

2009 Herman Goldstein Award for Excellence in  
Problem-Oriented Policing

# Trolley Safe

Attempting to Reduce Purse Thefts  
from Shopping Carts

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# Introduction



# Warwickshire

Warwickshire - Population: 530,700

- 993 Police Officers
- 830 Police Staff
- Smallest Police Force in England & Wales
- 6 crimes per 1,000 population

Anaheim – Population 334,000

- Los Angeles 22.9 crimes per 1,000 population



# Outline of Presentation

- Background to the problem solving project
- *Scanning* – problem definition
- *Analysis* – utilising problem analysis triangle
- *Response* – designing and implementing the trolley safe
- *Assessment* – impact of trolley safe
- Limitations, conclusions & lessons learnt
- Questions

# But first.... Trolley vs. cart vs. tram

USA : Trolley = Tram

UK : Trolley = Shopping Cart



# Background to the problem solving project

- Winter 2006 – Tony Archer and I attended a problem solving course run by the UCL Jill Dando Institute
- We used this as quality time to look at some crime data from the business crime database that monitors and drives the Warwickshire Police Business Crime Team
- Aiden joined the team later in the project

# Scanning

- Looking at all crimes committed in or against retail establishments in Warwickshire during 2006
- 13% of the above (595 crimes) were classified as “*other thefts*”
- what this 595 ‘*other thefts*’ consisted of was unclear and required further investigation

# Scanning

- Preliminary analysis revealed that 42% (253 crimes) of *other theft* offences were theft of bags (and/or their contents) from customers shopping at supermarkets (supermarket also known as a grocery store in USA)
- Not a new problem but apparently lacking in a robust solution .....



# The Problem

- We decided to focus on the problem of bag theft (and/or the contents) from supermarket customers

## Why?

- Major part of our *other theft* category
- Little known on the nature and scope of the problem
- There were a number of victim issues

# Evidence of Harm: Concern to the Community

## Psychological Factors

- The victim is inconvenienced by the loss, they can't pay for their shopping.
- When researching we were told that losing keys was a greater trauma than losing their valuables

## Financial Factors

- A bag theft can lead to other crimes
  - Credit card fraud
  - ID fraud
  - Car theft or house burglary with keys
  - Community costs
  - Policing costs

# Data Collection

- Data from Police crime recording system
- Usual data cleansing issues, spelling in particular  
Asda, Asdas, Asders .....
- Data Analysis was framed around the problem analysis triangle – location, victim, offender
- Shopping-related analysis and observations

## Locations - Bag Theft in Warwickshire Supermarkets, 2006

- Bag thefts were heavily concentrated
- 5 supermarkets out of 30 constituted 55% of all bag thefts
- The key locations were identified
  - A- 24 crimes
  - B - 23 crimes
  - C - 10 crimes
  - D - 7 crimes
  - E - 6 crimes

