

HOW EFFECTIVE ARE PUBLIC INFORMATION PROGRAMS IN PREVENTING POISONING?

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WHY DO WE CARE?

- **SECOND LEADING CAUSE OF DEATH**

10.3/100,000

62.5% ↑ 2000-2004

- **FINANCIAL IMPLICATIONS**

British Columbia

\$216 Million/Year

Emergency Department Visit

\$1400

Poison Centers Save Money

\$15 Saved/\$1 Spent





PITTSBURGH POISON CENTER POISON PREVENTION EDUCATION MATERIALS

Available at: www.mryuk1.com

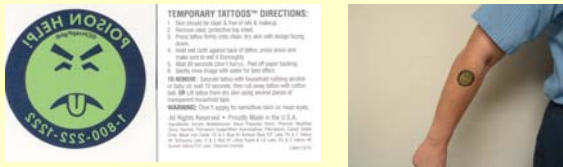


ADOLESCENT PC AWARENESS TOOLS

POISON HELP AWARENESS WRISTBANDS



MR. YUK-POISON HELP TATTOOS



Mr. Yuk Can Help Your PC!

- Mr. Yuk, the Poison Help icon, turned 35 in 2006 and has out-lived all other PC awareness logos.
- Proven effectiveness as an awareness tool.
- Use Mr. Yuk materials to create high Poison Center awareness in your PC service region.
- All materials can be customized for your PC.

Mr. Yuk Evaluation

Q. How familiar are you with this mascot?

	Correct	Wrong	DK	Female	Other	Male	Female
Very familiar	34	26	33	41	22	23	24
Somewhat familiar	19	18	18	7	24	19	10
Not very familiar	12	12	14	10	8	11	8
Not at all familiar	35	34	35	13	4	5	5

Q. How do you think the representation of Mr. Yuk as a mascot is best represented? (The groups most familiar with the representation agreed to be the 10-24 and Older American High groups. Women have a 79.2% awareness, while men have a 66.7% awareness.)

Q. What are the first words or images that come to mind when you see Mr. YUK?

- Poison Control Center
- Danger
- Substance
- Bad taste
- Poison, dead and unpleasant
- Don't swallow this, or you will be sorry
- Tuggle as a child never to swallow anything with that symbol on it
- Call Poison Help

Q. Thinking about Mr. Yuk, which of these phrases best describes how you feel about this mascot? Would you say that...

	Correct	Wrong	DK	Female	Male	Female
Like it very much	43	41	24	54	25	44
Like it somewhat	43	41	24	52	44	44
Dislike it somewhat	5	5	11	12	8	11
Dislike it very much	2	2	3	2	2	3

Q. On a scale of 1 to 10, how well do you think Mr. Yuk represents the services offered by your local Poison Center?

	Correct	Wrong	DK	Female	Male	Female
1 - Represents the services very well	4	3	41	47	4	10
2	10	10	12	10	14	12
3	10	9	12	10	14	12
4	9	9	4	5	6	9
5	9	9	3	5	6	9
6	5	9	4	5	2	2
7	2	2	2	2	4	1
8 - Do not know/represent the services at all	1	2	2	2	0	3
9	2	5	3	3	4	5
10	2	5	3	3	4	5

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June 2008
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Nearly 76% of Widmeyer survey participants recognized Mr. Yuk!

