -> $166/500 = 33.2\%$ of patients would have followed up with no additional intervention at all

Certified Letter

- 35% of patients who required intervention DID follow-up
- Chi square is 4.9, which is significant at $p < .05$



Patient Population: measuring the association



Odds Ratio: What are the odds that a patient who received an intervention followed up, relative to a patient who received no intervention?

Odds Ratio - intervention overall

A	B
C	D

$$OR = \frac{a/c}{b/d} = \frac{ad}{bc}$$

	Follow-up	No Follow-up
No intervention	166	334
Intervention	180	154

Any Additional Intervention

- 53.8% of patients who required intervention DID follow-up
- Odds ratio: 2.35
- 95% CI: 1.77-3.13

Odds Ratio - phone call

A	B
C	D

$$OR = \frac{a/c}{b/d} = \frac{ad}{bc}$$

	Follow-up	No Follow-up
No intervention	166	334
Intervention	115	90

Phone Call

- 56% of patients who required intervention DID follow-up
- Odds ratio: 2.57
- 95% CI: 1.84-3.59

Odds Ratio - certified letter

A	B
C	D

$$OR = \frac{a/c}{b/d} = \frac{ad}{bc}$$

	Follow-up	No Follow-up
No intervention	166	334
Intervention	180	154

Certified Letter

- 35% of patients who required intervention DID follow-up
- Odds ratio: 1.52
- 95% CI: 1.05-2.23

Conclusions

Based on these calculations, current interventions ARE efficacious in improving FUR after abnormal pap smear

- Chi-square values for overall intervention, phone call, and certified letter show statistical significance
- Odds ratios show a strong correlation between interventions and follow-up rate

Intervention Overall - Chi Square 35.3, statistically significant - Odds ratio 2.35 where CI does not cross 1	Phone Call - Chi Square 43.7, statistically significant - Odds ratio 2.57, where CI does not cross 1	Certified Letter - Chi Square 4.9, statistically significant - Odds ratio 1.52, where CI does not cross 1
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Limitations and Future Studies

Limitations

1. No power
2. Manipulation of data/population crossover
3. Variable patient population sizes
4. Confounding variables -> non standardized intervention, multiple interventions, increasing pt noncompliance with more interventions
5. Relevance of odds ratios

Future Studies

1. Effects of multiple/step-wise interventions
2. Returning certified letters
 - a. Only 7 compliant patients (11%), but 11 noncompliant patients (13%)
3. Predictive factors for non-compliance
 - a. Needed colpo - 19% of noncompliant, 43% of compliant
 - b. Born after 1990 - 29% of noncompliant, 15.8% of compliant
 - c. Pap done 2017 or later - 37% of noncompliant, 19% of compliant
4. Repeat calculations after standardization of intervention methods

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