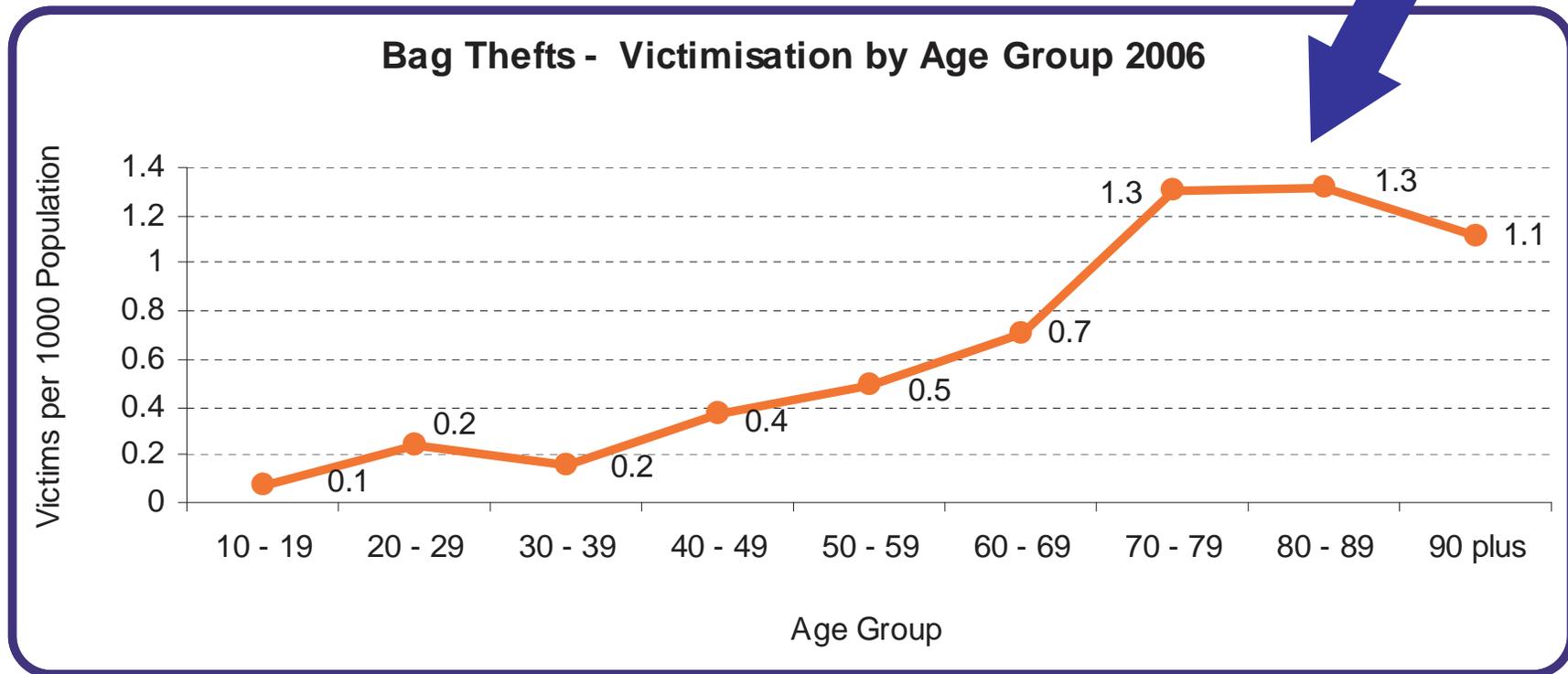
# Victims - Analysis

Age Specific Victim Rates - Other Theft on Shop Premises			
Age Group	Number of Victims	Resident Population	Victims per 1000 Population
0 - 9	0	59,200	0.0
10 - 19	5	66,100	0.1
20 - 29	16	63,800	0.3
30 - 39	9	77,000	0.1
40 - 49	27	77,600	0.3
50 - 59	30	71,800	0.4
60 - 69	40	56,400	0.7
70 - 79	48	38,400	1.3
80 - 89	25	19,800	1.3
90 plus	4	3,600	1.1

- 86% of the victims were women

# Who are the Victims of Bag Theft in Supermarkets?

- Victimization by age highly skewed
- Highest victimisation rates for shoppers aged 70 and above



# Victim Issues - Increased Risk for the Elderly

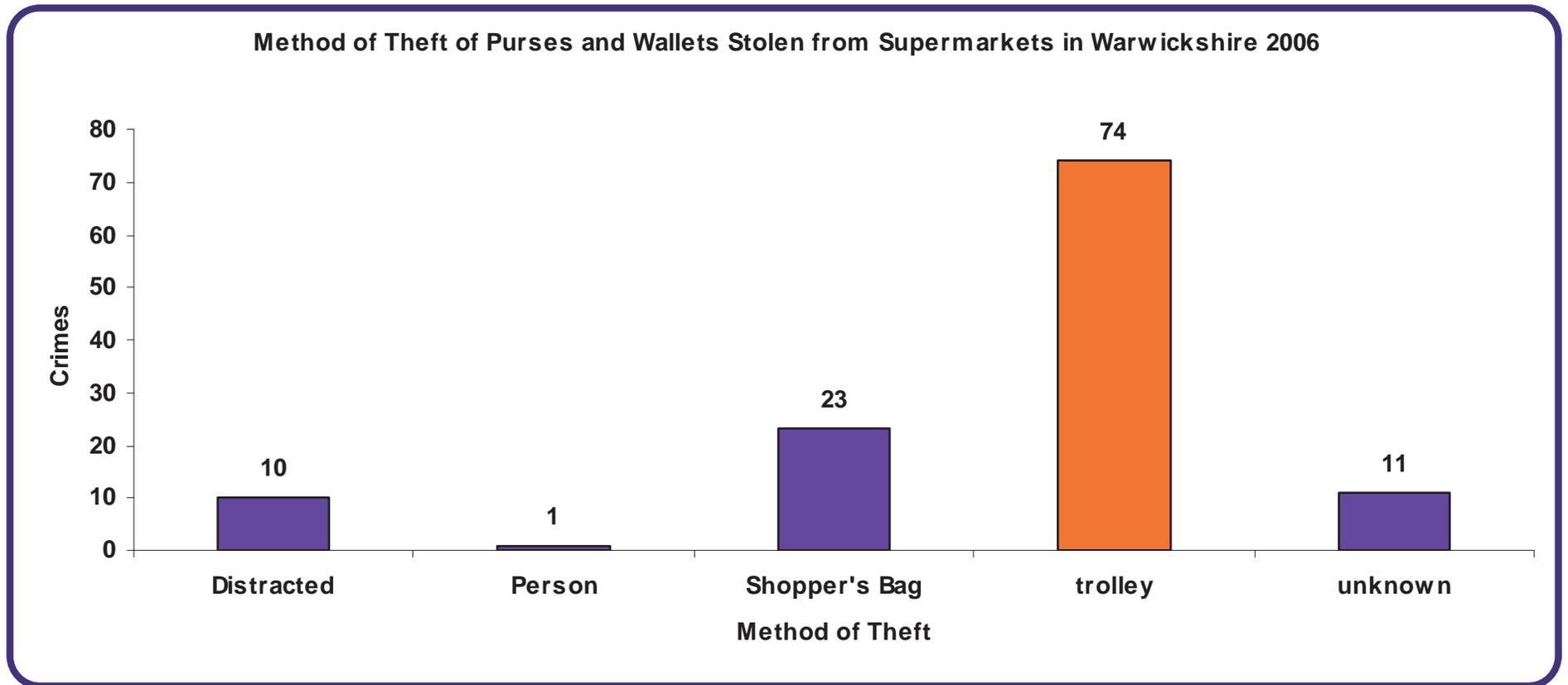
- Maybe that more senior shoppers use supermarkets?
- Are they just more vulnerable ?
- Footfall data by age not available
- 75% of victims were aged 50 years or over
- Compared with those aged 20-29, for example, individuals aged 80-89 are over five times more at risk of having their bag stolen in a supermarket
- Previous Home Office report reported a chronic level of bag theft amongst the elderly (Tilley et al. 2004)