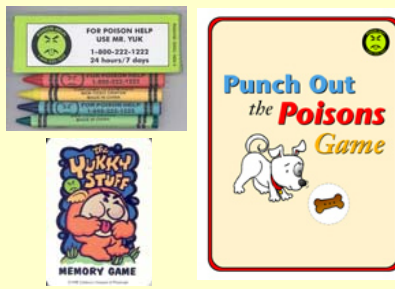
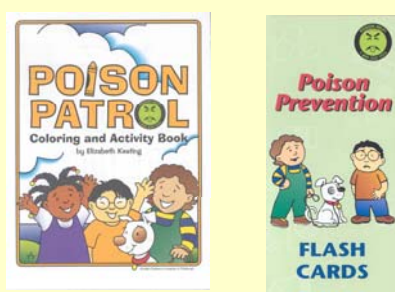
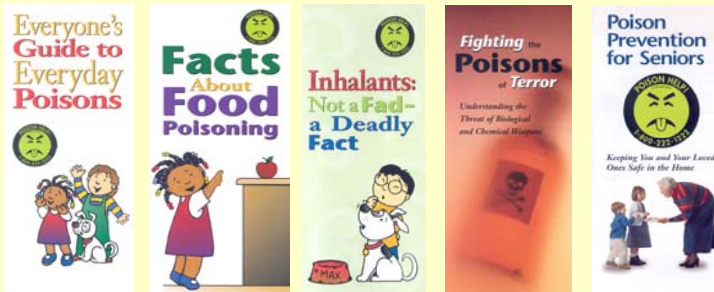
89% liked Mr. Yuk!

84% said that Mr. Yuk represents PC's very well!

BROCHURES

ACTIVITY ITEMS

AWARENESS TOOLS



'EFFECTIVE'

(How Effective are Public Information Programs in Preventing Poisoning?)

“...producing a decided, decisive, or desired effect”

<http://www.merriam-webster.com/dictionary/effective>

Objective Indicators of Success

- Improved Patient Outcomes?
- Cost Savings?
- Increased PC Call Volume?
- Decreased PC Call Volume?

**“You can’t manage what you
can’t measure.”**

Joseph Juran

EPIDEMIOLOGICAL MODEL

Haddon's Matrix

HOST + AGENT + ENVIRONMENT = OUTCOME

VICTIM

+ POISON

+ ENVIRONMENT

= POISONING!!!

POISON PREVENTION STRATEGIES

■ PRIMARY

Promotes Avoidance of Risk
Behavior Modification
Passive Intervention

■ SECONDARY

Reduce Morbidity/Mortality
Poison Center
Emergency Department

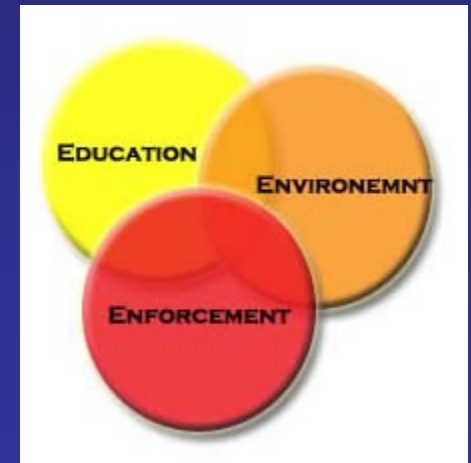
■ PRIMARY + SECONDARY

Most Public Poison Prevention Programs

HADDON'S MATRIX

Elements of Successful Prevention

- Education
- Environmental/Engineering Modifications
- Enactment/Enforcement
- Empowerment
- Evaluation



WHAT ELEMENTS DO PC'S INCORPORATE INTO POISON PREVENTION PROGRAMS?

- EDUCATION
- EMPOWERMENT
- EVALUATION

A Controlled Evaluation of a Community Injury Prevention Project in Two Greek Islands

- **Naxos (Study) and Spetses (Control)**
Naxos 172 Households
Spetses 177 Households
- **20 Month Injury Prevention Program**
- **'Effectiveness' = Diaries**
- **Naxos-175 Accidents**
11/28 Examined Variables = Improvement
7 Poisonings
- **Spetses-177 Accidents**
1/28 Improvement
2 Poisonings
- **Conclusions:**
“...results were usually modest and occasionally disappointing.”



