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Evaluation Assessment

Plan for the
analysis of the socio-economic
impact of a proposed
regulation on children's sleepwear

June 1985



Consommation
et Corporations
Canada

Consumer and
Corporate Affairs
Canada

Bureau de la
coordination
des politiques

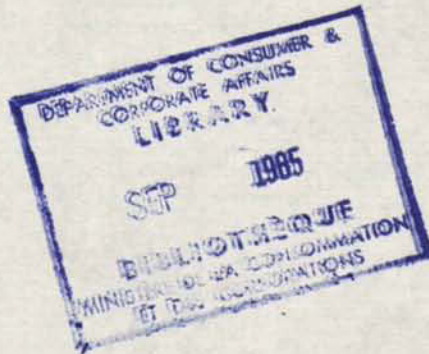
Bureau
of Policy
Coordination

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PROGRAM EVALUATION DIVISION
AUDIT, EVALUATION AND CONTROL BRANCH
BUREAU OF POLICY COORDINATION

Executive Summary

This document presents a plan for an analysis of the socio-economic impact of proposed regulations related to the flammability of children's sleepwear.

The plan was approved by the Deputy Minister in June 1985.

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I INTRODUCTION

I INTRODUCTION

Since August 1, 1978, the government has required that major new regulations or amendments to existing regulations relating to health, safety or fairness be subjected to a socio-economic impact analysis (SEIA). The analysis shall be made publicly available for comments by non-government groups prior the promulgation of the regulation. This policy is intended:

- . to promote a more thorough and systematic analysis of the socio-economic impact of new health, safety or fairness regulations;
- . to ensure uniformity, among departments and agencies, in the methodologies and assumptions used to perform such analysis;
- . to provide an opportunity for increased public participation in the regulation-making process.

This evaluation assessment study documents the planning phase for the analysis of the socio-economic impact of a proposed regulation on children's sleepwear.

II APPROVAL

II APPROVAL

This study plan has been approved by the Deputy Minister and the Minister of CCAC (copy of approval follows as Exhibit I).

Government of Canada / Gouvernement du Canada

MEMORANDUM

NOTE DE SERVICE

A. WINBERG/POL COORD/AEC/
7-1370/sg

SMA
COORDINATION DES POLITIQUES
MAR 27 1985
ADM
POLICY COORDINATION

SECURITY - CLASSIFICATION - DE SÉCURITÉ
OUR FILE/NOTRE RÉFÉRENCE
YOUR FILE/VOTRE RÉFÉRENCE
DATE

RECEIVED - RECU
FEB 12 1985
MINISTER'S OFFICE / CABINET DU MINISTRE
1985.

Minister
(for approval)

Deputy Minister

SUBJECT
OBJET

Socio-Economic Impact Analysis -
Sleepwear Flammability Standard (\$54K)

Proposal: To enter into a contract with the Bureau of Management Consulting (BMC) to assist the Program Evaluation Division in the development of a SEIA for proposed revisions to the children's sleepwear flammability regulations under the Hazardous Products Act.

Background: On November 2, 1971, regulations were promulgated under the Hazardous Products Act setting flammability standards for children's sleepwear, sizes 0 to 6x. Although children's sleepwear products are in compliance with the Canadian regulations, in a 1982 research study, Dr. R. Stanwick of the University of Manitoba assessed evidence which indicated that it was possible that the current flammability regulations may not be providing a high enough level of protection. Dr. Stanwick forecast that as many as 18 to 20 children under the age of nine may be severely burned and one to two could die each year due to the ignition of sleepwear. Garment style (eg. loose and flowing nightgowns) and the ignition source (stove, match, lighters) were the predominant factors influencing burn severity.

In July 1984, the Canadian Institute of Child Health recommended that the level of protection be increased. It asked that the regulations be made much more stringent and that fabrics to be used in children's sleepwear, to size 14x, pass a more stringent flame test than the current Canadian test. The goal would be that fabrics would not support combustion and, if possible, would tend to self-extinguish. The recommendation was based on discussions of a Working Group comprised of Canadian Apparel Manufacturers, Canadian Textile Manufacturers, fire authorities, the Canadian Pediatric Society, the Consumer's Association of Canada and the Product Safety Branch, CCAC. A committee was then formed by CCAC to examine the technical and economic aspects of such a course of action, and numerous concerns and conflicting views have been put forward. It is necessary, therefore, to carefully assess the social and economic impacts of more stringent regulations on consumers, manufacturers and retailers.

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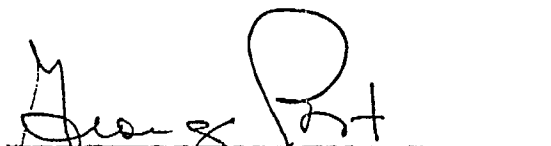
Purpose: The objective of BMC's participation in this project is to assist the study director in the preparation of a socio-economic impact analysis of alternative means to regulate the flammability of children's sleepwear. A range of options will be considered.


Cost and Timing: To complete the proposed work, BMC has estimated a ceiling price of \$54K. In accordance with its standard practice, BMC would bill the Department for professional services at its usual rates and for computer services and travel in accordance with the Treasury Board Directive. A copy of the draft contract proposal is attached for information.

Funds are available to undertake this work during the current fiscal year. In the event that the work cannot be completed during the current fiscal year, we will pay BMC for all work completed to the end of March 1985. Program Evaluation Division has no funds available to commit to this work after March 31. We have discussed funding with the program manager and any funding required for this study after April 1, 1985 will have to come from Product Safety Branch. However, no funds will be committed from Product Safety until it is seen precisely what remains to be done in the next fiscal year.

Policy Implications/End Use

If you want work to continue on a regulatory response to the potential problem that has been identified, this study is necessary in order to fulfill established mandatory procedures to be followed. There is a requirement for completion of a socio-economic impact analysis in cases of major regulatory change in the areas of health, safety and fairness.


G. Post
attach.

Approved: 
Michel Côté

III WORKPLAN

III WORKPLAN

A workplan for the study was developed by Program Evaluation Division, Product Safety Branch and the Bureau of Management Consulting (BMC).

The final workplan (Exhibit III) was proposed by BMC to Program Evaluation Division. After review of the proposal and other options within the department, the BMC proposal was accepted June 14, 1985 (Exhibit II).



Consommation
et Corporations Canada

Consumer and
Corporate Affairs Canada

Bureau de la
Coordination des politiques

Bureau of
Policy Co-ordination

14 June 1985

Voire référence *Your file*

Notre référence *Our file*

Mr. H.F. Johri
Director
Bureau of Management Consulting
Supply and Services Canada
365 Laurier Avenue, West
Ottawa, Ontario K1A 0S5

Dear Mr. Johri:

With reference to your letter of January 16, 1985, I would like to thank you for your proposal to assist us in the analysis of the socio-economic impact of proposed regulations pertaining to flammability standards for children's sleepwear.

The proposed methodology and team are fully satisfactory and this letter constitutes full acceptance of all aspects of your proposal.

Funds are available to undertake the proposed work up to a maximum of \$54,000 during fiscal year 1985/86.


Please commence work immediately as outlined in your proposal and use your best efforts to complete the project within the established timeframe (18 weeks).

We look forward to your assistance with this project.

Yours sincerely,

T. Russell Robinson
Assistant Deputy Minister
attach.: Your proposal dated January 16, 1985.

EXHIBIT III

 Supply and Services
Canada

Approvisionnement et Services
Canada

Bureau of
Management Consulting

Bureau des
conseillers en gestion

365 Laurier Ave. West
Ottawa, Ontario
K1A 0S5

365, avenue Laurier ouest
Ottawa (Ontario)
K1A 0S5

Project No. 3-5198
January 16, 1985

Mr. K. Tiedemann,
Senior Program Evaluation Manager,
Program Evaluation Section,
Audit, Evaluation and Control Branch,
Consumer and Corporate Affairs Canada,
Place du Portage,
Phase I,
Hull, Quebec

Dear Mr. Tiedemann:

Following discussions among yourself,
Dr. Kapsalis and Dr. Jackman of the Bureau of Management
Consulting (BMC), I am pleased to confirm that BMC will be
able to assist you in analyzing the socio-economic impact
of proposed regulations setting flammability standards for
children's sleepwear.

BACKGROUND:

Although regulations under the Hazardous Products Act
defining standards for flammability of some children's
sleepwear have been in force since 1971, severe injuries
and deaths are still occurring. Representations have been
made that the size limit be increased from size 6X to size
14X, and that a more stringent flame test be adopted.

Government policy requires that a socio-economic impact
analysis be performed before such regulations are
approved. In this case, the impact of more stringent
regulations will be felt by consumers of children's
sleepwear, retailers, manufacturers and importers. The
benefits and costs to each of these groups must be
assessed, along with the costs of ensuring compliance.
The conduct of this study will involve solicitation of the
views of representatives of the above constituencies.
However, no attempt will be made to conduct an exhaustive,
statistically significant survey of the constituencies
mentioned above.

.../2

Canada

(Handwritten initials)

EXHIBIT III (Cont'd)

OBJECTIVE:

The objective of BMC's participation in this project is to assist the study director in the preparation of socio-economic impact analyses of alternative means to regulate the flammability of children's sleepwear. The options to be considered are:

- 1) maintain status quo.
- 2) maintain current regulations but develop improvements to existing consumer information programs.
- 3) maintain current regulations but develop improvements to existing consumer information program and institute a requirement for a "Degree of Flammability" label.
- 4) implement more stringent requirements on all sleepwear up to size 14X.
- 5) implement more stringent requirements on loose fitting children's sleepwear only.
- 6) relax current regulations but develop improvements to existing consumer information programs and institute a requirement for a "Degree of Flammability" label.

METHODOLOGY:

In order to achieve the above objective, BMC will:

- 1) review existing reports pertaining to this subject, particularly the experience of the United States in implementing stringent requirements.
- 2) develop, in conjunction with yourself, appropriate description of each option (for purposes of this study);
- 3) determine, from existing health system records and other epidemiological sources, the prevalence of sleepwear related burn injuries and deaths and the nature of, and costs of, medical treatment and rehabilitation;

.../3

(Handwritten initials)

EXHIBIT III (Cont'd)

- 4) consult with manufacturers, importers, and retailers of children's sleepwear to develop estimates for:
 - cost of compliance of each option
 - time for implementation of each option
 - employment effects of each option
 - impact on international trade of each option
 - impact on estimated retail price of each option
- 5) consult with consumer's representatives to determine the market impact of each option on:
 - cost of products to consumers (particularly those on low incomes)
 - durability of products
 - restriction of choice among products.
- 6) consult with officials from the Product Safety Branch of Consumer and Corporate Affairs Canada and others to determine the incremental costs of ensuring compliance with each option, compared to costs associated with the existing regulations.
- 7) perform analyses to determine the costs and relative effectiveness of the options in minimizing the incidence of death and injury from burns arising from combustion of children's sleepwear.
- 8) summarize findings and prepare written report for the study director.
- 9) present findings to study director and others.

During the conduct of this assignment, progress reports will be submitted to the study director at the end of the first, fifth, and ninth weeks of its duration. In addition, informal consultations will be arranged on an as-required basis. A detailed workplan will be submitted with the first progress report.

RESOURCES:

Work on this assignment will be undertaken by a team of BMC consultant's under the supervision of Dr. H. Jackman an Assistant Director. Subcontract consultants with appropriate training and experience will be used to complement the skills of the study team.



EXHIBIT III (Cont'd)

BMC's work on this project can be completed by May 31, 1985. It is estimated that professional fees for this project will be no more than \$54,000. Of this total, \$25,000 will be required in the 1984-85 fiscal year, the balance of the work will be undertaken in 1985-86. BMC operates on a cost recovery basis, charging only for the actual time taken each month in undertaking the assignment. Attachment 2 outlines the estimated time, in days, for each task. If it becomes apparent that this schedule cannot be met and a revised workplan is required, we will inform you, and proceed only with your authorization. Computer and travel will be billed separately in accordance with the Treasury Board Directive.

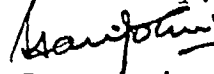
I understand that Dr. Jackman has also discussed with you the possibility of BMC undertaking a socio economic impact analysis of regulations dealing with flammability of tents and related products. We will shortly be submitting a proposal to you dealing with this topic. If both proposals are acceptable to you, there will be tasks that are common to the two assignments. The performance of these tasks will be done in a coordinated manner so that costs of both projects would be minimized.

In accordance with the Access to Information Act, we shall consider you to be the office of greater interest regarding enquiries relating to all records of substantive matters of this assignment. Accordingly, requests of this kind will be referred to you.

If the contents of this letter are acceptable to you, please indicate this by signing the duplicate in the space provided and returning it to us.

We look forward to working with you on this interesting project.

Yours truly,


H.P. Jonri,
Director,
Bureau of Management
Consulting.

APPROVED FOR:

CONSUMER AND CORPORATE AFFAIRS

BY: 

DATE: 14 June 1985.



IV PROFILE

IV PROFILE

At this time, consultations are ongoing with industry and consumer associations to identify solutions and to establish a list of options that the socio-economic impact analysis will focus upon. This section presents working notes on children's sleepwear flammability to give a general idea of the nature of the problem.

DRAFT

Working Notes on
Children's Sleepwear Flammability

Product Safety Branch
January 1984
Updated: November 1984

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DRAFT

Working Notes on
Children's Sleepwear Flammability

I. Introduction:

On November 2, 1971, regulations were promulgated under the Hazardous Products Act setting a standard for the flammability of children's sleepwear sizes 0 to 6X. These regulations were designed to remove from the marketplace those products considered to be hazardously flammable, allowing the sale of those products considered to be of normal flammability. Although, children's sleepwear products are in compliance with the regulations, eighteen to nineteen children under the age of nine are severely burned and one to two children die each year due to burns caused by the ignition of sleepwear.

II. Background:

(a) The Frequency of Injury

Burn injuries have been identified as the second leading cause of death from non-transport accidents for Canadian youths under nineteen years of age.⁵ Statistics Canada reported that 946 Canadian children died as a result of fires from 1977 to 1981. In Table 1, the data from Statistics Canada is presented for that period. It can be seen that 66.9% of the deaths due to fire occurred to children under nine years of age. The work of other researchers^{4,14} indicates that the risk of sustaining a burn injury is greater for children than any other age group. Published data clearly demonstrates that the ignition of clothing causes severe and lethal burns to children^{3,5,6,10,12}.

For each child who dies from a burn injury, hospitalization or some form of medical treatment is required for many more. The Canadian Institute of Child Health (CICH)⁵, who collected statistical data on burns to children found that the average hospital stay for flame burns was 48 days and the estimated annual cost of hospitalization for burn victims under 14 years of age was \$20,000,000. This amount does not cover the costs of plastic surgery or visits to health professionals after the initial hospitalization. The treatment of burn victims represent the most difficult problems from the medical, financial, emotional and psychological perspectives.

TABLE 1
DEATHS DUE TO FIRES

Age/Years	1977	1978	1979	1980	1981	Total
Under 1	12	11	10	17	17	67
1 - 4	78	71	72	78	52	351
5 - 9	37	54	45	46	33	215
10 - 14	16	32	21	29	25	123
15 - 19	43	39	31	43	34	190
Total	186	207	179	213	161	946

Source: Statistics Canada, Catalogue 84-203 Annuals 1977-1981
(E890-E899)

Canadian statistics on the number of deaths and injuries to children caused by the ignition of sleepwear are not readily available from fire authorities. However, Dr. R. Stanwick¹² carried out a comprehensive analysis of clothing burns sustained by Canadian children over a three year period. Data was collected from eleven major university pediatric training centers serving 59% of Canadian children. After prorating the data on a population basis, Dr. Stanwick estimated that 37 children under nine are admitted to hospital annually for burns caused by clothing ignition. The ignition of children's sleepwear accounts for 51% of the reported burn injuries and/or deaths. This means that 18 to 19 children are burned each year and 1 to 2 die as a result of sleepwear ignition. Dr. Stanwick's estimates are very conservative since they do not include children over nine, minor burns treated by emergency units or deaths prior to hospital admission.

Dr. Stanwick analysed the primary factors which influenced the extent and severity of the reported injuries and found that loose and flowing garment styles such as nightdresses, housecoats, robes worn by females was the dominante factor in burn severity. This is consistent with the fact that eight out of the nine reported deaths were females and females sustained twice as many injuries as males. The other significant factor influencing burn severity was the ignition source - matches, lighters or stoves. Similar trends were reported by McLaughlin¹⁰ who investigated burn injuries at the Shriners Burn Institute in Boston. The injuries reported by Dr. Stanwick were equally divided between preschoolers one to four years of age and school age children five to nine years of age.

Seventy-seven cases of burn injuries caused by the ignition of children's sleepwear have been reported to the Product Safety Branch (Appendix 1) from 1971 to October 1984. The incidents reported involved the deaths of seven children and severe third degree burns to forty-five children. A summary of the number of incidents reported each year by age and sex is presented in Table 2. It can be seen that girls sustained more than twice as many burns as boys and that there were a substantial number of burn injuries to children over five years of age. The garments involved and the ignition sources are described in Tables 3 and 4 respectively. It can be seen that nightgowns and pyjamas were cited almost equally as being involved and that stoves, matches and lighters were the principle ignition sources. An analysis of the injuries sustained can be found in Table 5. It is important to note in Table 5 that five of the seven deaths and thirty of the severe third degree burns involved girls. Moreover, nightgowns were involved in four of the seven deaths and twenty-five of the forty-five third degree burns. As has been reported by many researchers^{4,6,12}, girls are particularly vulnerable to severe burn injuries due to the type of garments they wear (nightgowns, dresses, robes) and the type of activities such as cooking that they become involved with.