# Offenders & MO

- There was little offender data as most offences were undetected, but understanding how the offender operated, and exploited opportunities, might inform our response
- Analysed **M**odus **O**perandi
- Analysis of free text field of crime data:
  - Where bag was located
  - Was the bag attended or unattended
  - Was an offender seen or not

## Offenders - Modus Operandi: How are bags or their contents stolen in supermarkets ?

- The methods used by the offenders highlighted the risky situations for victims



# Analysis: Understanding Shopping Behaviour

- Tony Archer and I visited supermarkets to observe shopper behaviour
- Elderly shoppers tended to use *shallow* trolleys rather than larger (deep) trolleys
- Why? easier to manoeuvre and do not require them to bend as far when filling and emptying their trolley
- Consistent with the literature on shopping behaviour (Pettigrew et al. 2005)

## Analysis: Understanding Shopping Behaviour

- Bags tended to be stored in or hung from shallow trolleys
- Opportunities for theft of, or from, bags was widespread
- Bags and other items often left in/on the trolley while shopper looks around

## Key Findings from Crime Analysis

1. Elderly victims, particularly women, showed a higher rate of victimisation
  2. Few of these bag thefts were from the person
  3. The trolley was identified as a recurrent area from where bags or contents were stolen
- *We concluded a means of protecting bags and their contents (purses or wallets) on/in the shopping trolley was required.*

# Response - Objectives

- **Key Questions**

- *How could we encourage guardianship of personal property by supermarket customers?*
- *How could we deter offenders through increasing the risk and effort involved in this crime type?*

- **Type of Solution Required**

- *A response that went beyond a short-term prevention solution or awareness campaign.*
- *A long-term, permanent and targeted solution.*
- *Several options were considered.....*

## Scanning - Other Responses

- Cat bells attach to purses to both raise awareness and alert owners if they were being unlawfully removed.
- Whilst popular, little evidence that they were an effective response
- Attaching an alarm cord to the purse
- General Bag Theft Publicity



# Bag Bags Option

Issue bags to customers to put their valuables in on entering the store. The bag would contain a security tag that will be activated if it is taken past a security point. Shopper puts their bag into the store bag. Handed in and deactivated on exit.