Home Delivery of an Injury Prevention Kit for Children in Four French Cities: A Controlled Randomized Trial



- **4 Paris Suburbs**

- **7 Month Study**

- **100 Families-Home Visit and Education**

 - 50-Counseling, Pamphlets, Emergency Numbers, Safety Kit (latches, electrical covers, smoke detector, PC sticker, etc)

 - 50-Counseling, Pamphlets, No Safety Kit

- **6-8 Weeks-Follow-up Visit**

 - Questionnaire = Measured Safety Behavior

- **Poisoning**

 - Kit = 65.5% ↓ Risk Reduction vs. 46.9% ↓ ($p < 0.01$)

Prevention of Mushroom Poisoning of Children: Effectiveness of a Community-Based School Education Programme

- **Kraków, Poland Region**
- **Objectives**
 - Increase Ability to Identify Mushrooms
 - Correct Misconceptions about Toxicity
 - If Uncertainty-Do Not Eat
- **School Program/Mass Media Education**
- **Pre/Post-Test 693 Children**
- **Demonstrated ↑ Knowledge (28-65%)**



Community Based Programs to Prevent Poisoning in Children 0-15 Years

- **Medical Literature Search**
1966-2003
Pediatric Poisoning
21,000 Studies
- **Inclusion Criteria**
Community-based Intervention
Target Population < 15 Years
Poisoning Rate as an Outcome
Community or Historical Control
- **Four Studies Met Criteria**
Two Had Community Controls



Community Based Programs to Prevent Poisoning in Children 0-15 Years

■ Massachusetts¹

9 Study Communities vs 5 Control
Pediatrician Counseling Study Group

Poison Prevention

PC Awareness

Injury Prevention

No Difference in Risk of Poisoning



■ South Africa²

Paraffin Poisoning Common

20,000 CRCs to Study Region vs None

47% Reduction in Paraffin Poisoning



1. Am J Public Health 1989;79:1521-1527

2. S Afr Med J 1994;84:555-560

POISON CENTER AWARENESS

Mass Mailing

- **Ineffectiveness of a Mass Mailing Campaign to Improve Poison Center Awareness in a Rural Population¹**

2 Brochures/2 Tel # Stickers

Mailed to 8,948 Households

Cost \$3,420 = \$0.38/contact

Random Selection of 397 Households Surveyed @ 6 mo

13% Remembered Receiving the Mailing

16% Would Call PC First

Penetrance ↑ 4.4 to 6.5 Poisonings/1,000 Population

- **Is Mass-Mailing an Effective Form of Passive Poison Center Awareness Enhancement?²**

Sheet of Poison Help 1-800-222-1222

Ambulance Service Subscription Drive

75,000 of 149,813 Households in the County

Benchmark = 6 months 2002 vs Study 2003

Postal Zip Codes

Cost \$5,250 = \$0.07/contact

Table 1. Comparison of poison center call volumes in 2002 and in 2003.

Category	2002	2003
Total calls	1979	1982
Exposures	1324	1311
Information	655	671
Human	1134	1115
Veterinary	190	196



1. Vet Human Toxicol 1993;35:165-167

2. Vet Human Toxicol 2004;46:155-156

POISON CENTER AWARENESS

Combining Primary and Secondary Poison Prevention in One Initiative

- **Poison Prevention + Intervention**
- **Poison Help 1-800-222-1222 Stickers**
 - 136,741 Sheets
 - Free Publication-Children's Hospital
 - 4.1% of Service Region Residents
 - 412 Different Postal Zip Codes
 - Benchmark: 6 Month Period-2004-05
 - Study: Same 6 Month Period 2005-06
 - PPC Cost ~\$10,000
 - \$6.41/Additional Call!