Table 2
Number of Cases Reported to Product Safety Branch
1971-October 1984

Year	Number of Reports	Sex			Age			
		M	F	U*	0-4	5-10	Over 10	U*
1971	2	1	1		2			
1972	2	1	1		2			
1973	3	1	2		1	1		1
1974	4	1	3		3			1
1975	6	1	5		1	1	1	3
1976	6	1	4	1	2	3	1	
1977	4		4		2	1	1	
1978	6	1	4	1		3		3
1979	3	1	2			2		1
1980	2	1	1		1		1	
1981	11	4	4	3	7	3		1
1982	10	3	6	1	6	1	3	
1983	4	4	0		2	2		
1984	6	3	3		4	2		
1974-1981**	8	1	7		3	5		
Total	77	24	47	6	36	24	7	10

* Unknown

** Burn Unit, Children's Hospital, University of Manitoba

Table 3
Type of Garment Involved in Injuries

Garment	Number	Sex		
		Female	Male	Unknown
Nightgown	36	35	1	0
Pyjamas	32	10	20	2
Sleepers	4	0	2	2
Robe	2	0	2	0
Unknown	4	2	0	2
Total	78*	47	25*	6

* One incident involved both a robe and pyjama.

Table 4
Ignition Source

Ignition Source	Number	Sex		
		Female	Male	Unknown
Stove	19	14	4	1
Matches *	22	14	7	1
Lighter *	13	7	6	0
Open flame	9	6	2	1
Other	5	3	1	1
Unknown	9	3	4	2
Total	77	47	24	6

* Playing with

Table 5
Injuries Reported and Type of Garment Involved

Injury	Number	Unknown	Nightgown		Pyjama		Sleeper		Robe	
			F	M	F	M	F	M	F	M
Death	7	1	4	-	1	-	-	1	-	-
Third degree burn	45	-	24	1	6	12	-	1	-	1
Second degree burn	11	-	5	-	1	4	-	-	-	1
First degree burn	2	1	-	-	-	1	-	-	-	-
No injury	4	2	-	-	-	2	-	-	-	-
Unknown	9	4	2	-	2	1	-	-	-	-
Total	78*	8	35	1	10	20	-	2	-	2

* One incident involved both a robe and pyjamas.

(b) Legislation in Other Countries

In the mid 70's, the United States implemented flammability regulations requiring that all sleepwear be constructed from either inherently flame resistant fibres, or fabrics treated with flame retardant chemicals. The standards covered all sleepwear up to and including size 14. The mandating of these regulations resulted in controversy due to possible toxicity of flame retardant chemicals², possible environmental pollution from high phosphate detergents required to launder flame retardant fabrics, reduced durability and ease of care properties^{8,9} of flame retardant fabrics and cost increases of 25%^{8,11}. These concerns were subsequently reinforced when Tris*, the most commonly used flame retardant chemical was identified as a carcinogen. This product was banned in the United States and the stringency of the sleepwear flammability regulation was reduced in 1978. The residual flame spread time requirement was removed since experience with the standard indicated that the melt drip phenomena was not a major hazard. As a result, polyester and nylon fabrics, free of flame retardant chemicals, now comply with the reduced requirements.

Officials of the Consumer Product Safety Commission (CPSC) indicated that children's sleepwear increased 25% in price immediately following regulation. Moreover, cotton products which accounted for 90% of the market prior to regulation are no longer available. Children's sleepwear, at the present time in the U.S., is manufactured from synthetic fibres such as polyester, nylon, modacrylics and cordelan. Since the implementation of the stringent standard, a significant reduction in the severity and incidence of sleepwear related burns in children has been reported^{1,2,7}.

In the United Kingdom, flammability standards for nightdresses were specified in the Nightdresses (Safety) Regulations promulgated under the Consumer Protection Act, in 1967. These regulations specify that nightdresses, for children under 13 years, must be made from fabrics of low flammability. Whereas, adult nightdresses must be made from fabrics of low flammability or labelled with respect to their flammability characteristics. The legislation has been estimated to have reduced fatal burns to children by 50%¹³. These regulations are under revision to incorporate reference to newer flammability standards and to include dressing gowns and possibly pyjamas.

The mandatory Australian Children's Nightwear Standards are based on the concept of the potential fire hazard of a product. Fire hazard is dependent upon fabric combustion characteristics, garment design, and environmental conditions (exposure to ignition sources). The Australian standards include a determination of ignition time, a vertical burn test, a measurement of surface burning properties, safe design requirements and a classification scheme dependent upon the combustion characteristics and design criteria⁹.

* Tris (2,3 dibromopropyl) phosphate

The classification system divides children's sleepwear into three categories of potential fire hazard. The garments must then be labelled in accordance with the fire hazard they present.

1) Low Fire Hazard Garment - Made from fabrics which satisfy the following flammability requirements; ignition time greater than 6 sec., burn time greater than 18 sec., and surface burn time greater than 10 sec.

2) Styled to Reduce Fire Hazard - Made to conform to design criteria which ensure that clothing is close fitting. Fabrics must exhibit a surface burning time greater than 10 sec.

3) Keep Away From Fire - Made from any fabric which has a surface burn time in excess of 10 sec. Fabrics composed of 50% of cellulosic or acetate fibres must have a mass of 130 g/m² or greater.

The design criteria established for category two garments recognize the fact that there is reduced ignition potential and trauma associated with close fitting garments. Moreover, the minimum combustion criteria of categories two and three do not require the use of inherently fire resistant materials or flame retardant finishes. Comprehensive, statistics are not available to evaluate the effectiveness of the program^{9,15}. This mandatory standard which includes labelling, design parameters and flammability performance requirements is very complex and is based on the range of sleepwear available on the Australian marketplace.

Norway recently adopted flammability regulations for Children's Sleepwear that are exactly the same as the Canadian Children's Sleepwear Regulation. A provision, however, was added that prevents the use of flame retardant chemicals on these products. The other Scandanavian countries are also considering adopting a regulation similar to that of Canada.

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Appendix 1

PRODUCT SAFETY BRANCH
 Children's Sleepwear Reports of Burn Injuries
 Period: 1971-1973

PRODUCT		VICTIM		INCIDENT	
DATE		AGE	SEX **	DETAILS	INJURY
Aug. 71	Nightgown - Cotton Flannelette	4	F	Playing with matches	30% of body burned
Aug. 71	Cotton/rayon knit pyjamas	2	M	Unknown	18% of body burned
Jan. 72	Pyjamas - Flannelette	3	F	Playing with cigarette lighter	1st - 3rd degree burns to 35% of body, plastic surgery for 7 yrs
Feb. 72	Pyjamas	4½	M	Playing with table cigarette lighter	2nd, 3rd degree burns to upper part of body
Feb. 73	Cotton Flannelette Nightgown	5	F	Standing on chair near stove - ignited on stove element	1st, 2nd degree burns to thigh and leg
Aug. 73	Cotton Nightgown	U*	F	Playing with matches	15% of body burned not severe
Oct. 73	Pyjamas	2½	M	Unknown	1st, 2nd degree burns to leg

* (U = unknown) Described as child, age not specified

** F = female, M = Male

Period: 1974-1975

DATE	PRODUCT	VICTIM		INCIDENT	
		AGE	SEX	DETAILS	INJURY
Jan. 74	Nightgown - Polyester	4	F	Unknown	Severe burns 3rd degree - 40% of body
Aug. 74	Cotton Summer Pyjamas	3	M	Unknown	3rd degree to 40% of body
Sept. 74	Nightgown	U	F	Hem touched electric heater	2nd, 3rd degree burns
Nov. 74	Cotton Flannelette Nightgown	3	F	Caught fire while playing with matches	<u>Death</u> - 80% of body burned
Jan. 75	Cotton Baby Doll	4	F	Child standing on garbage container near stove. Garment ignited on stove element	2nd, 3rd degree burns
May 75	Cotton Flannelette Pyjamas	12	F	Cooking breakfast Pyjamas caught fire	2nd, 3rd degree burns to 15% of body
May 75	Cotton Pyjamas	U	F	Playing with matches	<u>Death</u>
May 75	Cotton Nightgown	5	F	Playing with matches	<u>Death</u>
Nov. 75	Cotton Flannelette Pyjamas and robe	U	M	Turning off oven light. Stove element ignited garment	3rd degree burns to hand, leg and back
Nov. 75	Cotton Flannelette Nightgown	U	F	Unknown	3rd degree burns

Period: 1976-1977

DATE	PRODUCT	VICTIM		INCIDENT	
		AGE	SEX	DETAILS	INJURY
Feb. 76	Cotton flannelette nightgown	2	F	Playing with matches	2nd, 3rd degree burns to 30-40% of body
Feb. 76	80/20 cotton/nylon sleeper	In-fant	U	Stove Element	Slight Burns
April 76	Cotton flannelette polo pyjamas	7	M	Leaned over lit candle and garment ignited	3rd degree burns, waist up
Mar 76	Cotton flannelette pyjamas	16	F	Stove element	Severe burns to back and arms
Jul 76	Nightgown	10	F	Open flame	2nd degree to 30% of body
Nov. 76	Nightgown	8	F	Playing with cigarette lighter	2nd, 3rd degree
Jan. 77	Cotton nightgown	11	F	Child cooking. Stove element ignited hem of garment.	2nd and 3rd degree burns - leg and arm
Jan. 77	Nightgown	5	F	Burning paper ignited by match fell on garment and ignited	1st-3rd degree burns
1977	Night clothes - Cotton	4	F	Night clothes ignited by stove	<u>Death</u>
1977	Night clothes - Cotton	2	F	Night clothes ignited by stove	Unspecified burn injuries to child and mother

Period: 1978-1979

DATE	PRODUCT	VICTIM		INCIDENT	
		AGE	SEX	DETAILS	INJURY
Jan. 78	Nightgown cotton	U	F	Unknown	Unknown
Feb. 78	Cotton pyjamas	5	F	Child lit match Ignited pyjamas	Unknown
April 78	Pyjamas 67/33 nylon/cotton	8	M	Sparks from cap gun	No injury
April 78	Sleepsuit 50/50 cotton/P.E.	U		Unknown	Unknown
Aug. 78	Cotton nightgown	U	F	Young girl standing 8' from lit naptha torch. Garment ignited.	2nd degree
July 78	Cotton nightgown	10	F	Sparks from fireplace. ignited nightgown	Child hospitalized
May 79	Pyjamas cotton	6	F	Turning off stove pyjamas ignited by stove element	3rd degree burns on part of body
Jan. 79	Cotton nightgown (6x)	5	F	Child's nightgown came in contact with flame from fireplace	2nd degree - 20% of body
Jan. 79	Flannelette Pyjamas	U	M	Surface flash up sleeve	No injury Hair singed

Period: 1980-1981

DATE	PRODUCT	VICTIM		INCIDENT	
		AGE	SEX	DETAILS	INJURY
Mar 80	Cotton pyjamas	4	M	Brushed against stove element. Top caught fire	1st, 2nd degree burns
Oct. 80	Pyjamas	13	F	Nail polish remover on garment	Unspecified
Dec. 81	100% cotton pyjamas (S12E 6)	U	M	Spark from fire ignited garment. Parents able to extinguish.	Slightly burned
Feb. 81	Sleeper pyjamas 80/20 cotton/nylon	7	U	Surface flash	No injury
Mar 81	Nightgown	2	F	Reaching over stove - Gas flame	Death 3rd degree burns to 75% of body
May 81	Pyjamas (80% cotton/20% nylon)	7	U	Playing with sparklers. Fabric surface flashed.	No injury
Jul-Dec 81	Pyjamas	3	M	Playing with matches	2nd and 3rd degree burns to 50% of body
	100% cotton flannelette nightgown	5	F	Cigarette lighter ignited nightgown	2nd and 3rd degree to 8-10% of body
	Cotton nightgown	1½	F	Caught fire on stove	2nd and 3rd degree to 20% of body
June 81	Cotton housecoat	2½	M	Playing with matches	2nd degree burns
Dec. 81	Pyjamas cotton	4	M	Playing with lighter	1st and 2nd degree burns to upper legs

Period: 1982-1983

DATE	PRODUCT	VICTIM		INCIDENT	
		AGE	SEX	DETAILS	INJURY
Sept. 82	Flannelette nightgown	4	F	Climbed on gas stove turning on burner	3rd degree burns to 70% of body, <u>Death</u>
Oct. 82	Nightgown	4	F	Child sitting on counter beside stove watching mother cook. Nightgown ignited by element.	Serious injury
Dec. 82	50/50 (Polyester/cotton). Knit nightgown	5	F	Child climbed up beside stove. Nightgown was ignited by element	45% of body burned
1982	Pyjamas	1	M	Pyjamas ignited by sister playing with lighter	Unspecified burns
1982	Nightgown - Cotton	11	F	Child near gas dryer which malfunctioned	Unspecified burns
June 83	Fleece (acrylic/polyester sleeper) Terry (cotton/polyester) sleeper	1½	M	Climbed on stove, turned on elements	2nd degree burns to 90% of body, <u>Death</u>
April 83	Pyjamas (sleeper)	3	M	Victim playing with lighter, pyjamas ignited. Father extinguished flame.	Severely burned legs and stomach
Nov. 83	Pyjamas	5	M	Sister ignited pyjama with cigarette lighter. Travelled up pant leg.	1st, 2nd, 3rd degree burns to 30% of body
Nov. 83	Pyjamas - Cotton	6	M	Playing with lighter	1st and 2nd degree burns to abdomen and genitals.

1984

DATE	PRODUCT	VICTIM		INCIDENT	
		AGE	SEX	DETAILS	INJURY
Jan. 84	Nightgown (100% cotton)	7	F	Lighter or match	2nd and 3rd degree burns
April 84	Nightgown	3	F	Ignited while playing with lighter	3rd degree 60% of body
July 84	Nightgown (100% cotton)	8	F	Climbing on kitchen counter reached over stove element and nightgown ignited	2nd and 3rd degree burns to back and legs
Jan. 80- June 84	i) Pyjamas	2	M	Playing with matches	2nd and 3rd degree burn to chest, arms, neck, face Hospitalized 44 days
	ii) Pyjamas	4	M	Playing with matches	2nd and 3rd degree burns to left leg Hospitalized 47 days
	iii) Pyjamas	2½	M	Playing with matches	3rd degree burns to chest and arm Hospitalized 25 days

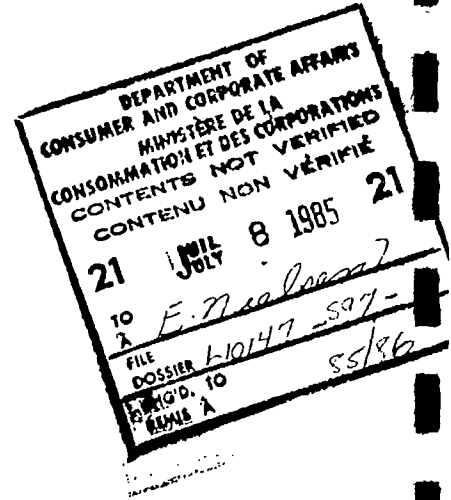
Reports from Canadian Accident Reporting and Evaluation (CAIRE)

DATE	PRODUCT	VICTIM		INCIDENT	
		AGE	SEX	DETAILS	INJURY
June 82	Night clothes Nightgown	4	F	Ignited cigarette lighter	Burns 70-79% of body, 154 days in hospital 3rd degree
Nov. 82	Night clothes Pyjamas	4	M	Stood on chair to watch mother cook	Burns 50-59% of body, 59 days in hospital 3rd degree
Mar 82	Night clothes Nightgown	11	F	Ignited by matches or cigarette lighter *	Burns 30-39% of body, 73 days in hospital 3rd, 2nd, 1st
April 82	Night clothes	12	-	Ignited by controlled fire (either furnace, fireplace, stove) *	First degree burn
Nov. 81	Night clothes Pyjamas	3	F	Playing with matches	2nd degree burns
Nov. 81	Night clothes	4	M	Ignited by matches or cigarette lighter *	Unspecified

* Exact source not specified, it could be either of those indicated.

Children's Hospital Burn Unit
 University of Manitoba
Jan. 1, 1974 to April 1, 1981

PRODUCT	VICTIM		INCIDENT	
	AGE	SEX	DETAILS	INJURY
Nightgown	4.5	F	Playing with matches	22% - 2nd and 3rd degree burns. Hospitalized five months
Nightgown	6.5	F	Leaned over a lit candle. Nightgown caught fire.	8% - 2nd and 3rd degree burns to upper arms. Hospitalized two months.
Nightgown flanelette	7	F	Warming herself over electric heater. Nightgown caught fire.	30% - 2nd and 3rd degree burns. Hospitalized 2½ months. Five repeat visits. (4½ months)
Pyjamas	7	M	Playing with matches	35% - 2nd and 3rd degree burns. Hospitalized six months.
Nightgown	5.5	F	Playing with matches	32% - 2nd and 3rd degree burns. Hospitalized six months.
Nightgown	3.5	F	Playing with matches	10% - 2nd and 3rd degree burns. Hospitalized one month.
Nightgown	9	F	Playing with candle set. Tried to light candle. Nightgown ignited.	37% - 2nd and 3rd degree burns. Hospitalized 4½ months.
Pyjamas	4	F	Playing with lighter.	10% - 2nd and 3rd degree burns. Hospitalized 1½ months.



IDENTIFIABLE FLAMMABILITY PROPERTIES

1. Ease of Ignition
2. Rate of Flame Spread
3. Extent of Flame Spread
4. Amount of Smoke Evolved
5. Rate of Smoke Evolution
6. Total Heat Output
7. Rate of Heat Release
8. Toxicity of Combustion Gases
9. Ease of Extinguishment

Requirements for an Ideal Test Method

1. It must measure the hazard being evaluated.
2. Results must be:
 - a) repeatable (within laboratory)
 - b) reproducible (between laboratories)
3. Graduated results preferred.
4. Test should be relatively simple and equipment not unduly expensive to buy or operate.
5. Size and number of specimens should be reasonable.
6. Test should be capable of evaluating all materials for which it is intended.