## RATIONALE

- Make it more difficult for the thief
- More likely an offender will be stopped
- Removes crime situation
- Rule reminder
- Requires a great deal of cooperation between stores and users

# Bag Safe Shopping Option

Rule setting by store staff - signs in stores, meet and greet



## RATIONALE

- Make it more difficult for the thief
- Raise awareness of vulnerable customers
- Removes crime situation
- Requires cooperation of stores and user

# People Safe Option

Education via media and organisations using flyers, posters and talking signs



## RATIONALE

- Rule reminder
- Publicity
- Targeted advice in target premises at target times on target days!
- Information circulation via agencies

# Response Decisions

- Based on scanning and crime analysis the response needed to be:
  1. Tailored towards elderly supermarket shoppers
  2. *Trolley-related* - given the frequency of trolleys in the MO field, mentioned in 59% (74) of cases. Also trolleys are used in the majority of supermarkets
- *We therefore pursued a design-related response to reduce the opportunities for bag theft through altering the design of shallow trolleys*

# Developing the Response

- Engagement with Wanzl
- New experience working alongside unfamiliar stakeholders
- Very enthusiastic
- Design ambitions vs. Supermarket needs
- Cannot negatively impact the experience of shallow trolley users
- Wanzl agreed to design an industry response
- Early 2008 – final designs

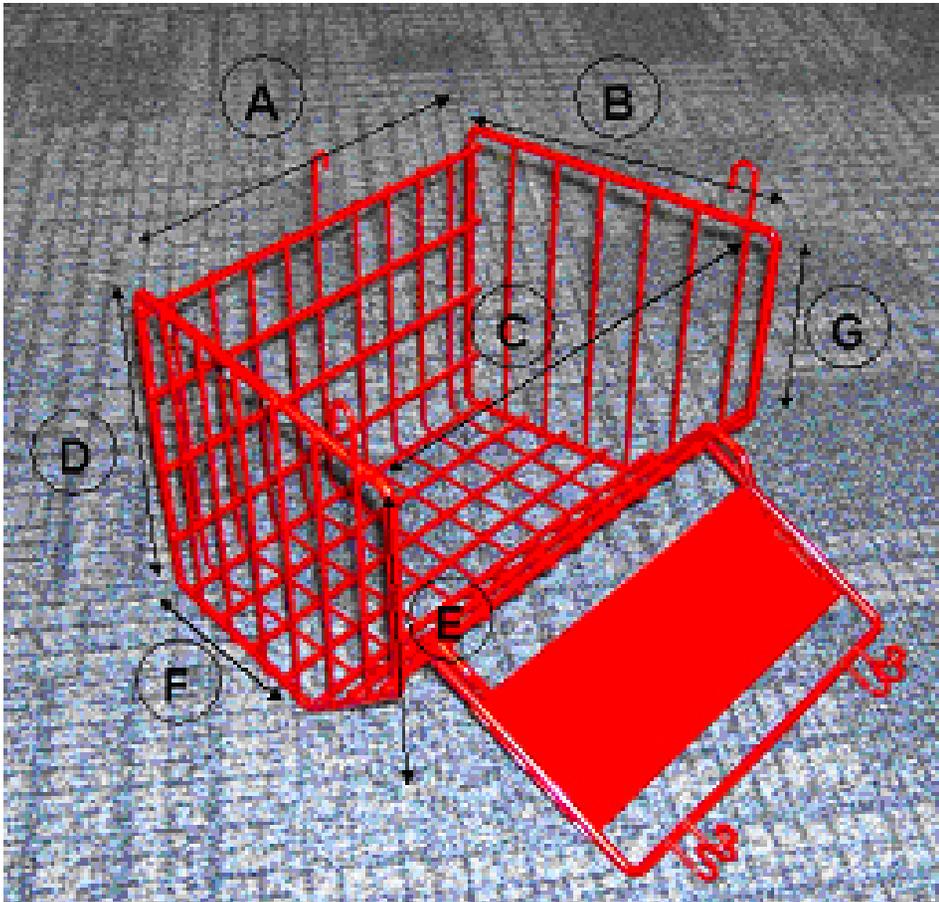
The logo for Wanzl, featuring the word "wanzl" in a bold, blue, italicized sans-serif font.

# Developing the Response



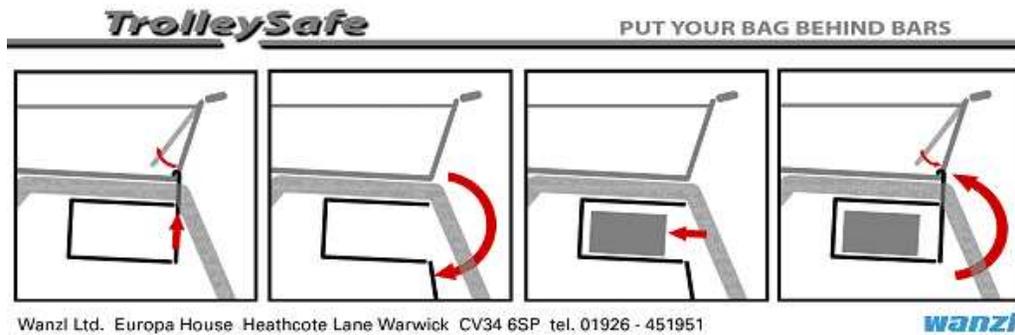
Our Concept

# Response – The Trolley Safe



# Response – The Trolley Safe

## Instructions on Trolley Safe Flap



## Instructions in Trolley

Shop Safe

Please store your valuables in the safe beneath the trolley.