COUNTY	Pre-Mailing Call Volume	Post-Mailing Call Volume	% Change	County Population	Number Mailed	% County Population
Allegheny	9,188	9,405	2.3% ↑	1,235,841	60,072	4.86%
Armstrong	463	455	1.7% ↓	70,586	1,975	2.80%
Beaver	1,642	1,944	8.4% ↑	177,377	10,251	5.78%
Bedford	0	2	100% ↑	50,091	72	0.14%
Butler	1,396	1,527	9.1% ↑	182,087	12,687	6.97%
Cambria	41	38	7.3% ↓	148,073	166	0.11%
Clarion	40	55	27.3% ↑	40,589	161	0.40%
Crawford	21	19	9.5% ↓	89,442	154	0.17%
Fayette	289	392	26.3%	146,142	287	0.20%
Greene	375	365	2.7% ↓	39,808	1,236	3.11%
Indiana	528	579	8.8% ↑	88,703	3,315	3.74%
Jefferson	67	67	0%	45,759	25	0.05%
Lawrence	1,058	1,218	8.7% ↑	92,809	4,903	5.28%
McKean	1	0	100% ↓	44,370	225	0.50%
Mercer	804	924	8.7% ↑	119,598	6,135	5.13%
Venango	13	12	7.7% ↓	55,928	37	0.07%
Washington	2,256	2,481	9.1% ↑	206,406	12,141	5.88%
Westmoreland	3,205	3,751	8.5% ↑	367,635	22,218	6.04%

POISON CENTER AWARENESS

Validated

POISON CENTER AWARENESS

National Toll-Free Number

Poison Help!

1-800-222-1222

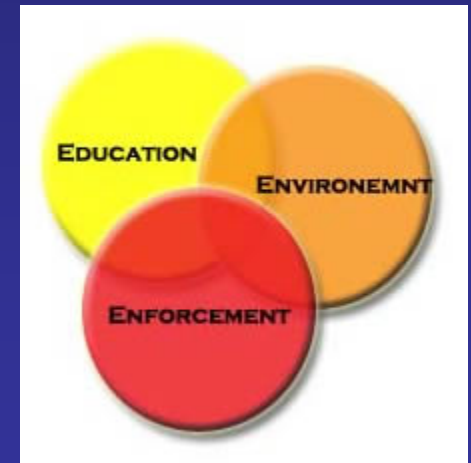
Implementation-January, 2002

May, 2008-80% of All Calls

POISON PREVENTION PACKAGING ACT OF 1970

Elements of Successful Prevention

- Education
- Environmental/Engineering Modifications
- Enactment/Enforcement
- Empowerment
- Evaluation