Option 1 All sleepwear made from fabrics that will not ignite or spread flame when exposed to a standard ignition source in a standard test method.
(NO IGNITION)

Option 2 All sleepwear to be made from fabrics that have flame spread rates less than X mm/sec when tested by some test.
(IGNITION BUT SLOW FLAME SPREAD)

Option 3 Extension of present requirements to size 14.

Option 4 No regulatory change but employ educational program.

Option 5-7 Combinations of the above taking into consideration the importance that design plays in reducing ignition and rate of flame spread.

e.g.

Option 5 (Option 4 for pyjamas and Option 2 for nightgowns)

Option 6 (Option 4 for pyjamas and Option 1 for nightgowns)

Option 7 (Option 2 for pyjamas and Option 1 for nightgowns)

NON IGNITION - NON BURNING TESTS

Test	U.S. Sleepwear	NFPA 701 Small Scale	CGSB 27.1	Semi Restrained ASTM 3659	ISO 6940
Sample Size (mm)	89 x 254	70 x 254	50 x 315	152 x 381	80 x 200 (or 80 x 80)
Conditioning	Oven Dry	Oven Dry	None	Oven Dry or Conditioned	Open
Specimen Orientation	Vertical	Vertical	Vertical	Vertical	Vertical
Ignition Point	Edge	Edge	Edge	Edge	Surface on Edge
Burner Gas	Methane	?	?	Methane	Butane or Propane
Type	Diffuse	Diffuse	Diffuse	Diffuse	Mixed
Other Height	Special 40	Bunsen 40	Bunsen 40	Fan Type 40	Stabilised 40
Ignition Time	3	12	12	3	Determined
Sample Retainer	Metal Frame	Metal Frame	None	Retaining Chain Hooks	Pins
Parameter	Char Length Residual Flame Time	Char Length Afterflame Time Afterglow	Char Length Afterflame Time Afterglow	Burn Time Destroyed Area Wt. loss	Ignition Time
Criteria	CL ≤ 178 RFT ≤ 10	CL ≤ 114-165 AFT ≤ 2	CL ≤ 90 AFT ≤ 2	CL ≤ 305 Wt Loss ≤ 20% Melt Drip ≤ 5	Open

RATE OF BURNING TESTS

Test	MV 302 Dept. of Transport	ASTM D-1230 45° Test	CGSB 27.3	ISO 6941
Sample Size (mm)	102 x 355	50 x 152	50 x 760	170 x 560
Conditioning Specimen Orientation	21°C 50% RH Horizontal	Oven Dry 45°	Oven Dry Vertical	Open Vertical
Ignition Point	Edge	Edge	Edge	Edge or Surface
Burner Gas	Natural	Butane	?	Butane or Propane
Type Other Height(mm)	Diffuse Bunsen 40	Diffuse Needle 16	Diffuse Micro 15	Mixed Stabilized 40
Ignition Time (s)	15	1	Until Ignition	5 or 15
Sample Retainer	Metal Frame	Metal Frame	None	Plns
Criteria	BR < 4"/min BR < 102 mm/min	FS > 7s	Open	Open

Information Relating To:

Heat Transfer from Burning Fabrics

Provided by Canada in Response to
Resolution 20/82 of ISO/TC 38/SC 19/WG2 N12/3

Document prepared by Dr. M. Day
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17th September 1982

Although the request was for papers relating to test methods, two references [1,2] which relate to the medical aspects of skin damage resulting from thermal exposure caused by burning textiles have been included, because of their relevance to subsequent discussions.

Holmes has already submitted one document for discussion (namely TC 38/SC 19/WG2 N112), however, an earlier paper [3] describing research work carried out for the U.K. Home Office may be relevant.

With respect to the submission of Krasny, I assume he will have forwarded papers relating to the development of the Mushroom Apparel Flammability Tester (MAFT) [4-7] along with a copy of the draft proposal recommended to the Consumer Product Safety Commission [8]. It should be pointed out, however, that despite its use in numerous investigations [eg. 9 and 10], several drawbacks and limitations to the method have been raised [11-15]. Because of these objections or despite them, the National Bureau of Standards developed another technique known as the Apparel Fire Modeling Apparatus (AFMA) [16] which has been compared with the MAFT [17-19].

Prior to the establishment of the MAFT, the results of a comprehensive report on Textile Fabric Flammability was published [20] which, along with data on ignition and flame propagation, provided information on the mode and extent of heat transfer from burning fabrics and garments.

In January 1977 a Co-operative Programme on General Apparel Flammability was undertaken to attempt to correlate laboratory test results with accident simulation results and actual burn injury data [21,22]. This resulted in the development of Thermo-Man, a thermally instrumented mannequin for the prediction of burn injury data from common apparel items and allowing comparisons to be made with simple heat transfer tests [23,24].

Other thermally instrumented mannequins have also been employed to assess the burn injury potential of fabrics and results compared to simple laboratory heat transfer tests [25-29].

Several approaches to the assessment of heat transfer in a General Apparel Fabric Flammability Standard have been undertaken at the University of Maryland [30-34] including comparisons of the MAFT test with other test methods [35,36].

Other equipment used to monitor heat emission from burning fabrics include that developed by Miller [37] which gives a Potential Harm Ranking for materials [38], while the method of Pohl [39] provides effective heat values, and that of Umbach [40] has been used to evaluate the heat transmission from burning fabric impregnated with flammable solvents.

In addition to the above performance tests, there are several techniques which have been utilised in research studies such as the isoperibol calorimeter [41-44] and oxygen consumption measurements [45,46].

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V ANNEXES

Annex A: Statement of work: SEIA Children's Sleepwear

Annex B: Content of the socio-economic impact analysis

Annex C: Stanwicks, R.S. "Clothing Burns in Canadian
Children" Canadian Medical Association Journal,
Vol. 132, May 1985, pp. 1143-1149

Annex D: Notes: Advisory Committee on Children's Sleepwear

Annex E: Comments Received: Advisory Committee on
Children's Sleepwear

Annex F: Dardis R. "The role of cost and benefit analysis
The selection of Consumer Product Safety Programs

Annex A

Statement of work: SEIA Children's Sleepwear

Program Evaluation

Social Economic Impact Analysis

Statement of Work: SEIA Children's Sleepwear

1. Background

On November 2, 1971, regulations were promulgated under the Hazardous Products Act setting flammability standards for children's sleepwear, sizes 0 to 6x. Although children's sleepwear products are in compliance with the Canadian regulations, Dr. R. Stanwick of the University of Manitoba, in 1982, showed that 18 to 20 children under the age of nine are severely burned and one to two die each year due to the ignition of sleepwear. Garment style (eg. loose and flowing nightgowns) and the ignition source (stove, match, lighters) were the predominant factors influencing burn severity (for more information see Appendix A).

In July 1984, the Canadian Institute of Child Health recommended that fabrics to be used in children's sleepwear, to size 14x, pass a more stringent flame test than the current Canadian test, such that fabrics will not support combustion and will tend to self-extinguish. The recommendation was based on discussions of a Working Group comprised of Canadian Apparel Manufacturers, Canadian Textile Manufacturers, fire authorities, the Canadian Pediatric Society, the Consumer Association of Canada and the Product Safety Branch, CCAC. A committee was then formed by CCAC to examine the technical and economic aspects of such a course of action. It is necessary, therefore, to determine and assess the social and economic impact of more stringent regulations on consumers, manufacturers and retailers.

2. Objectives

The overall objective of this work is to assist the study director in the preparation of a SEIA for children's sleepwear by reviewing and assessing the potential impact on the children's sleepwear industry and market of flammability requirements, similar in

stringency to the United States' "Standard for the Flammability of Children's Sleepwear", for children's sleepwear up to size 14x. A comparison of the impact of such a requirement applicable to all children's sleepwear products (nightgowns, nightshirts, pyjamas, sleepers, dressing gowns, robes) or applicable to just loose fitting designs (nightgowns, nightshirts, dressing gowns and robes) will be made.

In particular, this study will produce information in the following areas.

- 2.1 To determine the background of the product and the industry.
- 2.2 To review and assess the risk to Canadian children of flammable sleepwear products.
- 2.3 The following solutions to address the problem will be evaluated in terms of 2.4 - 2.9.
 - 2.3.1 Maintain status quo.
 - 2.3.2 Stringent regulations for all children's sleepwear products, sizes 0 to 14x.
 - 2.3.3 Stringent regulations for children's sleepwear products, sizes 0 to 14x, of a loose fitting design (ie. nightgowns, nightshirts, robes and dressing gowns).
- 2.4 To determine the impact of more stringent regulations on the sleepwear industry in terms of:
 - 2.4.1 The structure of the industry;
 - 2.4.2 Existing production methods and facilities;
 - 2.4.3 The availability and source of fibres and fabrics meeting increased requirements; and
 - 2.4.4 Annual production and sales in the domestic and foreign markets (ie. potential for exports to U.S.).
- 2.5 To estimate the overall change in cost to industry to meet more stringent flammability regulations in terms of:
 - 2.5.1 Capital costs to alter existing production facilities;

- 2.5.2 Processing costs;
 - 2.5.3 Cost of fibres and fabric; and
 - 2.5.4 Cost of testing to ensure compliance with regulations.
- 2.6 To estimate the overall impact on the market and consumers in terms of the following:
 - 2.6.1 The proportion of the market affected by more stringent regulations;
 - 2.6.2 The cost of sleepwear products to the consumer with emphasis on impact to low income groups;
 - 2.6.3 The domestic versus foreign share of the Canadian sleepwear market;
 - 2.6.4 The durability of products; and
 - 2.6.5 Types of fabrics and fibres that would be removed from children's sleepwear products (restriction of choice).
 - 2.7 To estimate the cost of enforcement.
 - 2.8 To assess the tangible and intangible benefits (including reduction in deaths and injuries and reduction in burn costs, rehabilitation costs and emotional costs) and costs of more stringent regulations for the three options outlined in 2.3. In addition, to undertake a cost benefit or a cost effectiveness analysis given the nature and the quality of collected information.
 - 2.9 To examine the time factors involved for manufacturers and retailers to implement regulations.
 - 2.10 To examine other significant information or alternative proposals that may arise during the study.
3. Scope of tasks
 - 3.1 Review all the relevant documents related to the subject in particular:
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- Stanwick R.S. "Flammability of Children's Sleepwear in Canada", Presentation at 59th annual meeting of Canadian Pediatric Society, June 26, 1982, London, Ontario.

and all other relevant documentation.

- 3.2 Prepare interview guides adapted to each group or individual to be interviewed in order to obtain relevant information on the aspects described in section 2 of this statement and in order to meet the guidelines for the Social Economic Impact Analysis as described in Appendix B.

A meeting will be held to discuss the interview guides before any interviews take place, and again after 4 interviews have been completed. The interview guides will be submitted to the study director.

- 3.3 Prepare a letter to each interviewer to explain the objective of the work and to serve as an introduction. The letter will be submitted with the relevant interview guide.
- 3.4 Prepare a planning report as required by the Federal Department/Agency Relations of Statistics Canada in order to obtain Statistics Canada approvals. The planning report will be submitted to the study director and discussed with the study director before any contact is established with these authorities. (See Section 9 of this statement of work).
- 3.5 There will be interviews with the following groups carried out in two phases:
 - 3.5.1 Representatives of programs staff.
 - 3.5.2 Experts in the field.
 - 3.5.3 Representatives of Canadian fibre, fabric and garment manufacturers involved in the production of children's sleepwear

products. A good representaiton of the three types of manufacturers (boy's, girl's, infant's products) will be required.

- 3.5.4 Representatives of retailers.
- 3.5.5 Representatives of major children's sleepwear importers.
- 3.5.6 Representatives of Canadian consumer organizations.
- 3.5.7 Representatives of trade and other organizations including the Textile and Clothing Board, the Canadian Textile Institute, the Children's Apparel Manufacturers Association, etc.
- 3.5.8 Representatives of United States.

About 50 interviews will be undertaken. A complete list of the potential interviews will be provided for the contractor when the contract will be awarded.

The study director or staff are to receive the list of the proposed interviews and the interview schedule and may accompany the consultant as an observer to any or all interviews.

- 3.6 The first phase of interviews will be used as the basis for the preliminary report described in paragraph 3.7. The second phase of interviews will be used as the base of the draft final report described in paragraph 3.8.
- 3.7 Prepare a preliminary report covering the areas in paragraph 2.1 to 2.4. This report will be submitted to the study director. (This report will ultimately become "several chapters" of the final report).
- 3.8 Prepare a draft final report. The structure of the report should follow the same structure as the one described in the administrative policy manual chapter 490 socio-economic impact analysis point 3.3. (see Appendix B). The draft final report will be submitted to the study director.

- 3.9 Present final report to the study director.
- 3.10 The working papers, notes on interviews, etc. will be submitted with the final report suitably bound and under separate cover.

4. Constraints

- 4.1 The contractor will work on a tight schedule because the module must be completed within 18 weeks.
- 4.2 The nature of the work requires that the contractor be capable of providing the services in both official languages as required.

5. Availability of Relevant Documents

- 5.1 In order for the contractor to collect the basic information required to perform the work, he will have access to any relevant documents already in the hands of the study director.

6. Presentation

- 6.1 Reports must be presented in both written and oral form. Written reports are to be typed doubled-spaced on standard size 215 mm x 280 mm paper in the usual manner.
- 6.2 Ten (10) copies of each report will be provided.

7. Time Schedule

- 7.1 This contract will be executed over an 18 week period. All presentations will take place at CCAC offices in Ottawa. Reports will be due and meetings scheduled as follows:
- i) Orientation meeting will be held with the contractor in week 1 for the purpose of discussing this statement of work and the contractor's proposal.
 - ii) Submit the planning report as requested by Statistics Canada to the study director in week 3 and meeting in week 4 to discuss:
 - the interview guides;
 - the introductory letters;

- the content of the planning report. First payment of up to \$5,000 in week 3.

- iii) Obtain Statistics Canada approval for the planning report, plan the interviews and do the pre-test interviews in week 5. Second payment of up to \$5,000 in week 6.
- iv) Submit the preliminary report in week 9 and meeting in week 10 to discuss this report. Third payment of up to \$10,000.
- v) Submit the draft final report in week 15 and meeting in week 16 to discuss the contents of that report. Fourth interim payment of up to \$15,000 in week 12.
- vi) Submit the final report in week 18 and meeting to discuss the report. Final payment of up to \$5,000. in week 18.

7.2 Written reports are to be received on Wednesday the due week with follow-up and other meetings on Thursday of the next week. Required revisions of written reports are to be submitted by the Thursday of the week following initial discussion of the report.

8. Progress Report Requirements

8.1 The submission and presentation of timely reports as described above in proper written form will constitute the progress report requirements.

9. Approval

9.1 Under Part IV of the Canadian Human Rights Act and Protection of Personal Information Regulations, any plans to conduct a survey of statistical or business information must be reviewed by the Federal Department/Agency Relations of Statistics Canada before any fieldwork can start.

9.2 Attending meetings, providing all necessary documentation and making required presentations in order to obtain Statistics Canada approvals will be required of the contractor. The Study director has ultimate responsibility for obtaining these approvals. All meetings between the contractor and these authorities will be attended by the study director or his staff.

- 9.3 The timetable set for the questionnaire provides 5 weeks to develop the questionnaire instruments, including obtaining all necessary approvals. Any delays related to development of the questionnaire instrument, which are totally beyond the control of the contractor and for which the contractor cannot make provision will serve to defer the deadlines for the subsequent tasks.

10. Proposals

- 10.1 Proposals must contain a chart similar to that below (Annex A) which shows the expected timing of each activity.
- 10.2 Proposals must state clearly the names of the people to be assembled for the team for this contract; how responsibilities will be divided among the team (including who will write the interim and final report, and who will attend the planned survey and planned meetings with CCA); qualifications and experience of the members of the team.
- 10.3 The principle author(s) of the proposal and other contributors must be clearly set out.
- 10.4 The consultant is required to provide 6 copies of the proposal.

11. Financial Limitation

- 11.1 A fixed price contract of up to \$40,000 will be awarded to the contractor who demonstrates the potential for providing the best value for the funds to be expended. The fixed-cost will be the total paid under the contract and must include all professional fees, travel expenses, support and copying costs, telephones, and all other costs. At least 10% of the contract amount will not be payable until a satisfactory and timely final report has been presented.
- 11.2 The contractor will receive a first interim payment of up to \$5,000., a second interim payment of up to \$5,000., a third interim payment of up to \$10,000 and a fourth interim payment of up to \$15,000.
- 11.3 The final payment of up to \$5,000. will be made upon timely receipt of a satisfactory final report.

11.4 The information and analysis to be produced under this contract must be finished in the timeframe presented earlier. Liquidated damages of \$500 per day (up to a maximum of \$5,000) will be imposed for delayed receipt of the interim and final reports.

PROJECT SCHEDULE

<p align="center"><u>Week 1</u></p> <ul style="list-style-type: none"> - Orientation meeting 	<p align="center"><u>Week 2</u></p>	<p align="center"><u>Week 3</u></p> <ul style="list-style-type: none"> - Submit the planning report - First payment of up to \$5,000.00
<p align="center"><u>Week 4</u></p> <ul style="list-style-type: none"> - Meeting to discuss the planning report - Obtain approval from the study director and Statistics Canada 	<p align="center"><u>Week 5</u></p> <ul style="list-style-type: none"> - Obtain approval from Statistics Canada - Planned the interviews - Conduct pre-test interviews 	<p align="center"><u>Week 6</u></p> <ul style="list-style-type: none"> - Second payment of up to \$5,000.00
<p align="center"><u>Week 7</u></p>	<p align="center"><u>Week 8</u></p>	<p align="center"><u>Week 9</u></p> <ul style="list-style-type: none"> - Submit the preliminary report - Third payment of up to \$10,000.00
<p align="center"><u>Week 10</u></p> <ul style="list-style-type: none"> - Meeting to discuss the preliminary report 	<p align="center"><u>Week 11</u></p>	<p align="center"><u>Week 12</u></p>
<p align="center"><u>Week 13</u></p>	<p align="center"><u>Week 14</u></p>	<p align="center"><u>Week 15</u></p> <ul style="list-style-type: none"> - Submit the draft final report - Fourth payment of up to \$15,000.00
<p align="center"><u>Week 16</u></p> <ul style="list-style-type: none"> - Meeting to discuss the draft final report 	<p align="center"><u>Week 17</u></p>	<p align="center"><u>Week 18</u></p> <ul style="list-style-type: none"> - Submit the final report - Final payment of up to \$5,000.00

Note: Written reports are to be received on Wednesday of the due week with the follow-up meeting on Thursday of the next week. The orientation meeting will be held on Monday or Tuesday of Week 1.