# How would it reduce bag theft

- *In mechanism terms:*
- The trolley safe would reduce the opportunities for bag theft by securing bags in the lockable basket attached underneath the trolley, thereby increasing the effort and risk for bag thieves.
- Victim-oriented signage was located on the basket providing a diagram on how to use the trolley safe in order to mobilise shoppers to use the basket correctly

# Securing Retailer Support, Resources & Evaluation

- **Funding** to manufacture the trolley safe
  - Convincing funders
- **Location** for the trial
  - Asda at Nuneaton
  - 285 shallow trolleys
  - 3 month trial starting Oct 28<sup>th</sup> 2008
- **Evaluation**
  - Critical to the project
  - Appointing an evaluation advisor



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FOR THE WEST MIDLANDS



# Next Steps...

- Setting up an evaluation process
- Briefing and meeting shop staff
- Wanzel fitted the baskets to all the shallow trolleys at the trial store
- Organising a press launch

# Going Live

- Utilised local publicity networks
  - Trolley Safe flyers and general advice about purse safety were circulated to the elderly in Nuneaton via a distraction burglary initiative .
  - Local Neighbourhood Watch featured the initiative in their magazine Crime Busters circulated to 6,500 residents.
- A talking sign to remind customers to use the trolley safe was considered but there were too many trolley bays to do this.

# Go Live Day



# Assessment and Evaluation Aims

- *Impact Evaluation* - unlikely to produce a measurable impact on crime
- *Process-Oriented evaluation*

*Could* the trolley safe influence shoppers' behaviour in a positive manner.

## (i) Primary Aims:

- Assess the extent to which the trolley safes were used (*intermediate outcome measure*)
- Assess the customer response to the trolley safe in a supermarket setting
- Assess the working design of the trolley safe in a supermarket setting

# Selecting a Control Supermarket

- What to match on? store size, location
- Crime data (Nov 06 – Oct 08) readily available so selected the store with the most similar levels *and* trajectory of bag theft
- Control supermarket *not* informed of its control status
- Not another ASDA store

# Data

Multiple forms of data were collected:

- 1) recorded crime data
- 2) customer observations at the trial site to assess usage and customer feedback
- 3) customer surveys given to those using the trolley safe

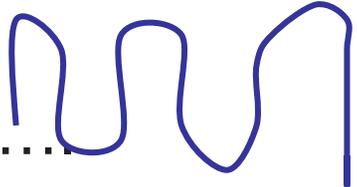
# Purpose of Customer Observations

- 1) to assess if the trolley safes were being used (correctly) by supermarket customers
- 2) to assess the condition of the trolley safes

A recording sheet was developed

- a) trolley safe usage
- b) customer gender, estimated age, type of bag
- c) free text field so observers could record relevant information
- d) a question asking customers why they were or were not using the trolley safe.

# Process of Customer Observations

- Once a week for 13 weeks
- site visits were decided before implementation
- up and down all the shopping aisles .....
- Observed customer asked on usage
- 231 observations (range of 9 to 25 observations)
- an average duration of 67 minutes per observation visit (35 – 100 minutes).

# Customer Survey

- Data on customers' perceptions of the design and function of the trolley safe
- Age, experience of bag theft ....
- SAE

**Customer Survey – Trolley Safe**

Dear ASDA Customer:

Thank you for taking the time to complete this survey. Your feedback will help influence the future design of shopping trolleys.

Please tick the boxes to indicate your answers:

Have you been the victim of bag theft from a supermarket in the last 12 months? Yes  No

Did you notice our 'Trolley Safe' on your trolley? Yes  No

If yes, what drew your attention to the trolley safe (please tick):

Supermarket staff pointed it out  
 Police officers pointed it out  
 Another customer pointed it out  
 I read the sign of the trolley  
 I noticed the trolley safe directly as I took my trolley  
 I noticed another customer was using one  
 Other (please specify) \_\_\_\_\_

Did you use the 'Trolley Safe' today? Yes  No

Would you use it again? Yes  No

Please rate our 'Trolley Safe' on the following features by ticking one box for each feature. 1 is good and 5 is bad.

