

2014

## Automated Reminders to Promote Radon Testing in a Lung Cancer Case Control Study

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### Repository Citation

Slone, Stacey; Arnold, Susanne M.; Sutherland, Lara; Robertson, Heather; Feltner, Frances J.; Crase, Joshua; Combs, Megan; and Hahn, Ellen J., "Automated Reminders to Promote Radon Testing in a Lung Cancer Case Control Study" (2014). *Center of Excellence in Rural Health Presentations*. 19.  
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## Background

One of the four pilot projects of the Lung Cancer Initiative sponsored by the Department of Defense measures radon levels in the participants' homes. Radon exposure is the second leading cause of lung cancer. The case-control study has a targeted accrual of 1800 with a case-control ratio of 1:4. The long-term radon kits remain in the home for 90 days and the participants are asked to mail the test kit to the company for analysis. In order to maximize the test kit return rate, reminder calls to the participants occurred 90 days after the home visit.

## Radon Kit Timeline



## Methods

Each participant received a single in-home visit by a study field research assistant (FRA) who administered a questionnaire; collected blood, urine, water, hair and soil samples; and placed a radon kit in the lowest livable level of the home. The field worker noted the location where the kit and the mailer were located in the home. The results from the radon test kits were sent electronically from RSSI (<http://www.rssi.us/>) in batches. Since the radon kits remain in the home for 90 days, a reminder call was requested to prompt the participant to return the kit in the postage-paid envelope left in the home. A program was written in SAS to create a PDF report of all reminder calls due in the next two weeks. The program automatically e-mails the project manager when a new report is created. The project manager then forwards the list to the field workers who place the reminder calls. In general, the FRA who originally interviewed the participant phones the participant with the reminder.



## Sample Reminder

DOD: Radon Reminder List  
Weeks beginning 05/05/14 & 05/12/14

Interviewer Initials	Target Reminder Call Date	Subject ID	Suspense ID	Interview Date	Radon Kit Location	Radon Mailer Location
JC	05/05/14	1101980XXXX	XXXX	02/04/14	Living room	With kit
	05/11/14	1101980XXXX	XXXX	02/10/14	Living Room	With kit
	05/12/14	1101980XXXX	XXXX	02/11/14	Living Room	With kit
	05/13/14	1101980XXXX	XXXX	02/12/14	Living room	With kit

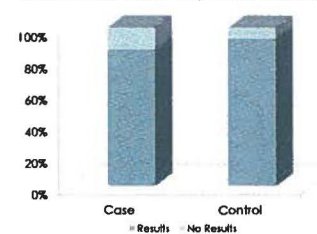
  

Interviewer Initials	Target Reminder Call Date	Subject ID	Suspense ID	Interview Date	Radon Kit Location	Radon Mailer Location
MC	05/06/14	1101980XXXX	XXXX	02/05/14	sun room shelf on wall	same room/ floor cabinet
	05/07/14	1101980XXXX	XXXX	02/06/14	dining room/ top of hutch	with radon kit
	05/18/14	1101980XXXX	XXXX	02/17/14	living room shelf	with radon kit

## Results

As of March 19, 2014, 439 participants had met the 90 day period. Of those, 2 were within a 1 month lag of mailing the test kits. To date, we have received radon results for 401 participants; however 2 radon kit numbers did not match the database and are being adjudicated. Hence, 399 kits have been analyzed or 91.3% of the expected 437 participants. Data have been analyzed for 86% of eligible cases and 93% of eligible controls. Hahn's published return rates in a previous study ranged from 71-86%. In addition, 25% (10 of 40) of those without results are within 3 months of the end of their 90-day window. With possible results forthcoming. Of those participants that did return the radon kits, over 90% were within a 15 day window of the 90 day target.

Radon Kits Returned by Case/Control



Radon Kits Returned



Actual Time in Home vs. 90 day Target	N	%
+1 month less	10	2.5
16 - 30 days less	5	1.3
On time (±15 days)	367	92.4
16-30 days more	6	1.5
+1 month more	9	2.3

## Conclusion

The automated system providing each FRA with a list of reminder calls needed biweekly has been a helpful means of increasing the return rate of the long-term radon kits. The FRAs appreciate the concise, but informative report. The report includes all relevant information to facilitate the reminder phone call. Since the interviewer notes the location in the home where the kit and the mailer were placed during the initial home visit, the FRAs are able to remind the participant of the location during the call. Having the location has also helped promote test kit completion.

This system removed one burden from the FRAs, allowing them to focus on setting up interviews for potential participants, performing interviews for those giving verbal consent, and placing reminder phone calls to enrolled participants. In future studies, similar systems can be created to facilitate reminder calls or letters for a variety of tests.