Annex B

Content of the socio-economic impact analysis

Content of the SEIA

The departments and agencies shall ensure that each SEIA provides the following information presented in the order given:

- (a) Background information on the proposed regulation: a description of the proposed regulation including its terms and legal authority; its purpose and objectives; brief outline of how the concern arose; the nature and role of consultations which took place in the development of the proposed regulation; and why an SEIA was performed.
- (b) Potential allocative effects:
 - identification of the methodology used to carry out the analysis and of the time horizon used in the analysis;
 - section on costs: identification and estimation of all costs associated with compliance with the proposed regulation including all assumptions made; identification of data sources used in estimates; the discounted present value(s) of the total costs including identification of the real rate(s) of discount used; outline of any sensitivity analysis performed; tables, graphs etc. as appropriate;
 - section on benefits: same information as for costs; when cost-effectiveness methodology is used, a brief explanation of why estimates were or were not discounted;
 - cost-benefit or cost-effectiveness comparisons: net present values, benefit-cost or cost-effectiveness ratios for all cases, i.e. including different assumptions used in performing sensitivity analyses or when different sets of data are available, etc.;
 - section on alternatives: identification of all technological and policy-instrument alternatives considered and discussion of feasibility of each alternative, including the status-quo alternative; for each feasible alternative, costs and benefits should be identified, estimated and compared as is appropriate.
- (c) Analysis of the non-allocative effects: a discussion of the potential impact of the proposed regulation on

the distribution of income, market structure and competition, technological progress, international competitiveness, output, employment, the balance of payments, inflation, etc.; details of the size and/or direction of such impacts which are significant.

- (d) Summary and conclusions including the reasons for omitting any of the above identified items.
- (e) Identification of the office or person(s) to contact regarding the SEIA.

Annex C

Stanwicks, R.S. "Clothing Burns in Canadian Children"

Canadian Medical Association Journal, Vol. 132, May 1985,

pp. 1143-1149

Clothing burns in Canadian children

Richard S. Stanwick, MD, FRCPC

A Canadian survey of 11 tertiary care pediatric centres with specialized burn facilities revealed that an estimated 37 children up to 9 years of age are admitted annually to such hospitals because of clothing burns. Sleepwear accounts for an estimated 21 such burns per year. Girls were found to suffer the most severe burns and represented eight of the nine children in the series who died. Loose and flowing garments dominated the girls' styles. The results of multiple-regression analysis confirmed that style of clothing (loose and flowing as opposed to snug) was the most significant predictor of burn severity, length of hospital stay, the need for skin grafting and survival. The ignition situation (avoidance of parental supervision at the time of injury) was the only other important predictor. The success of regulatory actions in other countries in reducing the incidence of severe clothing burns is reviewed, and preventive strategies for Canada are explored.

Enquête auprès de 11 services canadiens de soins pédiatriques tertiaires pourvus de moyens spécialisés pour le traitement des brûlures. Quelque 37 enfants de moins de 10 ans y sont hospitalisés chaque année pour des brûlures par des vêtements; dans 21 cas il s'agit de vêtements de nuit. Les brûlures les plus graves, dont huit des neuf cas mortels, se voient chez les filles, dont les vêtements ont ordinairement une coupe dégagée et flottante. Les résultats de l'analyse de la régression multiple confirment qu'un tel style, par opposition à la coupe ajustée, est relié de manière significative à la gravité des brûlures, à la durée d'hospitalisation, au besoin de greffe cutanée et à la survie. Le seul autre facteur important est le fait pour l'enfant de s'être soustrait à la surveillance de ses parents au moment de l'accident. À la lumière des bons résultats obtenus en d'autres pays, par voie de règlements, dans la prévention des brûlures graves par des vêtements, on discute de ce qui pourrait être fait au Canada en ce domaine.

With the exception of vehicular mishaps, fires and burns are the leading causes of death in children 1 to 4 years of age and the second most common cause in those 5 to 14 years of age.¹ In addition, burn victims represent the most difficult problems medically, financially and emotionally.²⁻¹⁶

Reviews of childhood thermal injuries most often report a higher incidence among boys¹⁷⁻³⁰ than among

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girls.^{31,32} Scalds (from hot liquids) are more frequently implicated as the cause^{18,20-23,25-31,33-35} than burns (from flames).^{17,19,32,36} Nevertheless, burn injuries have tended to be more severe than scald injuries.^{17-20,22,25-27,31-33,36,37} Among the most severe burns are those resulting from the ignition of clothing, as reflected by the high mortality rates associated with this type of thermal injury.^{1-8,17-21,25-27,31-33,36-40} The garments responsible for the most severe burns are loose and flowing nightgowns.^{20,32,36} Despite this hazard's being documented elsewhere,^{20,32,36} an advisory committee to Consumer and Corporate Affairs Canada (CCAC) cited the lack of Canadian statistics on clothing burns in children as a major impedance to the introduction of corrective measures.⁴¹

In 1981-82 my colleagues and I performed a study to derive a national annual incidence rate of clothing burns in children admitted to tertiary care pediatric hospitals. In this paper I document the circumstances surrounding the burns, including the type and style of clothing involved, in order to identify potentially modifiable factors in the injurious process. In addition, I examine possible preventive strategies based on the results of our study.

Methods

Using the "Canadian Hospital Directory",⁴² we identified the university-affiliated pediatric training centres that treat childhood burns. We then sent a letter to each centre, requesting information for the last 5 years on the circumstances surrounding each such injury: the age and sex of the child, the time of day and the season, the type of clothing involved (daywear or sleepwear) and its style (snug or loose and flowing), and the "ignition situation" (whether an adult had been present or had been intentionally avoided by the child). We also requested information on the injury: the extent and severity of the burn, the length of initial and subsequent stays in hospital, the need for skin grafting and whether the child recovered.

As in other reviews of clothing burns,⁴³ cases involving major conflagrations, such as car or house fires, as well as those involving clothing that had been contaminated with a flammable substance were excluded.

Initial bivariate statistical analysis was performed with chi-square and *t*-tests.⁴⁴ To more precisely determine the relation between the circumstances surrounding the injury and the severity of the burn, the length of hospital stay and so forth, step-wise multiple-regression analysis was also used.⁴⁴ This technique allowed us to examine the effect of each of the circumstances on a selected outcome variable while we controlled for every other circumstance.⁴⁴ The findings were deemed statistically significant at $p < 0.05$.

Results

Of the 13 university-affiliated pediatric training cen-

tres we identified, 11 (Fig. 1) provided the information requested in the letter, for a response rate of 85%. According to the 1981 Census of Canada⁴⁵ these hospitals are the major referral centres for their respective regions and serve nearly 60% of Canada's children. The most severe burns were therefore likely to be represented in our series. This "selection bias"⁴⁶ was intentional, since our study focused on the most severe injuries, not on the entire spectrum of childhood clothing burns in Canada. However, not all of the children with the most severe clothing burns could be identified; those who died in regional medical centres before being transferred or even before reaching a hospital would not

be included in the medical records forwarded by the participating tertiary care centres.

The annual incidence rate of clothing burns in children up to 9 years of age admitted to tertiary care pediatric centres, derived from the local frequencies and based on the population of the respective catchment areas,⁴⁵ was 1.02/100 000. When this figure was applied to the Canadian population of children in this age group⁴⁵ the estimated annual number of children admitted to tertiary care pediatric centres for treatment of clothing burns is 37. Sleepwear accounts for an estimated 21 clothing burns per year (Fig. 2).

A total of 192 cases of clothing burns were reported by the 11 hospitals. Since some of the hospitals provided reviews that were done over longer periods than others or served larger catchment areas, their experiences with clothing burns are disproportionately depicted in the cumulative data in Fig. 3; the data should be interpreted in light of this bias.

We excluded from our analysis of the type of clothing involved 13 cases for which this information was not in the medical records and 5 cases that had involved blankets. Of the remaining 174 children, more girls than boys (100 v. 74) had suffered clothing burns, and 8 of the 9 children who died were girls. A total of 105 (60%) of the burns involved sleepwear (Fig. 3). Whereas the number of clothing burns involving daywear and sleepwear were evenly distributed among the boys (38 and 36 respectively), there were more than twice as many burns involving sleepwear among the girls (69 v. 31), a statistically significant difference ($\chi^2 = 6.54$, 1 degree of freedom, $p < 0.01$).

When the style of clothing was examined none of the 38 boys had suffered burns associated with loose and flowing daywear, but 4 of the 36 boys whose burns were associated with sleepwear had been wearing loose and flowing nightshirts. Among the girls, snug daywear (slacks, shorts, blouses and T-shirts) was involved in 18 cases, and loose and flowing daywear (dresses) was



Fig. 1—Participating hospitals and the annual frequency of clothing burns in children up to 9 years of age admitted to each.



Fig. 2—Burn from nightgown ignition on 2-year-old girl. She had been helped by her 4-year-old sister onto a gas stove to reach a box of cookies. Her nightie trailed in the flame of the lit back element and ignited. Her father, who had been in the next room, immediately tore the garment off the child and immersed her in cool water. She suffered a 75% third-degree burn despite her father's efforts and died 6 weeks later. A garment identical to the one she had been wearing passed the current Canadian regulatory standard for children's clothing.

involved in only 13. On the other hand, 47 burns involved loose and flowing sleepwear (nightgowns, bath robes and dressing gowns), whereas only 22 involved snug sleepwear (pyjamas) ($\chi^2 = 5.06$, 1 degree of freedom, $p < 0.05$).

The number of burns was evenly distributed between the children aged up to 4 years (83) and those aged 5 to 9 years (91) (Fig. 3). As well, the proportions of burns involving daywear and sleepwear were similar in the two age groups.

We divided the "ignition situations" for all 192

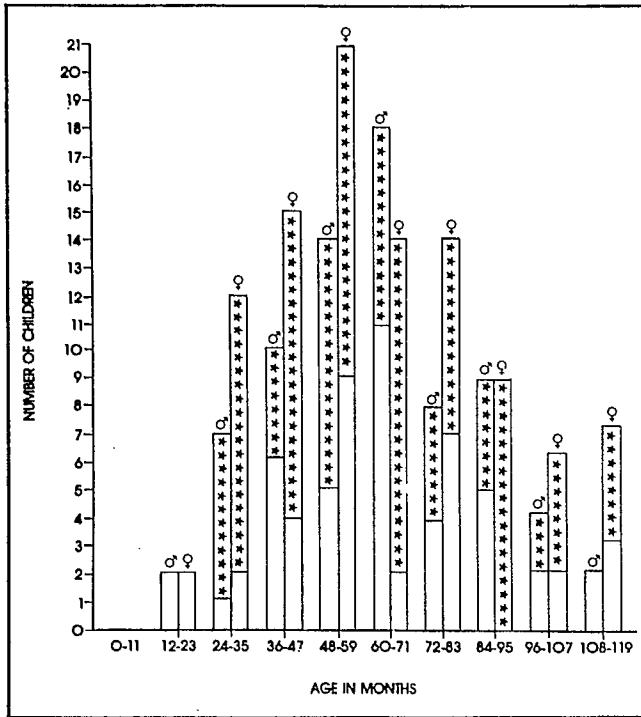


Fig. 3—Frequency distribution of age and sex of 174 children with clothing burns. Blank areas represent those in daywear, stars those in sleepwear at the time of injury.

children into two general groups: (a) those in which the child had likely been supervised by an adult (e.g., at campfires or barbecues or around open fireplaces), and (b) those in which the child had intentionally avoided a parent in order to pursue a perilous activity (e.g., climbing on a stove or playing with matches). There was no significant difference in ignition situation between the boys and the girls: 77% of the boys and 80% of the girls had intentionally avoided parental supervision.

Of the 192 children only 22 did not have a third-degree burn that required skin grafting. Most of the burns covered less than 10% of the total body surface area (TBSA), and full-thickness damage involved less than 5% of the TBSA. However, 10% of the children had third-degree burns involving more than 25% of their TBSA. As expected, these children required the greatest number of grafting procedures and had the longest hospital stays. More than 50% of the 192 children were in hospital for more than 40 days and 20% for more than 100 (extremes, 1 and 273; mean, 55.3) days.

With respect to outcome, bivariate analysis showed that both the style of clothing involved (loose and flowing) and the ignition situation (avoidance of adult supervision) were statistically significantly associated with more severe burns, longer stays in hospital, a larger number of skin grafts and less likelihood of survival. While age was not a predictive factor for any of the measures we used to quantify the magnitude of the injury, the sex of the child (female) and the type of clothing involved (sleepwear) were significantly associated with more extensive and severe burns, as in Fig. 2. However, when we used step-wise multiple-regression analysis, which allowed other influences to be controlled for, the style of clothing involved (loose and flowing) was the most powerful predictor of burn severity ($p < 0.001$) (Table I). The only other significant factor was ignition situation (avoidance of adult supervision) ($p < 0.01$). Similarly, the style of clothing involved (loose and flowing) and the ignition situation (avoidance of adult supervision) were the only signifi-

Table I—Results of step-wise multiple-regression analysis to determine influence of independent variables on factors related to clothing burns

Factor; variable*	Standard β †	r ²	F	p level
Extent and severity of burn				
Style of garment	0.40	0.15	20.31	< 0.001
Ignition situation	0.23	0.06	7.05	< 0.01
Length of hospital stay				
Style of garment	0.53	0.28	41.72	< 0.001
Ignition situation	0.23	0.05	7.99	< 0.01
Need for skin grafting				
Style of garment	0.43	0.17	23.43	< 0.01
Ignition situation	0.22	0.05	6.08	< 0.05
Outcome (death)				
Style of garment	0.24	0.06	6.57	< 0.01
Ignition situation	0.20	0.04	4.67	< 0.05

*Ignition situation was interpreted as whether the child was likely to have been supervised or had intentionally avoided adult supervision at the time of injury.

†Predictors with a standardized β of less than 0.10 — the child's age and sex, the time of day and the season in which the injury occurred, and the type of garment — have been excluded.

cant predictors of length of hospital stay, the need for skin grafting and outcome (Table 1).

Discussion

At least 37 Canadian children every year require admission to a tertiary care centre for treatment of clothing burns, sleepwear being involved in more than half the cases. As has been demonstrated with hot water scalds,⁴⁷ another serious public health hazard in Canada, the lack of a comprehensive and representative system of reporting childhood injuries has allowed the current high frequency and severity of clothing ignitions and other serious problems to go unchecked. In fact, the establishment of a national reporting system for childhood injuries was the first recommendation in the section on accidents in the 1979 report of the Canadian Commission for the International Year of the Child.⁴⁸

As has been shown in this and other studies (and as suspected by CCAC from its compilation of isolated public complaints about clothing ignitions to regional offices⁴⁹), clothing ignition is more frequent among girls than boys,^{17-21,25-27,31-33,36-40,50} and the increased severity of such burns is underscored by the significantly greater number of fatal clothing burns among girls.^{17-21,25,26,31,32,36-40,50} Furthermore, previous studies have suggested that girls are at a greater risk of such injuries because of the loose and flowing style of their clothing.^{17-19,31,32,36,39,50} While our results of multiple-regression analysis confirmed the observation that a loose and flowing style is the most important predictor of burn severity, we also found that boys were just as likely as girls to suffer more significant thermal injuries when wearing such clothing.

Although girls wear loose and flowing garments more often than boys (60 v. 4 did in our study) and therefore have a correspondingly higher proportion of severe burns, regulatory action on apparel style should apply to both girls and boys. Such garments are associated with more severe burns because they are much more likely than snug garments to swing away from the wearer and come in contact with an ignition source, such as an open fireplace or a stove element.^{39,51,52} Their larger surface area also increases the probability of fabric ignition when a child is playing with matches or a lighter. Moreover, once a loose and flowing garment ignites, the ensuing conflagration is much more intense and extensive since flame propagation is enhanced by oxygen on both sides of the fabric.^{39,51,53} Snug garments, however, limit the oxygen supply^{39,53} and, as demonstrated in our study, are thus associated with less severe burns.

As has been observed in girls in other studies,^{20,32,36} we found that loose and flowing sleepwear accounted for more burns than this type of daywear (47 v. 13). That this is more apparent in girls than boys may be related to prevailing fashions and trends.⁴⁰

Although we did not address type of fabric in our study, other authors have found that loose and flowing cotton garments are the most lethal.^{33,51,53-55} Cotton and cotton/synthetic blends are the fabrics most often used in Canada for children's sleepwear.⁴¹ On the basis of this information and anecdotal CCAC reports of burns for which fabric testing was performed,⁴⁹ it appears that

cotton is the fibre most frequently involved in severe clothing burns.