		1	2	3	4	5	
Ease of use	Easy to Use	<input type="checkbox"/>	Hard to Use				
Practicality	Practical	<input type="checkbox"/>	Impractical				
Appearance & Design	Attractive	<input type="checkbox"/>	Unattractive				
Maintenance	Well maintained	<input type="checkbox"/>	Shabby looking				
Visibility	Easy to see	<input type="checkbox"/>	Hard to see				

Would the availability of a 'Trolley Safe' affect your choice of which supermarket to shop at? Yes  No

In what way, \_\_\_\_\_

If there is bag theft prevention publicity in the supermarket, did you notice it? Yes  No

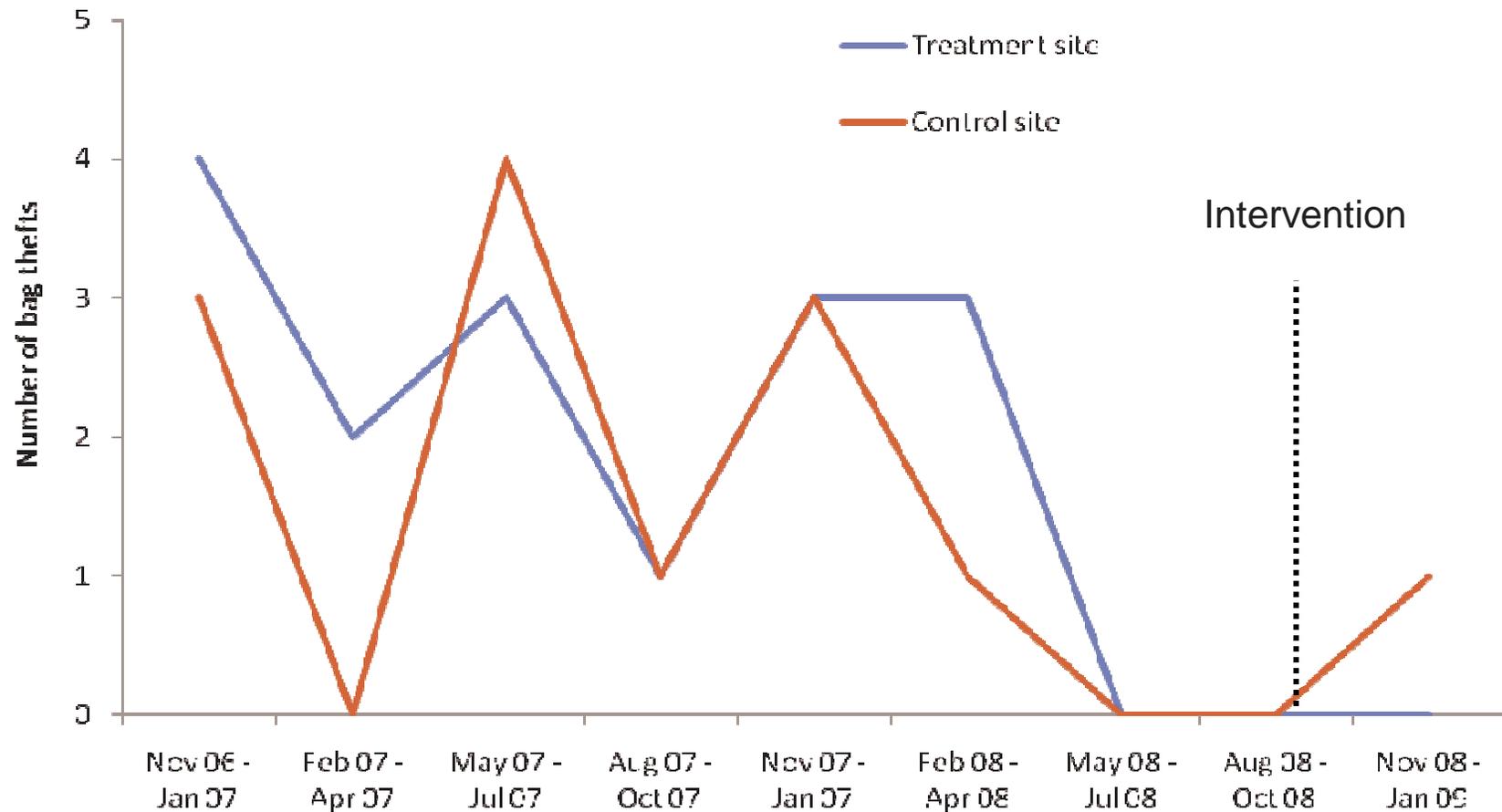
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# Assessment 1 - Impact Evaluation

- Bag theft from shallow trolleys following intervention
- Recorded crime data contains theft from *both* trolley types
- Only assess changes in the level of bag theft from *all* trolleys before and after intervention.