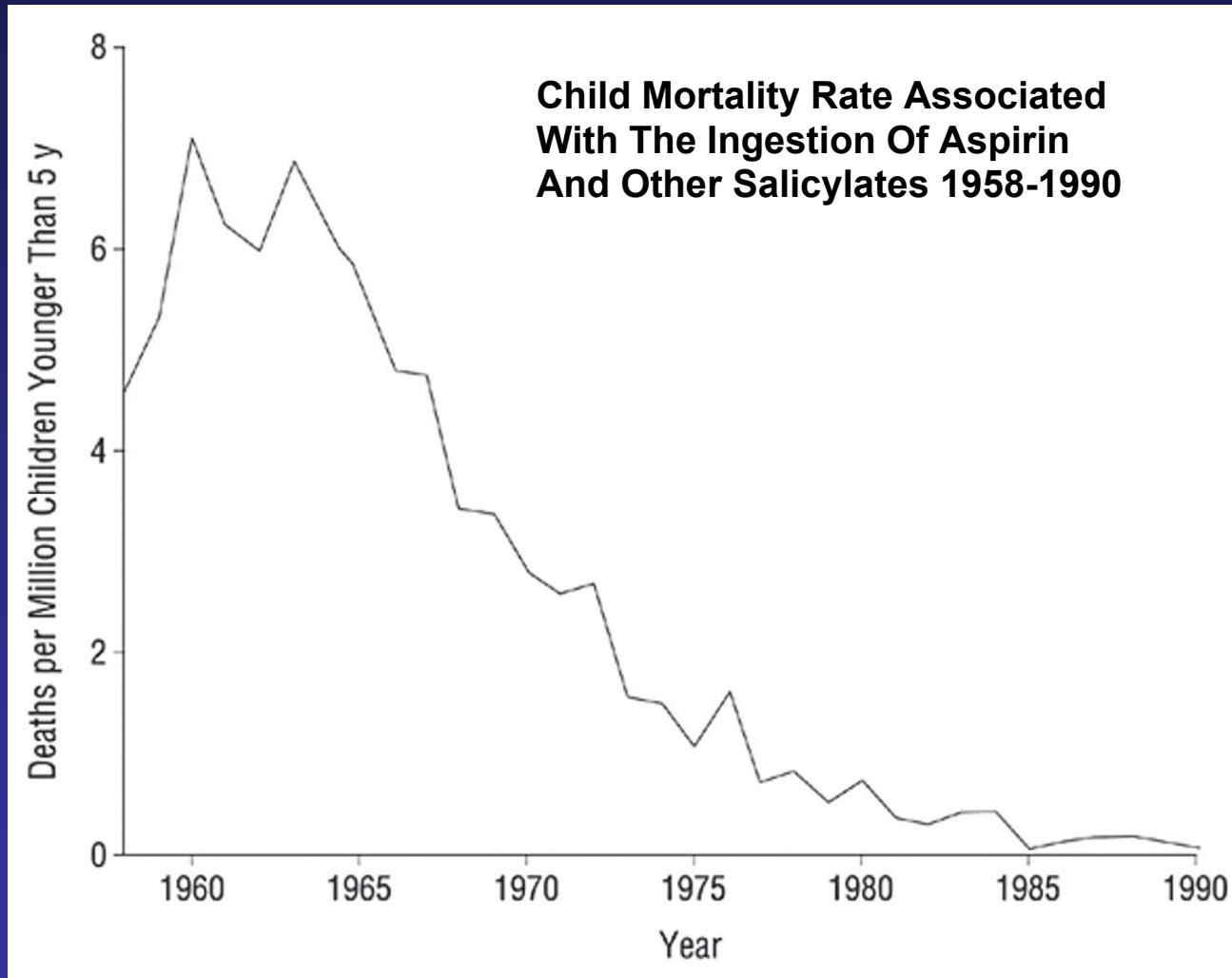
POISON PREVENTION PACKAGING ACT OF 1970

Mandated CRC

- 10% Pet Distillates
- 10% NaOH or KOH
- 4% Methanol
- 10% Turpentine
- 10% H₂SO₄
- 10% Ethylene Glycol
- 500 mg Acetonitrile
- 50 mg F^o
- Mouthwash 3g ETOH
- Aspirin
- APAP 1 g
- Ibuprofen 1 g
- Diphenhydramine 66 mg
- Loperamide 45 mcg
- Fe^o 250 mg
- Methyl Salicylate 5%
- Minoxidil 14 mg
- Prescription Medications

POISON PREVENTION PACKAGING ACT OF 1970

Evaluation



Rodgers, G. B. Arch Pediatr Adolesc Med 2002;156:929-933.

REGULATORY INTERVENTION

Successful

CO ALARMS

- 101 CO Exposures
- 59.4% CO Alarms
- 96.6 vs 18.6 ppm
- 63.4% vs 13.3% Sx

Am J Emerg Med 1996;14:484-486

- Education
- Engineering
- Enactment
- Enforcement
- Empowerment
- Evaluation

WHAT WORKS?

■ POISON PREVENTION EDUCATION?

NO!

■ POISON CENTER AWARENESS?

YES!

■ PASSIVE INTERVENTION?

YES!

PUBLIC EDUCATION CHALLENGES

- **Limited Resources**

Human

Financial

- **Diverse Messages**

“Up and Out of Reach!”

Poison Help 1-800-222-1222

- **Multiple Outcomes**

What Should be Measured?

- **Implementation without Evidence of Success**

US Poison Centers



CONCLUSIONS

- **Current Prevention Strategies Ineffective!**
- **Poison Center Awareness ~Effective**
- **Need to Target:**
 - Vulnerable Populations
 - Substances with Morbidity/Mortality
 - ↑ CRC Use-Only Proven Intervention
 - PC Awareness Strategies



“However beautiful the strategy, you should occasionally look at the results.”

Winston Churchill