Given the age distribution of the children in our study and that the current Canadian standards for children's clothing apply only up to size 6X,⁴¹ it is apparent that new, more rigorous standards should be established and that they should apply up to size 14X.^{41,56}

In our study and others^{40,53} situations in which children of either sex avoided adult supervision in order to pursue perilous activities were associated with more severe burns. This observation underscores the difficulties of active prevention.⁵⁷ While consumer education of parents as to clothing flammability and childhood risk-taking does have a role,⁵⁸ education alone is not enough.^{40,59,60} In our study the worst burns occurred in the children who succeeded in avoiding their parents. Since the results of experimentation and actions by inexperienced children cannot always be foreseen, some form of passive prevention⁵⁷ needs to be built into children's garments. A number of countries have passed legislation requiring that fabrics used for children's apparel have low flammability potential. The enactment of such a measure, especially for girls,⁶¹ has reduced the number of severe burns in both the United States^{40,43} and Great Britain.^{61,62}

Unfortunately, in the process of meeting the original revised standard in the United States,⁴³ flame-retardant chemicals were added to fabrics used in the manufacture of children's clothing.¹ Although questions were raised as to the carcinogenicity of the chemicals,^{63,64} serious methodologic flaws were identified in the preliminary studies,⁶⁵ so the definitive research on carcinogenicity was never completed.⁶⁶ The use of existing fabrics that have intrinsic flame-resistance properties has meant that rigorous standards are now being met in the United States without the use of chemical flame retardants.⁴³ Natural animal fibres (wool and silk) and certain synthetics (pure nylon and polyester) are difficult to ignite.⁵³ Nylon and polyester do not propagate the spread of flames because their melting temperature is above most ignition temperatures in domestic settings.^{52,67} Moreover, when nylon or polyester does melt, it tends to pull away from the ignition source.^{52,53,67} When molten material drips on a victim and causes a burn the TBSA involved is small. In addressing the depth of burns associated with clothing ignition, Pakkala⁵³ developed a composite scale that considered not only the depth but also the extent of thermal injuries. Fabric testing was performed on a manikin from which detailed sensor readings of burn severity could be obtained. Pure nylon and polyester and, to a slightly lesser extent, wool and silk were associated with very low scores (i.e., only minor burns) when ignited. However, when cotton and cotton/synthetic blends were ignited they were associated with extremely high scores and in a real situation would have resulted in severe, life-threatening burns.^{33,51,53-55}

Australia and New Zealand have recently produced upgraded clothing standards but have not yet evaluated their impact on the frequency and severity of burns.⁵² In addition to establishing more rigorous flammability standards, these countries have implemented the use of labels with large capital letters as to potential flamma-

bility on sleepwear for children aged up to 14 years, as follows:

- "Low fire danger" (on garments made from domestic fabrics with flame-resistant properties)
- "Designed to reduce fire danger. Flammable fabric" (on garments designed to reduce flammability).
- "Warning. High fire danger. Keep away from fire" (also shows flame within a triangle) (on garments that do not comply with the above points).

Australia has also instituted modifications in the design of children's sleepwear that is still made from flammable fabrics. Because style can significantly influence flammability,⁴⁰ the standard disallows loose and flowing garments and mandates closer-fitting, and therefore safer, garments⁵² (Fig. 4).

Canada's current standard disallows the most dangerous fabrics; however, these highly flammable fabrics are not generally used in the manufacture of clothing.⁶⁷ Therefore, the present standards cannot be expected to have an impact on the frequency and severity of most clothing burns.

Were Canadian standards to change, consumer resistance would not likely be significant.⁵⁹ Wall,⁶⁰ in a report to the Minister of CCAC, showed that Canadian consumers would not be averse to sleepwear styles such as those adopted by Australia and New Zealand.⁵² However, an education program would be needed before labelling as to flammability on children's clothing could be introduced.^{59,60}

When given the choice consumers have indicated a preference for flame retardance over other fabric attributes, such as low cost and machine washability.⁶⁸ The Consumers' Association of Canada has formally endorsed a move toward more rigorous flammability standards for children's clothing.⁵⁶ One concern, however, is that flame-resistant garments may be more expensive.⁶⁷ While an increase in cost would be a strain on less advantaged Canadians, epidemiologic research on burns shows that this segment of the population would benefit most from more rigorous standards since they are the ones who are most likely to have fire-related mishaps.^{33,69-73}

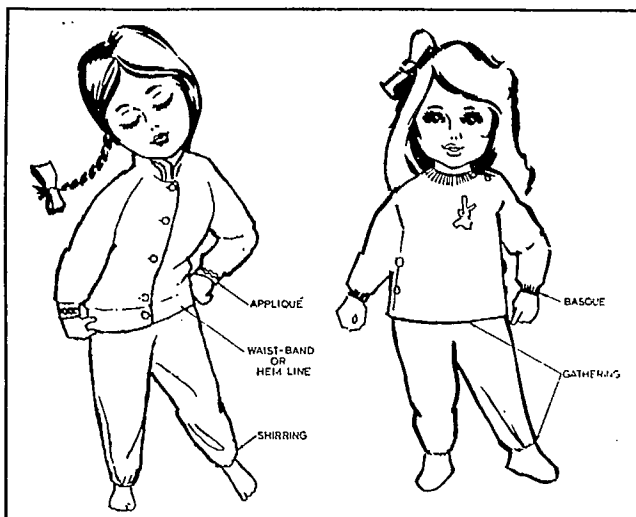


Fig. 4—Snug styles mandated in Australia for sleepwear made from potentially flammable fabrics.⁵²

The introduction of new, more rigorous standards may not be associated with a dramatic decrease in the total number of cases of clothing burns in children in Canada. However, as has been demonstrated in countries with higher clothing standards,^{41,43,61,62} there could be a significant reduction in the number of children with severe, often life-threatening, clothing burns who require referral to tertiary care centres, such as those in our study.

It is the public's perception that the provision of safe clothing for Canadian children is the responsibility of government and industry.⁵⁹ CCAC has accepted this responsibility, as shown by the current clothing standards, which eliminate the most dangerous fabrics from the marketplace and thus provide a small element of "passive" prevention for the public. Also, in 1974 a committee with broad representation was formed by CCAC and charged with recommending more rigorous standards.⁴¹ The main reason cited by the committee for being unable to fulfil its mandate was the lack of nationwide data on clothing burns in children.⁴¹ (The only Canadian information available to the committee was from studies from one centre^{35,36,74} and was therefore not considered representative. Moreover, the studies did not address all the epidemiologic issues under consideration by the committee.) With the information from our study and its own field reports from the last 10 years⁴⁹ CCAC now has the required data and has reactivated the committee, inviting participation from all the organizations that were represented in 1974. This advisory body should now be able to ultimately bring about the necessary strengthening of the current clothing standards. It is also hoped that Canadian industries will follow the lead of their American counterparts⁷⁵ in accepting a new, more rigorous standard of safety.⁶⁵

Thus, now that the means to reduce the severity of thermal injuries associated with clothing ignition is available, the current epidemiologic trends must be curtailed. Children deserve the best of health care, be it preventive or curative.

I thank Drs. Ted Logan and Elizabeth S. Hillman, St. John's; Drs. John P. Anderson and Richard B. Goldbloom, Halifax; Ms. Lucie Hille and Dr. Jean-Yves Frappier, Montreal; Ms. Francine Fell and Dr. William Feldman, Ottawa; Drs. Mary J. Duncan and Ronald M. Zuker, Toronto; Drs. Jose C. Venturelli-Baron and Peter B. Dent, Hamilton, Ont.; Mrs. Maureen Campbell and Dr. James Boon, London, Ont.; Dr. Brian F. Habbick, Saskatoon; Ms. Beverley Hrenewick and Dr. Robert H.A. Haslam, Calgary; Drs. Robert L. Wishart and Charles F.T. Snelling, Vancouver; and Drs. Richard Viau and Elizabeth Neilson, from the Flammability Division, Product Safety, CCAC, for the data they kindly provided. Special thanks go to the staff of the Burn Unit and the Medical Records Department of the Winnipeg Children's Hospital and to Dr. David Fish, for his thoughtful review of the manuscript.

This study was supported in part by a grant from the Children's Hospital of Winnipeg Research Foundation Inc. The opinions, conclusions and proposals in this article are those of the author and do not necessarily represent those of the foundation. I was supported in part by National Health Research and Development Award 6607-1196-47 from the Research Program Directorate, Department of National Health and Welfare.

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Health
Sciences
Centre

July 3rd, 1985

Dr. Richard Viau
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Dear Dr. Viau:

Re: Cost-Benefit Analysis of new Flammability Standards for
Children's Sleepwear

As promised, I am providing some background information to assist in generation of an estimate of the cost of these burns. Specifically, in my study, the average length of stay for a sleepwear burn was 58.7 days. Extrapolated to the Canadian population using my estimate of the number of sleepwear burns (21 per year in children 0 - 9 years of age), this represents 1233 hospital days annually. The number of skin grafting procedures per patient was 2.43, representing for the Canadian population 51 grafting procedures per year. In estimating the cost of hospitalization, the analysts will be hard pressed to accurately estimate the costs associated with such stays. In addition to the direct nursing and direct patient care costs, the specialized equipment utilized in pediatric burn units should also be entered in the equation - as the patients sustaining clothing burns require the most specialized devices. In addition to these direct costs, the individuals undertaking the study should also take into consideration the indirect costs of such stays - parental lost work time, transportation costs, babysitting and other child care costs, and, for out-of-town parents, lodgings.

While these costs can be estimated, a question that remains is what price can be attached to the suffering, disfigurement and, once or twice a year, the death of a child.

I hope this information will assist those individuals undertaking a very important study of this public health hazard.

Sincerely yours,

Richard S. Stanwick, M.D., F.R.C.P.(C), F.A.A.P.
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RSS/lf

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TO	R. Viau
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Annex D

Notes: Advisory Committee on Children's Sleepwear

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Trade Communiqué

Communiqué aux entreprises

 Consumer and
Corporate Affairs Canada

Consommation
et Corporations Canada

PSB-TC-073

To: Trade, consumer associations, the
fire services and other interested
parties

A : L'industrie, les associations de
consommateurs, les services
d'incendies et autres intéressés

CHILDREN'S SLEEPWEAR

VÊTEMENTS DE NUIT POUR ENFANTS

ISSUE NO. 1, October, 1984

COMMUNIQUÉ n° 1, octobre 1984

Background

On November 2, 1971, regulations were promulgated under the Hazardous Products Act setting a standard for the flammability of children's sleepwear, sizes 0 to 6X. These regulations were designed to remove from the marketplace those products considered to be hazardously flammable, allowing the sale of those products of normal flammability. Although children's sleepwear products are in compliance with the regulations, it is estimated that 18 to 19 children under the age of nine are severely burned and one to two children die each year due to burns caused by the ignition of sleepwear.

In the spring of 1983, the Product Safety Branch initiated a review of the Children's Sleepwear Regulations and the Canadian Institute of Child Health (CICH) set up a Working Group to study, among other problems, sleepwear burn injuries to children. To eliminate duplication of efforts, the Product Safety Branch has been working in co-operation with the CICH Working Group to reassess the existing regulations. Representatives from Canadian apparel

Historique

Le 2 novembre 1971, un règlement était promulgué en vertu de la Loi sur les produits dangereux, qui établissait une norme d'inflammabilité s'appliquant aux vêtements de nuit pour enfants, tailles 0 à 6X. Ce règlement avait pour objet d'éliminer du marché les produits dangereusement inflammables, tout en permettant la vente des produits d'inflammabilité normale. En dépit, toutefois, du respect de la norme établie, on estime à 18 ou 19 le nombre d'enfants de moins de neuf ans qui, chaque année, subissent des brûlures graves (un ou deux en meurent) attribuables à l'inflammation de leurs vêtements de nuit.

Au printemps de 1983, la Direction de la sécurité des produits procédait donc à la révision du règlement en question et l'Institut canadien de la santé infantile (ICSI) créait un groupe de travail chargé d'étudier, entre autres problèmes, les brûlures causées aux enfants par l'inflammation de leurs vêtements de nuit. Afin d'éviter le doublement des efforts, la Direction de la sécurité des produits a entrepris cette révision en collaboration avec le groupe de travail

...2

Canada

manufacturers, Canadian textile manufacturers, fire authorities, the medical profession, Consumer and Corporate Affairs Canada and consumers were members of the CICH Working Group.

Recommendations

The CICH Working Group recommended to the Minister of Consumer and Corporate Affairs that a more stringent flammability requirement be developed for children's sleepwear up to size 14X; that this apply to both domestic and imported products; that a public information program be undertaken; and that a technical committee be formed to investigate the technical and economic aspects of more stringent requirements.

Notice of Meeting

On November 20, 1984, a meeting to establish a steering committee and to discuss the technical and economic aspects of more stringent flammability regulations for children's sleepwear will be held at 10:00 a.m. in the 14th Floor Boardroom of Place du Portage, Tower I, Hull, Quebec.

If you wish to attend or wish to obtain further information, please contact:

de l'ICSI, au sein duquel étaient représentés les fabricants canadiens de produits textiles et de vêtements, les services d'incendies, la profession médicale, Consommation et Corporations Canada et les consommateurs.

Recommandations

Le groupe de travail de l'ICSI a recommandé au ministre de la Consommation et des Corporations l'établissement d'une norme plus sévère d'inflammabilité à l'égard des vêtements de nuit pour enfants, jusqu'à la taille 14X; l'application de cette nouvelle norme aux produits de fabrication canadienne et aux produits d'importation; le lancement d'une campagne d'information du public et, enfin, la formation d'un comité technique qui serait chargé d'étudier les aspects techniques et économiques de ce renforcement de la norme.

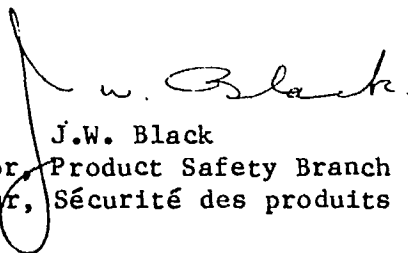
Avis de réunion

Le 20 novembre 1984, à 10 h, une réunion se tiendra à la salle de conférence du 14^e étage de la Place du Portage, Tour I, Hull (Québec), en vue de créer un comité d'orientation et de discuter des aspects techniques et économiques du renforcement de la norme.

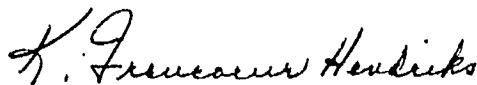
Si cette réunion vous intéresse ou si vous désirez de plus amples renseignements, veuillez communiquer avec :

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J.W. Black
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Kathleen Francoeur Hendriks
Assistant Deputy Minister
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Consumer and
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Consumer Affairs

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No de dossier: 10144-S97-84/85
le 13 décembre 1984

File no.: 10144-S97-84/85
December 13, 1984

Sujet: Revue du Règlement sur les
produits dangereux (vêtements
de nuit pour enfants)

Re: Review of the Hazardous
Products (Children's
Sleepwear) Regulations

Veillez trouver ci-joint un premier tirage des discussions de la réunion tenue par la Direction de la sécurité des produits, en vue de discuter des aspects techniques, économiques et sociaux du renforcement de la norme.

The first draft of the summary of discussions of the November 20, 1984 Product Safety Branch meeting to discuss the technical, economic and social aspects of more stringent flammability regulations for children's sleepwear is enclosed.

Si vous avez des commentaires ou des précisions, veuillez les adresser au soussigné. (819-997-1194)

If there are any comments or corrections, please contact me at the above address or at (819) 997-1194.

E. Nielsen

E. Nielsen, Ph.D.
Flammability Hazards Division/
Division de l'inflammabilité

pièce jointe

Encl.

Canada

Summary of Discussion and Decisions
Children's Sleepwear Advisory Committee

November 20, 1984

Place du Portage, Phase I
Hull, Québec

1st draft

Children's Sleepwear Advisory Committee
 November 20, 1984
 Hull, Québec

Participants

Dr. R. Viau	Chairman, Consumer and Corporate Affairs
Dr. E. Nielsen	Consumer and Corporate Affairs
Mr. G. Pijalin	Leedye Inc.
Mr. P. Murphy	Marks and Spencer (Canada) Ltd.
Mr. T. Alexander	Newlands Textile Inc.
Ms. P. Wishart	Technitrol Canada Ltd.
Ms. M. Gregoire	Dominion Textile Inc.
Mr. J. Turcotte	Dominion Textile Inc.
Dr. R.D. Bennett	Consumer Representative
Dr. R. Stanwick	Canadian Paediatric Association, Accident Prevention Committee
Ms. J. MacLachlan	Canadian Institute of Child Health
Mrs. J. Randall	Canadian General Standards Board
Dr. M. Day	National Research Council
Mr. J.M. Robertson	Canadian Textiles Institute
Mr. A.R. Peirson	Sears Canada Inc.
Mr. M. Fruitman	Retail Council of Canada
Mr. H. Whelan	St. Lawrence Textiles
Mr. A. Chamandy	St. Lawrence Textiles
Mr. B. Rogers	Children Apparel Manufacturers Association
Mr. A. Mehkeri	Consumer and Corporate Affairs
Mr. B. Laurin	Consumer and Corporate Affairs

Children's Sleepwear Advisory Committee

November 20, 1984

AGENDA

1. Opening Remarks.
2. Purpose and Function of Committee.
3. Background Information and Current Situation in Canada
4. Sleepwear Burn Injury Statistics, Dr. R. Stanwick.
5. Canadian Institute of Child Health Recommendations
Janet MacLachlan, Coordinator, Injury Prevention and Child Safety,
Canadian Institute of Child Health.
6. Socio-Economic Impact Analysis.
7. Formation of Advisory Sub-Committee with Respect to Technical Issues.
8. Other Business.
9. Summary of Decision Made.
10. Concluding Remarks.

Children's Sleepwear Advisory Committee
November 20, 1984
Hull, Québec

Summary of Discussion and Decisions

1. Opening Remarks

Dr. Viau opened the meeting by welcoming the participants. He explained that instead of a full set of minutes a summary of the discussion and the decisions made would be distributed. The Hazardous Products Act was summarized and explained to the participants.

2. Purpose and Function of Committee

The purpose of the Children's Sleepwear Advisory Committee is to examine and evaluate the technical and economic aspects of setting a more stringent flammability test for children's sleepwear (sizes 0 to 14X), such that fabrics will not support combustion and will tend to self-extinguish. The committee was formed in response to recommendations sent to the former Minister of Consumer and Corporate Affairs by the Canadian Institute of Child Health (CICH). It was proposed that small sub-committees be formed to examine the technical and economic aspects of stringent flammability regulations.