# Impact Evaluation

Recorded Bag Thefts from Trolleys at the Treatment and Control Sites Before and After Intervention, Nov 06 – Jan 09 (n = 29)



# Assessment 2 – Customer Observations

- 203 customers were observed with a bag using shallow trolleys with the trolley safe attached.
- 39 were observed using the trolley safe producing a mean usage rate of **19%** across the observation period.



# Assessment – Customer Observations

- In terms of the estimated age of the user, those aged 35-60 constituted 43% of those observed using the intervention and 33% were over 60.
- Non-users
  - the majority (40%) were found to be keeping their bag on their shoulder.
  - many still placed their bag in (28%)
  - or hung from (18%) the trolley

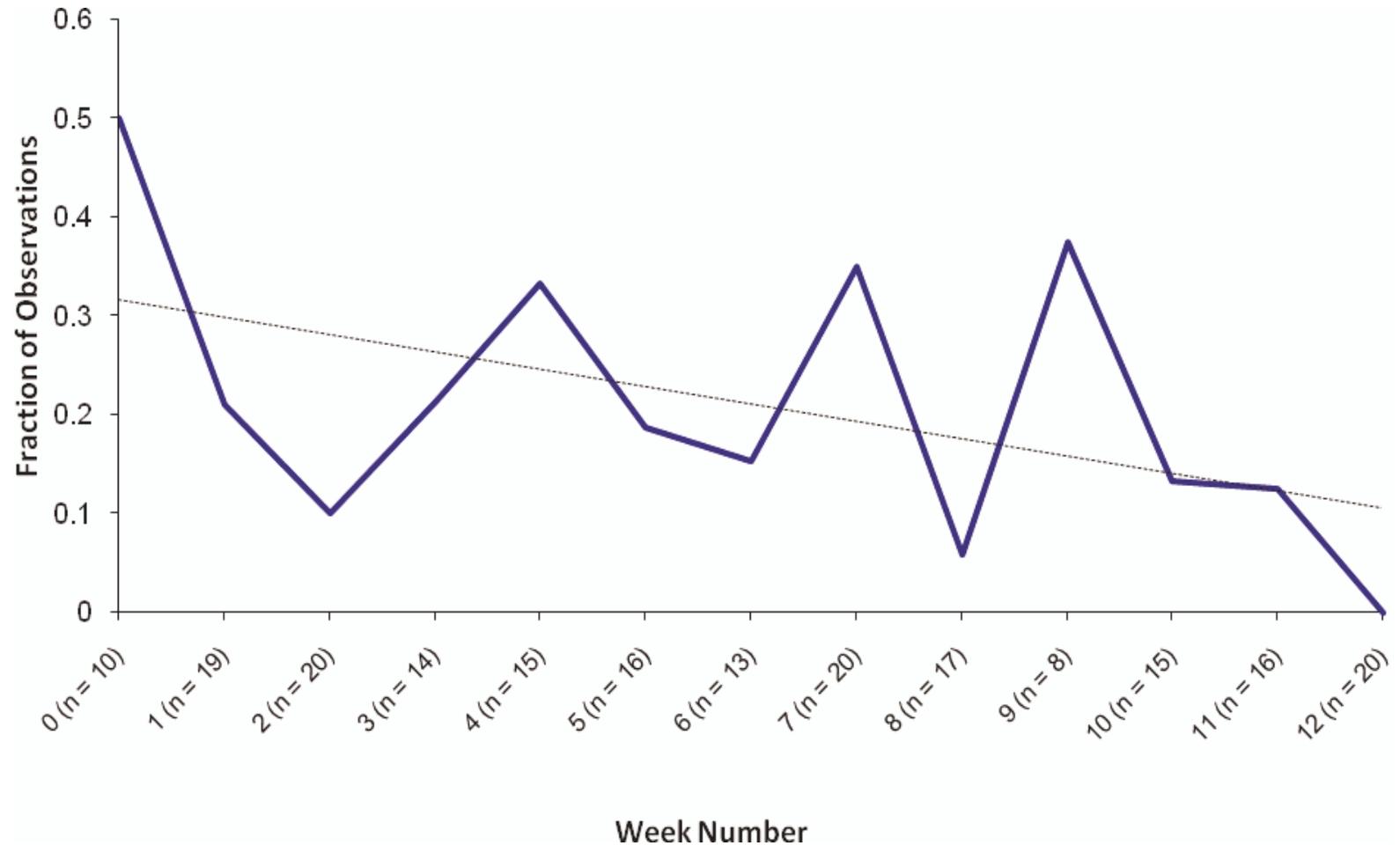
# Assessment – Customer Comments

Three main findings emerged:

- 1) (31%) said their bags were too large to fit in the trolley safe.
- 2) The second most frequent response was that the trolley safe was a good idea (27%)
  - came from both users (45%) and non-users (55%)
- 3) (24%) was that customers preferred to keep bags on their person. This was the most common response from those *not* using the trolley safe (24%).

# Usage Over Time

Observations on Trolley Safe Usage Over Time (n = 203)



# System Failure?

- Stakeholder meeting
- Problem identified as the stacking procedure
- *Diversity in trolley design*: coin-operated locks
- Trial site did *not* employ coin-operated trolley locks
- Implications for stacking procedure and trolley safe – over hanging



# Assessment 3 - Customer Surveys

- 47 surveys given out
- 28 returned, response rate of 60%.
- 61% of those were aged 60 +
- 85% of respondents reported that they would use the trolley safe again.
- Over two thirds (68%) claimed that the trolley safe didn't increase their fear of crime
- 93% reported a reduction in fear of bag theft victimisation through using the trolley safe.

# What Drew Your Attention to the Trolley Safe?

Alert Method	Frequency	%
I noticed it directly as I took my trolley	19	54.3
Supermarket staff pointed it out	6	17.1
other	4	11.4
I read the sign on the trolley	3	8.6
Another customer was using one	2	5.7
A police officer pointed it out	1	2.9
	35	100

\* Some respondents gave more than one answer

# Rating the Trolley Safe

- 5 measurements using 5-point Likert scales  
1 = most positive, 5 = most negative.
- The median for *ease of use, practicality, maintenance and visibility* was 1
- *appearance and design*, was 2.

# Future Shopping Trips?

- Would the availability of the trolley safe affect your choice of supermarket?
- **39%** said yes.
- Why? increased their perceived security against bag theft whilst shopping.
- Why not? ... they always shopped at that particular store.
- *might* doesn't equal *will*

# Conclusions

- 1) the trolley safe was immediately noticed and used by a modest but not insignificant proportion of shoppers

*a positive intermediate outcome measure representing a reduction in opportunities for bag theft.*

- 2) Many used it correctly, few reported difficulties operating the device.
- 3) Design-based ratings were positive, many claiming that they would continue to use the trolley safe in future because it lowered levels of fear and increased perceived level of security.

# How To Increase The Number of People Using the Trolley Safe ?

2 design-based issues emerged from evaluation

- 1) Basket size – too small for my bag
- 2) Unhinged baskets – damage over time

# Limitations of Current Project

- Evaluation failed to produce any noticeable reductions in bag theft.
- This is attributed to small number of test sites and the too brief a time period
- Bag thefts were also already on the decline
- Why?
  - 1) The choice of site
  - 2) The project itself may have stimulated greater attention to the problem of bag theft in supermarkets

# Why bother?

- Why go ahead with the evaluation when you expected that it was unlikely to provide a measurable impact on crime?
  - *Practicalities*: limited funds available and the desires of the participating retailer
  - *1<sup>st</sup> trial* : sacrificing the ability to provide a robust *impact evaluation* in favour of completing a thorough *process evaluation* to get user-feedback and the design correct *before* potentially rolling out the trolley safe scheme more widely.
- First phase of a medical trial...
- The various design-based issues observed here which can improve 2<sup>nd</sup> generation trolley safes suggest this decision was warranted.

# Conclusions : Suggestions for Future Evaluations

- Intermediate outcome evaluation > ultimate outcome evaluation
- *Do positive changes in customer bag placement (i.e. using the trolley safe) lead to reductions in bag theft?*
- More supermarkets and over a suitably-long timescale
- Collect observation data on usage rate of shallow and deep trolleys before as well as after implementation.
- *Does the usage ratio of shallow to deep trolleys change following intervention?*

# Conclusions & Next Steps

- All the partners learned from each other and there was good collaborative working
- The partners all added to the solution
- Tony and I learned a lot from Wanzl about shopper behavior and from working with Aiden
- The store's customers are missing the baskets
- We are half way to raising the finance for another trial £5000 (\$7,500) and I have just put in a bid/entry for a designing out crime competition with cash prizes.

# Any Questions



# Contact Information

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