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# Effectiveness of a child home safety intervention: controlled before-and-after study

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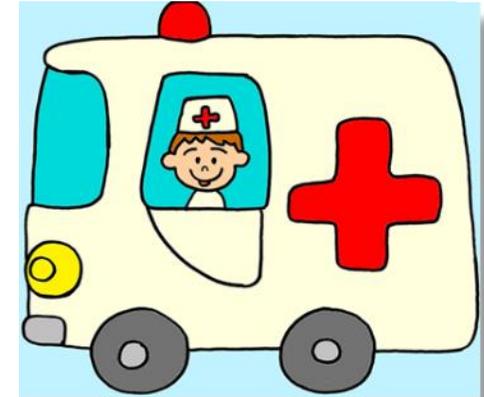


Stay One  
Step Ahead



child accident  
prevention trust

- Accidental injuries are leading cause of **preventable** deaths in under 5s
- Major cause of hospital admissions & emergency department attendances
- Long term physical & psychological consequences
- High cost to health services & families
- Steep social gradients
- Education, home safety assessment, provision/fitting of equipment **significantly** improve home safety



## Research Question

*Can systematic evidence-based home safety promotion (SOSA intervention) improve key home safety practices?*

1. **Fitted and working smoke alarm**
2. **Safety gate on stairs**
3. **Poisons stored out of reach**



## Design

Non-randomised, controlled before and after study

## Setting

Nottingham City, in 9 electoral areas



## Population

Parents of children aged 2-7 months at baseline (per group target: baseline 400,  $\geq 237$  followed-up)

## Outcomes

**Primary:** fitted and working smoke alarm + safety gate on stairs + poisons out of reach

**Secondary:** other safety practices, self-reported injuries

## Analysis

Random effects regression models



Control group  
(5 Nottingham City areas)

Intervention group  
(4 Nottingham City areas)

Baseline questionnaire

3-month questionnaire

6-month questionnaire

9-month questionnaire

12-month questionnaire

15-month questionnaire

18-month questionnaire

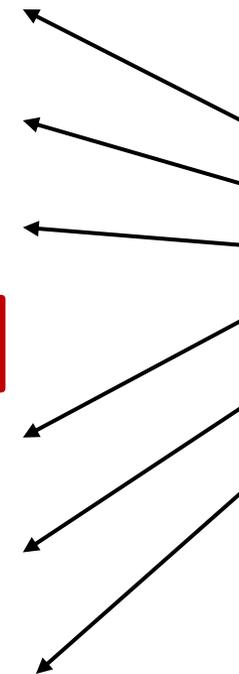
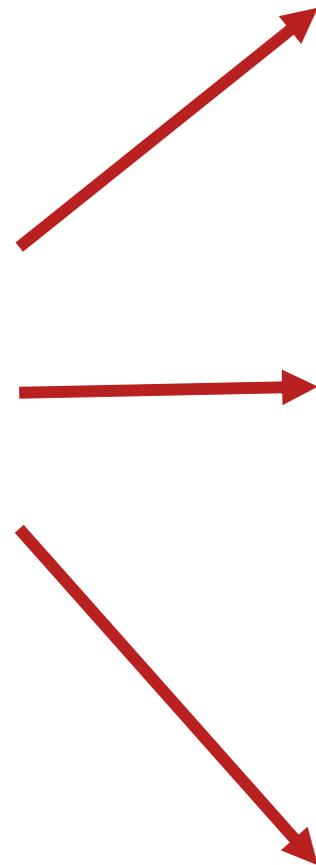
21-month questionnaire

24-month questionnaire

- Primary outcome measure
- Other safety practices
- Self-reported injuries in previous 3 months

**Optional:**

- Self-reported injuries in previous 3 months



- Resources produced jointly with practitioners, parents, and injury prevention experts:
  - Home safety **checklists** in 9 month and 2 year child health reviews
  - Monthly safety **messages** (flyers, quizzes, activities, including IPB)
  - Activities** guided by family mentors
  - 4 home **safety weeks/year** at Children's Centres: fires, scalds, falls, poisoning

### Where do you keep your household products?

e.g. cleaners, bleach, laundry capsules



**1 in 3 families in Nottingham keep household products where children could reach them**

**TOP TIP** Keep household products out of children's sight and reach - in a locked cupboard or at adult eye level or above

**TOP TIP** Child resistant containers are **NOT** child-proof - some toddlers will be able to open them

**TOP TIP** Always store household products in their original containers

**TOP TIP** Laundry capsules, e-cigarette liquid and reed diffuser liquid can all be harmful - keep these out of children's sight and reach

**TOP TIPS FOR KEEPING ME SAFE!**



### Keeping children safe from medicine poisoning - a short quiz

- The peak age for poisonings from medicines is 2 to 3 years.  
 TRUE  FALSE
- Which are the sweets - picture A or picture B?  
 