3. Background Information and Current Situation in Canada

A brief summary of the history of the Children's Sleepwear Regulations, the legislation in other countries and the incidents involving the ignition of children's sleepwear, reported to the Product Safety Branch, was presented. A draft report containing a list of these incidents was tabled (copy attached).

The following items were agreed to or raised:

- (i) It was agreed that complete and accurate statistics on the effectiveness of regulations in other countries and on sleepwear burn injuries in Canada are desirable, but they are not always available.
- (ii) It was agreed that consumer choice must be considered with respect to any action taken.
- (iii) It was pointed out that the impact of an education program on injuries must be considered by the committee.

4. Sleepwear Burn Injury Statistics - Dr. R. Stanwick

Dr. R. Stanwick, representing the Accident Prevention Committee of the Canadian Pediatric Association, presented statistics on burn injuries sustained by children, under nine years of age, caused by the ignition of sleepwear. Included in the study were only those cases severe enough to warrant treatment in specialized burn units. The study included data obtained from 14 children's burn units, servicing 59% of Canadian children collected over a three to five year period.

The results were as follows:

- (i) Twenty severe sleepwear related burn injuries occur each year to children under nine years of age.
- (ii) Girls sustained twice as many burn injuries as boys.
- (iii) The death rate for girls was eight times higher than the death rate for boys.
- (iv) The injuries were evenly distributed between children from one to four years of age and children from five to nine years of age.
- (v) The primary ignition sources were stoves, matches and lighters.

Dr. Stanwick concluded that passive preventive measures, such as a regulatory requirement, in combination with an information program was the most effective approach to reduce burn injuries.

The following points were raised:

- (i) Garment design plays a significant role in sleepwear related burn injuries and is being considered by the International Standards Organization (ISO).
- (ii) The same phenomena as presented by Dr. Stanwick were observed in Australia prior to the implementation of their regulations.
- (iii) Cotton and cotton/polyester are preferred by Canadian consumers in children's sleepwear.

5. Canadian Institute of Child Health Recommendations - Janet MacLachlan

Ms. J. MacLachlan described the activities of the Canadian Institute of Child Health and stated that the main goal of the organization is to reduce the number and/or severity of injuries to children. The CICH recommendations presented to the Minister of Consumer and Corporate Affairs were outlined as follows:

- (i) Fabrics to be used in children's sleepwear to size 14X pass a more stringent flame test than the current Canadian test, such that fabrics will not support combustion and will tend to self-extinguish.
- (ii) These new standards be mandatory and apply to both Canadian made fabric and children's sleepwear and imported fabric and children's sleepwear.
- (iii) A public education program be undertaken to inform consumers of the reason for changes in standards for children's sleepwear and to suggest ways in which they can reduce home fire hazards. That a major element of the education program be to make consumers aware of the important role which design plays in reducing the fire hazard of sleepwear and to promote the use of tight fitting designs.
- (iv) The Minister of Consumer and Corporate Affairs consider setting up a technical committee to look at both the technical and economic aspects of this issue.

The following were agreed to:

- (i) A decision must be made as to whether all sleepwear products or just nightgowns, night shirts and dressing gowns would be covered under more stringent flammability regulations.
- (ii) Government must be prepared to enforce more stringent regulations if that direction is decided upon.

6. Socio-Economic Impact Analysis

A Socio-Economic Impact Analysis (SEIA) must be carried out to assess the impact on the textile industry, clothing manufacturers and consumers of more stringent flammability requirements for children's sleepwear. Also, the length of time required by industry to implement any proposed change in regulations would be examined.

The following items were agreed to:

- (i) CCAC would explore the possibility of hiring a consultant to collect the data required. If it is not possible to hire a consultant, a sub-committee will be formed to obtain the data.
- (ii) Members present would cooperate fully with a consultant or a sub-committee to develop the data required.
- (iii) The terms of reference for a consultant will be tabled at a meeting to ensure that all aspects of the problem are examined.

7. Formation of Advisory Sub-Committee with Respect to Technical Issues

- (i) It was agreed that a small working sub-committee would be formed to examine and evaluate the four test protocols or combinations of tests that are available. The options to be evaluated include the American, Australian and British approaches to children's sleepwear flammability and upgrading of the Canadian test.
- (ii) The point was made that if more stringent legislation is decided upon, that it should be similar to that of the United States to aid Canadian manufacturers exporting to the United States.
- (iii) Membership of the Sub-Committee:

Chairman: Dr. E. Nielsen, CCAC
 Miss M. Mitton, NRC
 Mr. A. Chamandy, St. Lawrence Textiles (representing CAMA)

Mr. J. Turcotte, Dominion Textiles
 Mr. A.J. Straw Leedy (representing CTI and CGSB)
 Mr. A. Patel, Sears
 Ms. P. Wishart, Technitrol
 Ms. J. MacLachlan, CICH
 Mr. E. Miller Jack Miller Inc. (representing CAMA)

Mr. L. Liddel Lufty Ltd. (representing CAMA)
 Mr. A. Mehkeri CCAC

Consumer and Corporate Affairs Canada Consommation et Corporations Canada

Consumer Affairs Consommation

Direction de la sécurité des produits
Place du Portage, Tour 1
16e étage, Aire 5
50, rue Victoria
Hull (Québec)
K1A 0C9

Product Safety Branch
Place du Portage, Phase I
16th Floor, Zone 5
50 Victoria Street
Hull, Quebec
K1A 0C9

No de dossier: 10144-S97-84/85
le 8 février 1985

File no.: 10144-S97-84/85
February 8, 1985

Sujet: Revue du Règlement sur les produits dangereux (vêtements de nuit pour enfants)

Re: Review of the Hazardous Products (Children's Sleepwear) Regulations

Veillez trouver ci-joint un premier tirage des discussions de la réunion tenue par la Direction de la sécurité des produits, en vue de discuter des aspects techniques du renforcement de la norme.

The first draft of the summary of discussions of the January 23, 1985 Product Safety Branch meeting to discuss the technical aspects of more stringent flammability regulations for children's sleepwear is enclosed.

Si vous avez des commentaires ou des précisions, veuillez les adresser au soussigné. (819) 997-1194.

If there are any comments or corrections, please contact me at the above address or at (819) 997-1194.

E. Nielsen

E. Nielsen, Ph.D.
Flammability Hazards Division/
Division de l'inflammabilité

pièce jointe

Encl.

Canada

Summary of Discussion and Decisions
Children's Sleepwear Advisory Committee
Technical Sub-Committee

January 23, 1985
Place du Portage, Phase III
Hull, Québec

1st draft

Children's Sleepwear Advisory Committee
Technical Sub-Committee

D-18

January 23, 1985

Hull, Quebec

Participants

Dr. E. Nielsen	Chairman, Consumer and Corporate Affairs
Ms. J. MacLachlan	Canadian Institute of Child Health
Mr. A. Mehkeri	Product Safety Laboratory, CCAC
Mr. L. Dhawan	Product Safety Laboratory, CCAC
Ms. H. Vanderveerd	St. Lawrence Textiles, CAMA
Mr. E. Miller	Jack Miller Inc.
Mr. B. Rogers	CAMA
Ms. M. Mitton	National Research Council
Mr. A. Patel	Sears Canada Inc.
Ms. P. Wishart	Technitrol Canada Ltd.
Ms. M. Gregoire	Dominion Textile Inc.
Mr. J.B. Turcotte	Dominion Textile Inc.
Mr. A. Straw	Leedye Inc.

Children's Sleepwear Advisory Committee
Technical Sub-Committee

January 23, 1985

Agenda

1) Introductory Remarks

2) Background and Purpose of the Children's Sleepwear
Advisory Committee (CSAC)

Purpose: To examine and evaluate the technical and economic aspects of setting a more stringent flammability requirement for children's sleepwear (sizes 0 to 14X), such that fabrics will not support combustion and will tend to self-extinguish.

3) Proposed Terms of Reference of the Technical Sub-Committee

- 1) To examine and evaluate, from a technical perspective, existing test protocols designed to measure the flammability of children's sleepwear; in terms of achieving the objectives of the CSAC.
- ii) To recommend to the Children's Sleepwear Advisory Committee which of the tests to be examined are suitable to measure the flammability of children's sleepwear.

4) Criteria to be Examined to Achieve Terms of Reference

- i) Hazard to be addressed - injuries, fabrics causing problem.
- ii) Practical and precise in terms of testing by manufacturers and for enforcement.
- iii) Variable to be measured.
 - a) time to ignition
 - b) burn rate
 - c) ability to propagate a flame
 - d) heat transfer
- iv) Source of ignition.
- v) Specimen configuration.
- vi) Preparation of specimen prior to testing (washing, conditioning).
- vii) Acceptance criterion.
- viii) Accepted for use elsewhere and experience with test.

5) Test Procedures

- i) ASTM D1230-61 Canadian Standard.
- ii) United States Standard for the Flammability of Children's Sleepwear.
- iii) Australian Standard AS 1249-1983 and AS 1176-1976.
- iv) British Standard BS 5438-1976 and BS 5722:1984.
- v) Other Procedures.

6) Summation

Children's Sleepwear Advisory Committee
Technical Sub-Committee

D-20

January 23, 1985

Summary of Discussions and Decisions

1. Introductory Remarks

E. Nielsen opened the meeting by welcoming the participants. She explained that instead of a full set of minutes a summary of the discussion and the decisions made would be distributed.

2. Background and Purpose of the Children's Sleepwear Advisory Committee

The Canadian Institute of Child Health recommended to the Minister of Consumer and Corporate Affairs that a committee be formed to examine and evaluate the technical and economic aspects of setting a more stringent flammability requirement for children's sleepwear (sizes 0 to 14x), such that fabrics will not support combustion and will tend to self-extinguish. In response to this recommendation, the Children's Sleepwear Advisory Committee (CSAC) was formed. This committee proposed that a consultant be hired to examine the economic aspects and that a sub-committee would examine the existing test protocols.

3. Proposed Terms of Reference of Technical Sub-committee

The following issues were raised by the participants:

1. The terms of reference as proposed by the CSAC are not specific enough for the sub-committee to evaluate the test protocols referred by the CSAC. As was pointed out, all fabrics will support combustion under specific conditions. The problem must be defined clearly and the fabrics creating the accidents identified.
2. If the existing Canadian regulations based on ASTM D1230-61 is not adequate, consideration should be given to the American test with which experience exists.
3. The British and Australian protocols are very complex and difficult to evaluate since expertise, in these procedures, does not exist in Canada. A problem exists with testing at 65% RH since this does not simulate Canadian conditions. The large specimen required makes it difficult to test products in small sizes.
4. Design plays a significant impact on the flammability hazard associated with garments and a decision must be made by the full committee concerning inclusion of this parameter in conjunction with a severe test.
5. The Canadian test has eliminated the most hazardous fabrics from the sleepwear market.

6. Consideration should be given to increasing the stringency of the Canadian test by:
 - i) not allowing surface flash
 - ii) prohibiting sale of fabrics that ignite in 1 sec.
 - iii) increasing ignition time to 1, 2 or 3 sec.
7. It is the responsibility of CCAC to ensure that sleepwear on the market meets the existing requirements under the Hazardous Products Act.
8. The laundering conditions specified in the American standard must be examined and modifications tested. The record keeping requirements are onerous and should not be included in Regulations under the Hazardous Products Act.

The following items were agreed to by the committee:

1. The Children's Sleepwear Advisory Committee must provide clearer terms of reference with respect to level of stringency required and a decision on whether or not a styling option should be included.
2. Fabric samples should be tested under bone-dry conditions.
3. There was general agreement that the British and Australian test procedures should not be included in any further discussions.
4. A number of options were presented for further consideration depending on the direction provided by the full committee.
 - i) The present Canadian regulation modified by banning fabrics which ignite in 1 sec. and exhibit surface flash.
 - ii) The present Canadian regulation with an ignition time of 2 or 3 sec. Test data would be required to determine the effect of such a change on the reproducibility of test results and fabrics that would be eliminated.
 - iii) The present Canadian regulation modified by specifying that fabrics which ignite during forced ignition do not burn the full distance.
 - iv) Carry out a comparison of the American test procedure and options (iii) and (iv).
 - v) A styling option in conjunction with one of the above.



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Place du Portage I
Hull (Québec) K1A 0C9

Product Safety Branch
16th Floor, Zone 4
Place du Portage I
Hull, Quebec K1A 0C9

le 24 mai 1985

May 24, 1985

AVIS DE CONVOCATION

NOTICE OF MEETING

Réunion du Comité consultatif des
vêtements de nuit pour enfants

Children's Sleepwear
Advisory Committee

A: Commerçants, associations de
consommateurs, syndicats,
services d'incendie et autres
parties intéressées

To: Trade, Consumer Association,
Labour, Fire Services and
Other Interested Parties

La présente fait suite au télex, daté
du 13 mai 1985, dans lequel il était
annoncé que la réunion sur l'inflam-
mabilité des vêtements de nuit pour
enfants - fixée au 15 mai - avait été
annulée, parce que cette date ne
convenait pas à certains intéressés.

Reference is made to the telex of
May 13, 1985 advising that the meeting
on the flammability of children's
nightwear, scheduled for May 15, had
been postponed as this date was not
suitable for some interested parties.

Le sous-comité technique, créé à
l'occasion de la réunion du
20 novembre 1984 du Comité
consultatif des vêtements de nuit
pour enfants, est parvenu à un point
décisif dans ses discussions. Il a
donc demandé au Comité de lui donner
des conseils sur la rigueur des
protocoles d'essai et sur le type de
vêtements qui seront soumis aux
essais. Par conséquent, les
discussions qui auront lieu au cours
de la prochaine réunion joueront un
rôle important dans l'élaboration de
recommandations destinées au
Ministre, et l'on espère que vous
pourrez vous libérer pour assister à
cette réunion. Afin que la question
soit examinée en profondeur, une
représentation du secteur privé, des
syndicats, du domaine médical et de
la santé, des associations de
consommateurs et des services
d'incendie est essentielle.

The Technical Sub-Committee,
established at the November 20, 1984
meeting of the Children Sleepwear
Advisory Committee has reached a
crucial point in its discussions.
Consequently, the Sub-Committee has
requested that the Committee provide
guidance with respect to the
stringency of the test that should be
applied and the range of sleepwear
that should be considered. Therefore,
the deliberations of the next meeting
will be important in the development
of recommendations to the Minister and
it is hoped that you will see your way
clear to attend. To provide for full
discussion, representation from
industry, organized labour, medical
and health professions, consumer
organizations and the fire services is
essential.

Le mémoire au Ministre sera accompagné d'une analyse des incidences socio-économiques. La réunion fournira une occasion aux participants de se familiariser avec la marche à suivre relative à l'élaboration d'un tel type d'analyse. De plus, des conseils seront fournis sur des aspects importants qui seront traités dans cette étude. Il est à noter que, comme le veut la règle, ce sont des économistes qui n'ont aucun lien avec la Direction de la sécurité des produits qui se verront charger de cette analyse.

De plus, le laboratoire de la Direction s'occupe actuellement d'essais portant sur des tissus qui servent à la fabrication des vêtements de nuit pour enfants en vue de comparer un certain nombre de protocoles d'essai, conformément aux discussions du sous-comité technique et aux recommandations formulées par celui-ci à sa réunion du mois de janvier 1985. Un rapport de situation sur ces travaux sera présenté à la réunion, dont le projet d'ordre du jour est présenté en annexe.

La nouvelle date de la réunion du Comité consultatif des vêtements de nuit pour enfants a été fixée au 27 juin 1985, à 10 h, et aura lieu dans la salle de conférence du 12e étage, à la Place du Portage, Tour 1, Hull (Québec). Nous vous saurions gré de nous indiquer si vous avez l'intention d'assister à la réunion. Par souci de commodité, nous avons ajouté au bas du projet d'ordre du jour un bulletin de réponse.

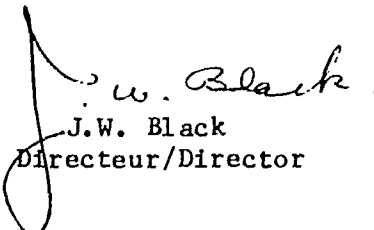
Veuillez agréer l'expression de mes sentiments les meilleurs.

The submission to the Minister will be accompanied by a socio-economic impact analysis. The meeting will provide an opportunity to familiarize those present with the general procedures followed in developing such an impact analysis. Additionally, there will be an opportunity to provide guidance on important aspects to be addressed in this study. It should be pointed out that, as is the general practice, this data will be developed by economists working totally independent of the Product Safety Branch.

In addition to the above, the Branch's laboratory is presently testing fabrics currently used in children's sleepwear to compare a number of test procedures, as discussed and recommended by the Technical Sub-Committee at its January 1985 meeting. A progress report on this work will be presented at the meeting. A copy of the proposed agenda for the meeting is attached.

The meeting of the Children's Sleepwear Advisory Committee has been rescheduled for June 27, 1985 at 10:00 a.m. in the 12th Floor Boardroom, Place du Portage, Phase I, Hull, Quebec. Your cooperation in advising of your intentions with respect to attendance would be appreciated. For your convenience in replying, a form is attached to the bottom of the proposed agenda.

Yours truly,


J.W. Black
Le Directeur/Director

PROJET D'ORDRE DU JOUR

Comité consultatif des vêtements de nuit pour enfants
27 juin 1985

1. Remarques préliminaires.
2. Objet de la réunion.
3. Rapport du Dr Stanwick sur les brûlures causées par des vêtements
 - . Quoique certains participants connaissent déjà ces travaux, d'autres n'en ont jamais entendu parler. Le Dr Stanwick présentera un article écrit par lui qui a été publié dans le Canadian Medical Journal.
4. Rapport sur la marche à suivre relative à une analyse des répercussions socio-économiques.
 - . Les membres du Comité seront invités à donner leur opinion sur des aspects importants qui seront traités dans cette étude.
5. Rapport de situation sur les travaux de laboratoire.
 - . Un bref rapport sur les travaux actuels du laboratoire sera présenté.
6. Alternatives possibles.
 - i) Examen de programmes d'information et types d'information possibles
 - ii) Examen de la méthode par réglementation
7. Conseils destinés au sous-comité technique
 - i) Rigueur des protocoles d'essai
 - ii) Catégories de vêtements de nuit à examiner
8. Mot de la fin.

RETOURNER A:

Madame Elizabeth Nielsen
Direction de la sécurité des produits
16e étage, aire 5
Place du Portage, Tour I
50, rue Victoria
Hull (Québec) K1A 0C9

Comité consultatif des vêtements de nuit pour enfants

27 juin 1985

Je prévois assister à la réunion

Je ne pourrai assister à la réunion

NOM: _____

Représentant: _____

PROPOSED AGENDA

Children's Sleepwear Advisory Committee
June 27, 1985

1. Introductory Remarks.
2. Purpose of the Meeting.
3. Report from Dr. Stanwick Regarding Garment Related Burn Injuries.
 - . Although some participants are familiar with this work, others are not. Dr. Stanwick will report on his work recently published in the Canadian Medical Journal.
4. Report on procedures involved with a Socio-Economic Impact Analysis.
 - . The views of the Committee will be sought on important aspects to be addressed in this study.
5. Progress Report on Laboratory Work.
 - . A brief progress on test work to date will be presented.
6. Potential courses of Action.
 - i) A discussion of information programs and possible information
 - ii) A discussion of the regulatory approach
7. Guidance to Technical Sub-Committee
 - i) Stringency of test procedures
 - ii) Types of sleepwear products to be considered
8. Closing Remarks.

RETURN TO:

Dr. Elizabeth Nielsen
Product Safety Branch
16th Floor, Zone 5
Place du Portage, Phase I
50 Victoria Street
Hull, Quebec K1A 0C9

Children's Sleepwear Advisory Committee

June 27, 1985

I am planning to attend the meeting

I will be unable to attend the meeting

NAME: _____

Representing: _____

Children's Sleepwear Advisory Committee

June 27, 1985

Working Group Terms of Reference

1) Objective:

Using available data, prepare a proposal for the Children's Sleepwear Advisory Committee within a two and a half month period (Sept. 15, 1985) on a test method to determine the flammability of children's sleepwear which will ensure a significant reduction in severe sleepwear related burns to children.

2) Collect information on and evaluate Standard Flammability Test Methods in use in Canada and other countries including ISO with a view to:

- a) Determining the level of stringency required,
- b) The types of garments the standard should cover,
- c) The size of garments that should be tested by the standard, and
- d) Make recommendations to the CSAC.

3) Membership:

Mr. G. Holmes	Chairman, ADGA Consulting
Dr. E. Nielsen	Secretary, Consumer and Corporate Affairs
Ms. J. MacLachlan	Canadian Institute of Child Health
Mr. A. Mehkeri	Product Safety Laboratory, CCAC
Mr. L. Dhawan	Product Safety Laboratory, CCAC
Ms. H. Vanderveerd	St. Lawrence Textiles, CAMA
Daryl Zeitz	Bright Sleepwear Inc.
Mr. B. Rogers	CAMA
Dr. M. Day	National Research Council
Ms. M. Mitton	National Research Council
Mr. A. Patel	Sears Canada Inc.
Ms. P. Wishart	Technitrol Canada Ltd.
Ms. M. Gregoire	Dominion Textile Inc.
Mr. J.B. Turcotte	Dominion Textile Inc.
Mr. A. Straw	Leedye Inc.
Mr. B. Monk	Dupont
Mr. M. Fruitman	Retail Council of Canada
Mr. R. Morris	HWC
Mr. G. Lutfy	Lutfy Ltd.
Mr. J. Robertson	(observer) CTI
Mr. M. Davis	Davis Textiles
Ms. Marian Gaucher	CGSB
Mr. T. Cave	CAC
Mr. H. Morrison	Canadian Council on Children and Youth
Mr. G. Vala-Webb	ACTWU (tentative)

Children's Sleepwear Advisory Committee

June 27, 1985

Working Group Terms of Reference

1) Objective:

Using available data, prepare a proposal for the Children's Sleepwear Advisory Committee within a two and a half month period (Sept. 15, 1985) on a test method to determine the flammability of children's sleepwear which will ensure a significant reduction in severe sleepwear related burns to children.

2) Collect information on and evaluate Standard Flammability Test Methods in use in Canada and other countries including ISO with a view to:

- a) Determining the level of stringency required,
- b) The types of garments the standard should cover,
- c) The size of garments that should be tested by the standard, and
- d) Make recommendation to the CSA.

Children's Sleepwear Advisory Committee Meeting

June 27, 1985

The Task Group on Communications Shall:

- 1) Investigate and report on the establishment of a communication program in respect of children's sleepwear flammability
- 2) Examine the following in the preparation of the report:
 - a) Structure and content of the proposed program.
 - b) Methods of dissemination including:
 - i) Frequency
 - ii) Vehicle
 - iii) Useful size (critical size of program in order that it be effective.)
 - c) Target audiences for the program
 - d) Costs
 - e) Other factors
- 3) Prepare and submit report by September 20, 1985
- 4) Be composed of a representative from:
 - a) CTI
 - b) CAMA
 - c) CICH
 - d) CAC
 - e) Fiprecan (to be determined)
 - f) CPS (to be determined)
 - g) CCA, Product Safety (as secretary)
- 5) Select a chairperson from among its membership.

Tentative Agenda

Children's Sleepwear Advisory Committee

Working Group

July 16, 1985

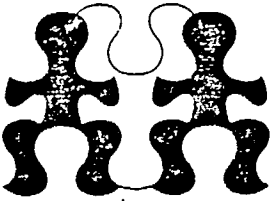
1. Introduction
2. Review of Terms of Reference
3. Test Methods
 - a) A discussion of available test methods which are applicable to material, trim and seams.
 - b) Identification of hazards associated with children's sleepwear.
 - c) Identification of parameters to be examined.
 - e.g.- Ease of ignition
 - Rate of Burning
 - Surface Flash
 - Incidence of hot molten polymer.
4.
 - a) A discussion of the existing Canadian Regulation including its effectiveness and associated problems.
 - b) A discussion of the situation in the United States, the United Kingdom, other industrial countries and the International Standards Organizations (ISO).
 - c) Availability of special laboratory equipment in Canada.
 - d) A discussion of problems in proving a revised standard.
5. Identification and discussion of options.
6. Identification of the most viable options for the Canadian situation.
7. Future work of the Working Group required to support the preferred options and to identify the following:
 - Degree of stringency and acceptability levels
 - Types of garments to be covered by the regulations
 - Size of garments to be covered by the regulations
 - Other Considerations
8. Closing.

Annex E

Comments Received: Advisory Committee on Children's
Sleepwear

Children's Sleepwear Advisory Committee
Comments Received

1. Canadian Council on Children and Youth
2. Canadian Institute of Child Health
3. Canadian Paediatric Society
4. Canadian Textiles Institute
5. Consumers' Association of Canada
6. L. Davis Textiles Co. Ltd.
7. Dominion Textile Inc.
8. Huntingdon Mills Ltd.
9. Marks & Spencer
10. Monsanto
11. National Council of Women of Canada
12. National Defence - Canadian Forces Fire Marshall
13. National Research Council
14. New Brunswick Fire Marshall's Office
15. Ontario Fire Marshall
16. Stanfield's Ltd.
17. Children's Apparel Manufacturer's Association



Canadian Council
on Children
and Youth

Le Conseil canadien
de l'enfance et
de la jeunesse

June 13, 1985

Dr. Richard Viau
Chief
Flammability Hazards Division
Product Safety Branch
Place du Portage, Phase I
16th Floor, Zone 5
50 Victoria Street
Hull, Quebec
K1A 0C9

Dear Dr. Viau:

This letter will serve to notify you that the Canadian Council on Children and Youth will be attending the Children's Sleepwear Advisory Committee Meeting on June 27, 1985.

The CCCY commends the Canadian Institute of Child Health for their ongoing monitoring of this issue and supports their position. To reiterate, the CCCY recommends that:

1. Fabrics to be used in children's sleepwear to size 14X pass a more stringent flame test than the current Canadian test, such that fabrics will not support combustion and will tend to self extinguish.
2. These new standards be mandatory and apply to both Canadian made fabric and children's sleepwear and imported fabric and children's sleepwear.
3. A public education program be undertaken to inform consumers of the reason for change in standards for children's sleepwear and to suggest ways in which they can reduce home fire hazards. That a major element of the education program be to make consumers aware of the important role which design plays in reducing the fire hazard of sleepwear and to promote the use of tight fitting designs.
4. The Minister of Consumer and Corporate Affairs consider setting up a technical committee to look at the technical, economic and social aspects of this issue.

.../2

5. We support the adoption of the United States Standard for Children's Sleepwear or a test of equivalent stringency for all children's sleepwear products.

Although the Council will continue to support efforts to increase the stringency of flammability standards for children's sleepwear, we recognize the leadership of the Canadian Institute of Child Health on this issue and commend them on their efforts.

Sincerely,



Brian D. Ward
Executive Director

cc Dr. Elizabeth Neilsen
Canadian Institute of Child Health
Dr. Robin Walker
Canadian Paediatric Society
Canadian Day Care Advocacy Association
Girl Guides of Canada
The Hospital for Sick Children Foundation
Canadian Girls In Training

Canadian Institute
of Child Health

Suite 105, 17 York Street
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Canada
(613) 238-8425



Institut canadien
de la santé infantile

Suite 105, 17, rue York
Ottawa (Ontario) K1N 5S7
Canada
(613) 238-8425

April 1, 1985

Dr. Richard Viau,
Chief,
Flammability Hazards Division,
Product Safety Branch,
Place du Portage, Phase I,
16th Floor, Zone 5,
50 Victoria Street,
Hull, Quebec.
K1A 0C9

CONSULTEUR DU CONSOMMATEUR	
COMMISSION DE LA SÉCURITÉ DES PRODUITS	
COMITÉ CONSULTIF	
APR 3 1985	
TO	R. Viau
FILE	L10147-5971-
BOISEL	
CHG'D. TO	R. Viau 24135
REMISS	

Dear Dr. Viau:

Re: CHILDREN'S SLEEPWEAR STANDARDS

We are writing in response to your request for comments on your February 28, 1985 memorandum outlining two proposals for children's sleepwear regulations. You are well aware of the history of the Institute's involvement in this issue and of our commitment to reducing the numbers and severity of sleepwear-related burn injuries to Canadian children.

For the record, the original recommendations of the Institute to the Minister of Consumer and Corporate Affairs are restated here.

We recommend that:

1. Fabrics to be used in children's sleepwear to size 14X pass a more stringent flame test than the current Canadian test, such that fabrics will not support combustion and will tend to self extinguish.
2. These new standards be mandatory and apply to both Canadian made fabric and children's sleepwear and imported fabric and children's sleepwear.
3. A public education program be undertaken to inform consumers of the reason for changes in standards for children's sleepwear and to suggest ways in which they can reduce home fire hazards. That a major element of the education program be to make consumers aware of the important role which design plays in reducing the fire hazard of sleepwear and to promote the use of tight fitting designs.
4. The Minister of Consumer and Corporate Affairs consider setting up a technical committee to look at the technical, economic and social aspects of this issue.

- 2 -

Consistent with these recommendations, the Institute supports the adoption of the second option outlined in your memorandum. That is, the adoption of the United States Standard for Children's Sleepwear or a test of equivalent stringency for all children's sleepwear products. A review of sleepwear-related burn reports collected by the Product Safety Branch, Consumer and Corporate Affairs, indicates that pyjamas and sleepers are also involved in burn injuries. Burns are traumatic and costly to both the family and society. Young children should be afforded equal protection when wearing nightgowns or pyjamas.

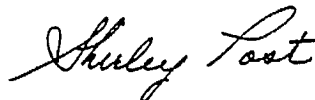
We would also like to add that this standard be extended to include all children's sleepwear up to and including size 14X. Once again, the data presented to the sleepwear committee shows that elementary school children also suffered sleepwear-related burns.

Option two outlines two different processes for the adoption of the standard. In the first process the standard takes effect immediately for all sleepwear. The second, sees the standard adopted in two phases related to design differences. This two stage implementation would presumably cushion the impact on the sleepwear market. The Institute feels that it is up to the industry concerned to determine which process of implementation is most reasonable from their point of view.

The Institute wholeheartedly supports the need for an information campaign. In fact, our own ongoing health education and media program promotes the use of the least flammable fabrics and designs for children's sleepwear, as well as pointing out the importance of general home safety and fire prevention.

We would like to commend the Minister and the Product Safety Branch of Consumer and Corporate Affairs Canada for its attention to this most urgent matter. We will continue to support efforts to increase the stringency of flammability standards for children's sleepwear. We are pleased to be able to take an active role as child advocats on the department's Children's Sleepwear Committee.

Sincerely,



(Mrs.) Shirley Post, M. H. A.,
Executive Director.



Janet MacLachlan, M. H. A.,
Coordinator,
Injury Prevention and Child Safety
Program



Canadian Paediatric Society Société Canadienne de Pédiatrie

Children's Hospital of Eastern Ontario / Hôpital pour enfants de l'est de l'Ontario

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DR. D. H. ROSS TRUSCOTT
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6449 Macleod Trail S.W.
Calgary, Alta. T2H 0K8

March 22, 1985

Dr. R. Viau
Chief
Flammability Hazards Division
Product Safety Branch
Consumer and Corporate Affairs Canada
16th Floor, Zone 5
Place du Portage, Phase I
Hull, Québec
H1A 0C9

Dear Dr. Viau:

RE: Children's Sleepwear

Needless to say that I was pleased to learn that there are proposals in your Department to have more stringent regulations governing the flammability of children's sleepwear.

Dr. Stanwick, being the incoming Chairman of our Accident Prevention Committee, will be in a position to provide you with our association's official position. We are on record as recommending that all children's sleepwear be safe, so we would definitely favour option #2 in your document.

If more information is needed, please do not hesitate to let me know.

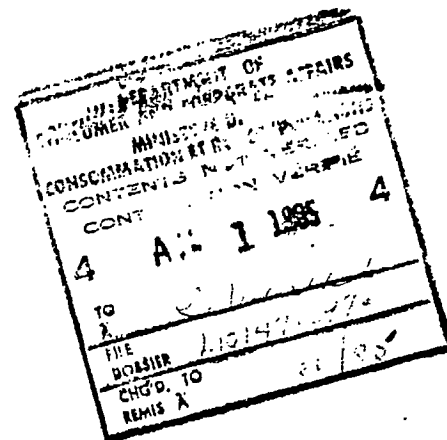
Yours sincerely,

J.H.V. Marchessault, M.D., F.R.C.P.(C)
Executive Vice-President

JHVM/lp

cc: J. Stoffman, M.D.
R. Stanwick, M.D.

Your File #: 10144-S97
Our File #: TR-269



INSTITUT
CANADIEN
DES TEXTILES

CANADIAN
TEXTILES
INSTITUTE

1080 Côte du Beaver Hall
Suite 1002
Montréal, Qué.
H2Z 1T6
(514) 866-2081

May 8, 1985

Dr. R. Viau, Ph.D.
Chief, Flammability Hazards Division
Product Safety Branch
Consumer and Corporate Affairs Canada
Place du Portage, Phase I
16th Floor, Zone 5
50 Victoria Street
Hull, QC
K1A 0C9

Your file: 10144-S97 - Children's Sleepwear

Dear Dr. Viau:

Your letter of February 28, 1985, requested comments on the proposals contained in it prior to the full meeting of the Children's Sleepwear Advisory Committee scheduled for May 15, 1985 in your offices in Hull. This letter contains the comments prepared by the Institute following a meeting held on April 23, 1985 of all interested members.

Canadian Textiles Institute represents manufacturers of primary textiles and in relation to Children's Sleepwear, those companies who manufacture fibres, spin yarn, weave, knit and finish fabrics for sale to manufacturers of Children's Sleepwear as well as companies who knit Children's Sleepwear as part of their manufacturing process. All are interested parties in the subject of regulations on the flammability of Children's Sleepwear. Before commenting on the options proposed in your letter of February 28, 1985, we would like to make the following points:

1. CTI supports the work of the Children's Sleepwear Advisory Committee and the Technical Sub-Committee which have been charged with examination of the question of more stringent regulations for Children's Sleepwear and the evaluation of relevant test procedures, as well as the evaluation of the Socio-Economic impact of more stringent regulations on all of the parties involved in the manufacture, marketing, import, retail sale and consumption of Children's Sleepwear.
2. CTI and its members are as concerned about the safety of children as the initiators of the present process and in particular the minimizing of burns - severe or otherwise - caused by fabrics that are unduly flammable. To this end, in

1972, it cooperated in the development of and recommended the adoption of the present test method, based on ASTM D1230-61, which is more stringent than the requirement for all other consumer fabrics. Then, in the late 70's, it worked with the Product Safety Branch on a draft regulation which was prepared following an intensive study in which its members took part.

3. CTI is of the opinion that the procedures put into motion on November 20, 1984, should be allowed to move forward with all possible speed; taking into account the many parameters that must be considered.
4. CTI also believes that the adoption of any one standard without careful consideration of all these parameters could cause more problems than it would solve and that, for this reason, the Children's Sleepwear Advisory Committee and its Technical Sub-Committee should be allowed to carry out the tasks assigned to them.
5. CTI is of the opinion that the options outlined in Dr. Viau's letter of February 28, 1985, do not reflect the deliberations of the Technical Sub-Committee meeting held on January 22, 1985. The preliminary recommendations made by that Sub-Committee do not include a recommendation for the adoption of the United States' Standard, or an equivalent test.
6. If adopted without modification, the two options suggested by Dr. Viau would cause an administrative nightmare for manufacturers, importers, retailers, Consumer and Corporate Affairs Canada and the Canada Customs because it would require the use of two different test methods at the same time.
7. In fact, all fabrics made for Children's Sleepwear, even if the purchaser indicated the specific end use, would have to be tested by the United States' method to insure that the fabrics met this test in case they were used in nightgowns or nightshirts.
8. Apart from the problem of testing which would also affect all imports of fabrics and garments, a dual standard could leave customs declaration loopholes open to importers and cause confusion at the point of entry, thus increasing the possibility of the placing of untested garments on the retail counter.
9. CTI notes that the Socio-Economic Study, agreed to at the first and only meeting of the Children's Sleepwear Advisory Committee, has not yet been commissioned and that a definition of the study is being prepared by your Branch.