- Most accidental poisonings are caused by household chemicals, such as bleach.  
 TRUE  FALSE
- Child-resistant packaging is child-proof.  
 TRUE  FALSE
- It is safer to store medicines high up out of reach than in a locked cupboard.  
 TRUE  FALSE




## FIRE SAFETY WEEK

Join us for FUN and FREE fire safety activities with the Fire and Rescue Service!



- Fire safety tips!
- Meet our fire safety mascots!
- Spot hazards in the Risky Room!
- See our fire engine!
- ...And more!

If your child is aged under 5 and you would like to attend, join us on -

- Monday 21st May, 10am - 11:30am, Aspley Library
- Wednesday 23rd May, 1pm - 2:30pm, Aspley Children's Centre





## Recruitment:

- 401 control families
- 361 intervention families

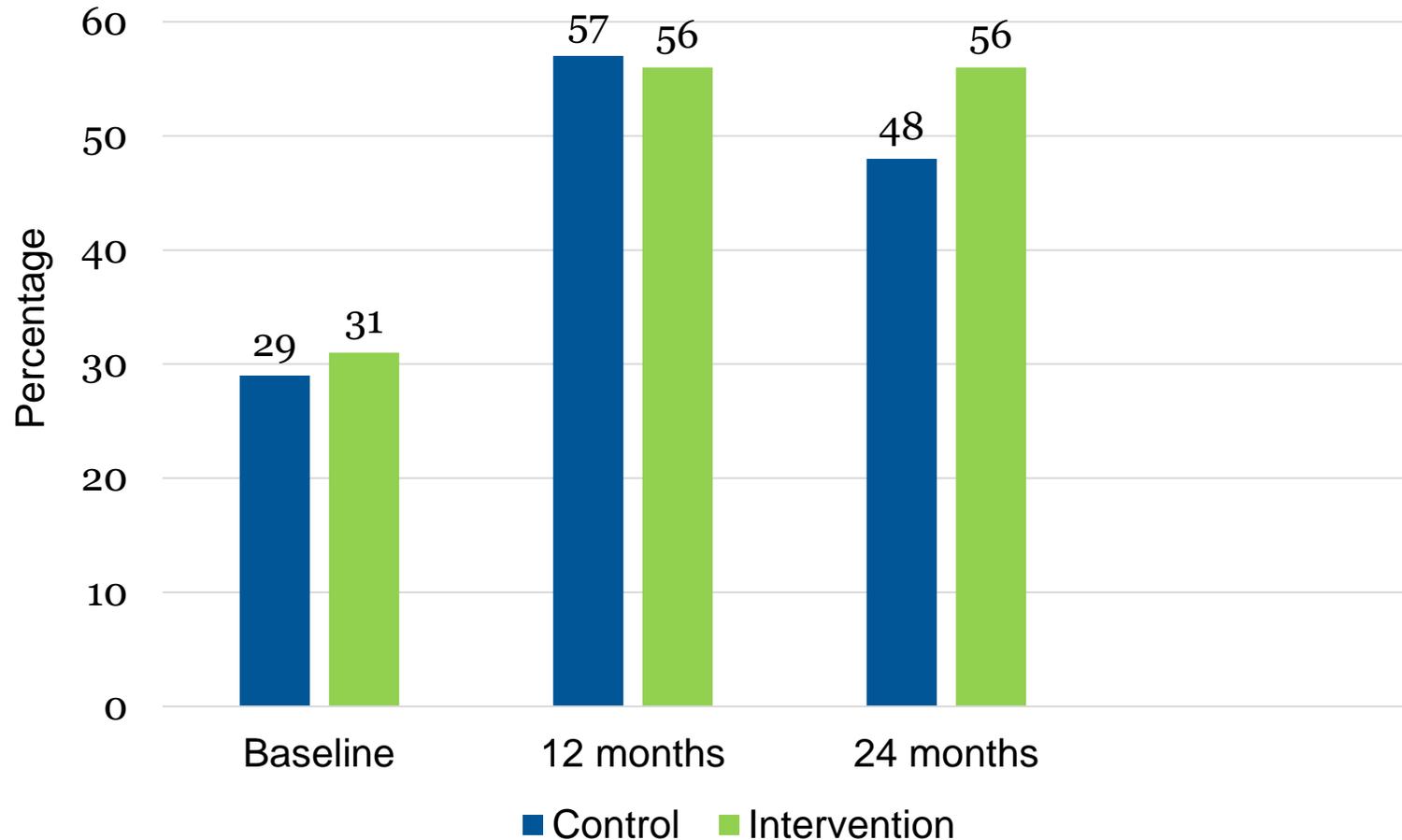
## 24-month follow-up:

- 298 (74%) control families
- 233 (65%) intervention families

## Characteristics at baseline

Characteristics at baseline	Control (n=401) Median (IQR) or %	Intervention (n=361) Median (IQR) or %
Child age (months)	4.6 (3.1-6.0)	4.6 (3.1-6.2)
Male child	48.2%	50.4%
Number of children under 16 in family	<b>2 (1-2)</b>	<b>2 (1-3)</b>
Maternal age at birth of first child	<b>27 (21-31)</b>	<b>25 (20-29)</b>
Single adult household	<b>15.3%</b>	<b>26.7%</b>
Index of multiple deprivation (IMD) 2019	<b>34.3 (24.7-40.5)</b>	<b>52.7 (45.9-57.3)</b>
Distance to nearest emergency department (miles)	4.9 (3.7-5.8)	4.2 (3.7-6.1)

## Percentage with smoke alarms, safety gates and poisons out of reach



At 24 months:

Intervention group:

- Poisons out of reach = 6% 
- Safety gates = 3% 
- Smoke alarms = 2% 

Complete case analysis:

- OR 1.58 (0.98, 2.55)  $p = 0.06$

Multiple imputation analysis:

- **OR 1.75 (1.12 to 2.73)  $p = 0.0014$**

## 1. Additional safety practices

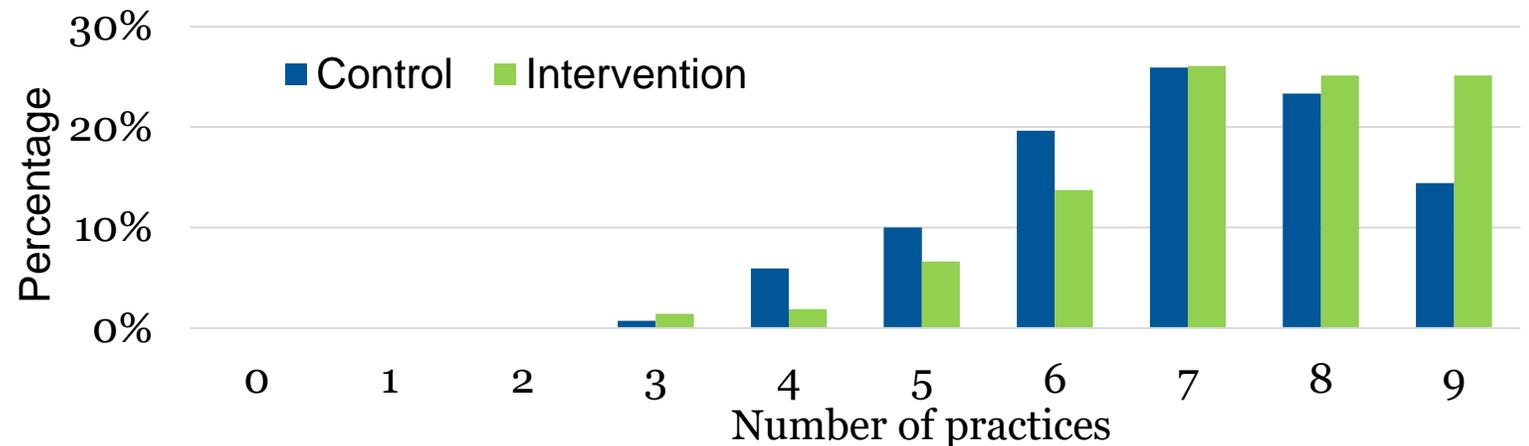
	Control 24 months	Intervention 24 months	Adjusted odds ratio
Not left child alone in bath	91%	96%	1.85 (0.72, 4.79)
Use a fireguard or have no fire	80%	85%	<b>3.17 (1.63, 6.16)</b>
Blind cords out of reach or no blinds	86%	89%	0.72 (0.36, 1.44)
Has window safety catches	59%	65%	0.78 (0.48, 1.27)
Has fire escape plan	67%	77%	<b>1.81 (1.06, 3.08)</b>
Always accompanies toddler in garden	73%	79%	1.30 (0.73, 2.31)

2. Rates of injuries: No statistical differences between intervention and control

## 3. Post hoc analysis of number of home safety practices

Difference between means at 24 months:

**0.46 (0.13, 0.79),  $p = 0.006$**





## Limitations

- Non randomised
- Non blinded
- Lack of power
- Covid-19 pandemic



## Conclusions

- Systematic evidence-based home safety promotion for families with high levels of need **improves some safety practices and number of safety practices**
- We recommend widespread implementation of the Stay One Step Ahead intervention

We would like to thank the Small Steps Big Changes Parent Champions (a team of parent volunteers) for their invaluable input into this project and the parents and practitioners who participated in the project

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