The Institute recommends therefore:

1. That the Children's Sleepwear Advisory Committee clarify the terms of reference of the Technical Sub-Committee without delay;
2. That the Technical Sub-Committee proceed without delay to carry out its mandate and report back to the Children's Sleepwear Advisory Committee by a date to be agreed upon by the Committee in consultation with the members of the Technical Sub-Committee. This delay to be the shortest possible time in which the mandate can be completed;
3. That the options suggested in Dr. Viau's letter be a part of the mandate of the Technical Sub-Committee and its recommendations on these options be included in its report to the Children's Sleepwear Advisory Committee;
4. That under no circumstances there be, at any one time, two different methods by which the flammability of Children's Sleepwear be regulated (See remarks regarding this above);
5. That for the present, the major effort of the Technical Sub-Committee and the Children's Sleepwear Advisory Committee be on garments in a range 0 to 6X because infants and children in this age group are obviously less capable of protecting themselves than in the age group that would wear 7 to 14X;
6. That a very complete reporting system from all hospitals, clinics, etc. be instituted making it mandatory to report all cases of burnt children up to and including 14 years of age on a form to be devised by the Department. The report would show the garments being worn by the child, the age of the child, known or believed source of ignition, the presence of an adult in the close proximity (e.g. in the house) at the time of the occurrence and the socio-economic status of the child's environment, any handicap (mental or physical) in children, not infants, the extent of the burns and, if available, a sample of the garment that was burned, (In the last instance, particular emphasis should be placed on the labels on the garments) and an indication of whether or not the garment was homemade;

This reporting system should be put into place without delay and, we repeat, be mandatory as are gunshot wounds at this time;

That following a period of experience, to be agreed upon by the Children's Sleepwear Advisory Committee, the results of the reporting of burns suffered by children be the deciding

factor as to whether or not the regulation should be extended to 14X;

7. That imports become the object of very close scrutiny and that all garments declared as Children's Sleepwear or who, in the opinion of the Customs Officers, could be used as Children's Sleepwear (this is a system in the United States) be subject to random testing of at least one sample in each shipment;


That to overcome the problem of the testing of such garments at the hundreds of border crossings in Canada, only three ports of entry be designated for textile products of all kinds; and that at these three ports of entry there be properly equipped laboratories with competent technicians who are capable of carrying out whatever test is agreed upon in the final analysis;

The above recommendation applies equally to imports of fabrics for use in the manufacture of Children's Sleepwear and to Children's Sleepwear per se;

8. That all garments being sold as Children's Sleepwear carry, in addition to the requirements now set out in the textile labeling regulations, a mandatory statement that the garment meets the requirements of the flammability regulation. For example "Complies with PC1985-XXX"; this to be part of the fibre content label;
That garments entering Canada, that do not comply with this labeling requirement, be returned to the country of origin (as is done in the United States) or be placed in Bond until the importer has supplied proof that the garments/fabrics have been tested and comply. Then new labels must be affixed by the importer;
9. That import documents contain a declaration by the exporter, supported by properly authenticated certificates, that the garments/fabrics have been tested and comply with the regulation. These recommendations are made, as we have said, with only one result in mind: That of improving the existing regulation to ensure the safety of infants and children who are unable to assist themselves in cases of emergency caused by the ignition of their nightwear.

We shall be pleased to discuss this matter in detail at the meeting of the Children's Sleepwear Advisory Committee on May 15, 1985.

Sincerely,


James M. Robertson
Vice-President
Human Resources



Consumers' Association of Canada

Association des consommateurs du Canada

National Office • Siège social
Box 9300
Ottawa, Ontario K1G 3T9
Telephone (613) 733-9450

Publishers of Canadian Consumer and

DEPARTMENT OF CONSUMER AND CORPORATE AFFAIRS	
MINISTÈRE DE LA CONSOMMATION ET DES CORPORATIONS	
CONTENTS NOT VERIFIED CONTENU NON VÉRIFIÉ	
16	APR 18 1985 16
FILE DOSSIER	L 10147-297-
CHG'D. TO REMISS A	20/85

April 15, 1985

Product Safety Branch
Place du Portage, Phase I
16th Floor, Zone 5
50 Victoria Street
Hull, Québec
K1A 0C9

Dear Dr. Viau,

As you are aware, CAC resolved to improve the flammability standards of children's nightwear in 1983. It was for this reason we were first invited to participate in discussions with the Canadian Institute of Child Health's Working Group on the Prevention of Burn and Scald Injuries. Our work within this group has convinced us that new standards must be mandatory and apply equally to domestic and imported fabrics.

Both options put forth by the Children's Sleepwear Advisory Committee would vastly improve our current standards if adopted. In the interest of maintaining consumer choice, however, CAC is obliged to support option #1 as outlined in your letter of February 28, 1985. In accordance with our association's national resolution, CAC supports the adoption of the United States Standard or an equivalent test for all children's sleepwear except polo pyjamas and sleepers. We believe consumers should still have the choice to buy nightgowns in safer synthetics and cotton pyjamas in the body-hugging styles. Furthermore, CAC would like to see the Canadian standards extended to include sizes for both boys and girls up to size 14X.

I look forward to the May 15 meeting of the Children's Sleepwear Advisory Committee to further consider these proposed options. Regardless of who has chosen which option within our Committee, I feel we must all keep in mind that our common goal is to improve current children's nightwear standards for their protection. We must, at any rate, communicate to the manufacturers with one strong voice.

Sincerely,

Terry Cave / per H.H.

Terry Cave
Director of Technical and
Information Services

TC/jn



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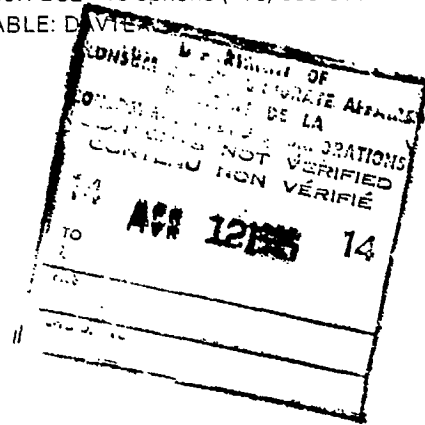
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April 11th, 1985.

Consumer & Corporate Affairs Canada,
Product Safety Branch,
Place du Portage, Phase I,
16th Floor, Zone 5,
50 Victoria Street,
Hull, Quebec.
K1A 0C9.



Re: Children's Sleepwear

With reference to the recent proposal to amend the regulations for children's sleepwear. We are apparel manufacturers who have chosen to specialize in the children's sleepwear area, particularly in the younger age groups, and we take seriously our responsibility towards our consumers. In our product design and development area we go to great lengths to ensure that a child will be as comfortable and as safe as possible when wearing one of our products. We must however, express our concern regarding the proposed changes and feel that consideration should be given to the following issues:

1) Why are children suffering these accidents in the home? Research in the United States has shown that the majority of accidents happen between 6 a.m. and 9 a.m., not during the sleeping hours. This indicates the necessity for a closer working relationship between industry and physicians to caution parents that greater supervision is necessary, particularly during the morning hours. The introduction of more severe flammability regulations, we feel, would be simply removing the symptoms of parental carelessness rather than the cause.

Before commenting on the accidents in Canada we need to know how they happened and what type of sleepwear garments the children were wearing. A domestically produced higher quality garment is far less likely to flare than a cheaper, imported garment made from 100 per cent acetate. Some consideration must be given to product differentiation between domestic and imported garments.

2) Has any consideration been given to the wishes of the consumer? Market research studies both in the United States and in Canada have shown that parents want their children to sleep in natural fibres as much as possible. As we well know there is no possibility of using cotton in flame retardant fabrics.

... /2

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- 2 -

Indeed more stringent legislation is in effect in Australia and the United Kingdom, but these countries permit the sale of any type of fabric for children's sleepwear as long as the label clearly indicates whether or not the fabric is flammable. We currently export our garments to Australia where they are acceptable with the addition of a warning label. This type of legislation leaves the onus and the choice where they belong which is with the parents.

From the point of view of our product we feel that the change in fabric blend together with the finish on the fabric would result in an inferior and harsher product. At this time we feel unable to comment on any possible price increases.

Figures from the United States show that the cost of garments has increased by 35% since the introduction of the legislation. Currently our fabric sources do not produce such fabrics so no prices are available.

We agree that any injury to a child is one too many but we have difficulty accepting that a change in the sleepwear regulations will reduce the number of accidents in the home.

Yours truly,

L. DAVIS TEXTILES CO. LTD.

Pauline Ashworth

Pauline Ashworth
Product Manager

PA/mcu

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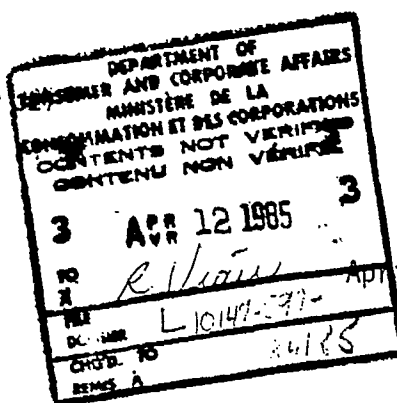
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C.P./Box 6250 Montréal, Québec H3C



Mr. R. Viau,
Consumer & Corporate Affairs Canada,
Flammability Hazards Division,
Product Safety Branch,
Place du Portage, Phase I,
16th Floor, Zone 5,
50 Victoria Street,
Hull, Quebec.
K1A 0C9

Dear Mr. Viau,

We are in receipt of your letter dated February 28, 1985 on the subject of children's sleepwear, your file number 10144-S97.

The technical sub committee met on January 23, 1985 and amongst the summary of discussion and decisions reached, options were presented for further consideration by the advisory committee. Can we assume that the first draft of the summary of discussions of the January 23 meeting under the signature of Ms. E. Nielsen was distributed to all members of the advisory committee?

In your letter of February 28, you are suggesting options which did not originate from the technical sub committee. To our recollection, the sub committee was more in favour of modifying the existing Canadian standard. We believe that the different options discussed by the sub committee should be presented to the advisory committee.

We understand you want to expedite the debate, but as you know, any decisions reached could have a great impact on fabric producers, garment manufacturers, as well as the consumers.

Yours very truly,

DOMINION TEXTILE INC.


J.B. Turcotte.

JBT:rs

c.c. Ms. M. Grégoire

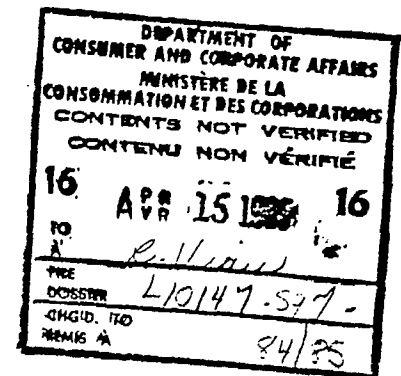


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April 9, 1985

Dr. P. Viau, Chief
 Flammability Hazards Division
 Product Safety Branch
 Place du Portage, Phase I
 16th Floor, Zone 5
 50 Victoria Street
 Hull, Quebec
 K1A 0C9



Dear Sir:

RE: Children's Sleepwear

In your letter of February 28, 1985 you invite comments from various interested parties on the subject of more stringent regulations for children's sleepwear.

First, permit us to introduce ourselves as Canada's largest manufacturers of knitted pile fabrics. A substantial portion of our products are acrylic face, polyester back blanket fleece fabrics used extensively, inter alia, in the manufacture of children's sleepers and robes. As a responsible company and as concerned citizens, we support efforts to tighten up safety regulations to cut down on the incidence of injury and death to children who wear unsafe sleepwear.

However, we feel that some of the proposals that have been made are exaggerated and amount to "overkill". Nor do the statistical data in themselves, in our view, indicate the introduction of Draconian measures to be justified. It is evident from the statistics that loosely fitting nightwear such as nightgowns and nightshirts when made from flammable materials are indeed dangerous and should be prohibited. Moreover, it is equally clear from the statistics you have submitted that fabrics made of cotton and probably rayon are the culprits in almost all cases and should be prohibited.

However, as manufacturers of acrylic face, polyester back fabrics used in tight-fitting sleepers (buntings) and robes, we must protest any plans to prohibit the use of such garments for sleepwear. Of the 76 cases of injury cited in the 1971-1984

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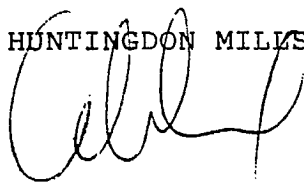
statistics with which you supplied us, only one case involves an acrylic/polyester sleeper and even that garment was combined with a cotton/polyester terry, which most probably was the culprit rather than the acrylic/polyester portion. Moreover, in that one case, the child climbed onto the stove and turned on the elements, which would ultimately have caused injury or death no matter what garment had been worn. We feel, therefore, that absolutely no case has been made against the use of acrylic/polyester fabrics in children's sleepwear.

In our view, acrylics should continue to be used in sleepwear garments such as sleepers, buntings and polo-pyjamas. We are not sure whether cotton, cotton/polyester blends or acetate should be allowed to be used for this purpose - we would have to see further evidence that these would be safe. On the other hand, nightgowns and nightshirts should be produced only from polyester, nylon, modacrylics or cordelan.

We look forward to meeting you on May 15, 1985, at which time we hope some forward movement will be made with respect to this problem.

Yours truly,

HUNTINGDON MILLS LTD.



Arthur Roskies

AR/dw

cc: Nathan Roskies

Marks & Spencer

3770 Nashua Drive, Mississauga, Ont. L4V 1M6
Telephone: (416) 676-1910 Telex: 06-96884-7

March 20, 1985.

Dr. R. Viau Phd.
Chief Flamability Hazards Div.
Products Safety Branch
Place du Portage
Phase 1
16th Floor, Zone 5
50 Victoria Street
Hulle, Quebec
K1A 0C9

CONSUMER AND COMPLAINT AFFAIRS	
CONTENTS NOT VERIFIED CONTENU NON VERIFIÉ	
2	MAR 25 1985 2
TO A	R. Viau
FILE DOSSIER	10144-597
CHG'D. TO REMAIS A	

Re: File Reference 10144-S97

Dear Dr. Viau:

Thank you for your communication dated February 28th regarding the alternate standards which should be considered for the flamability of children's sleepwear.

I am opposed to Option 2 which requires the application of the existing United States Standards for all children's sleepwear and the basis that it would eliminate many fibres which customers find desirable in these products.

I have less difficulty in Option 1, provided that the American test is modified to make it more practical and one that is therefore likely to be carried out. The method of test itself causes no problem in my opinion, either in terms of equipment nor time taken for the test to be carried out. I find the requirement that such fabrics be washed fifty times at 60°C to be abnormally stringent and of little technical value. Testing after washing five times would be much more realistic and would in essence, in my opinion, produce similarly accurate results.

I fully accept the view that close fitting garments such as pajamas and sleepwears may not pose the same hazard and could therefore be exempt.

I intend to come to the meeting on May 15th but would like these views expressed in this letter to be taken into consideration should anything unforeseen crop up preventing my attendance.

Yours sincerely,



P. Murphy
Executive - Technology

PM/cv

Monsanto

Monsanto Canada Inc.
2000 Argenta Road, Plaza Two
P.O. Box 787, Streetsville
Mississauga, Ontario L5M 2G4
Telephone: (416) 826-9222

May 9, 1985.

DOCUMENTS OF CONSUMER AND CORPORATE AFFAIRS MINISTRE DE LA CONSOMMATION ET DES CORPORATIONS DOCUMENTS NOT VERIFIED CENTRE NON VERIFIE	
8	MAY 10 1985
TO	
FROM	
DOCUMENT 10144-597 CASE NO CORR 2	

Dr. R. Viau, Ph. D., Chief,
Flammability Hazards Division,
Product Safety Branch,
Consumer and Corporate Affairs Canada,
Place du Portage, Phase I,
16th Floor, Zone 5,
50 Victoria Street,
Hull, Quebec.
K1A 0C9

Dear Dr. Viau:

With reference to your letter dated February 28, 1985 (File No. 10144-S97) regarding Children's Sleepwear, I have recently spoken with a number of Canadian textile persons as well as several in the U.S.A. who have some association and concern with the subject.

I believe most people will agree the subject is one of a very emotional nature with very little scientific or factual data upon which to base a sound recommendation as to what is the best route to follow.

In reading your letter, it is my opinion that further serious consideration should be undertaken when you state that "Garments such as nightgowns and night shirts could be produced from fibres such as polyester, nylon, modacrylic, or cordelan". In talking with the U.S. Consumer Products Safety Commission, there is great concern, regarding the deep and serious burns caused by melting polyester or nylon even though the fabrics themselves may not ignite. You are probably aware that the Department of National Defence originally specified a maximum content of approximately 35% of polyester fibre for the uniforms for the Canadian Armed Forces due to the nature of burns from melting polyester. The U.S. Government, I believe, has a similar specification for the amount of polyester fibre that can be used in fabrics for its armed forces. In addition to the deep burn problem, the smoke and toxic fumes generated from polyester are severe.

I have endeavoured, without success, to obtain statistics from the U.S.A. before the initial flammability regulations were adopted, after these regulations were adopted and again after the drip test was removed from those regulations.

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Page 2

If flammability regulations are to be adopted in Canada, I believe that the drip test should be a part of these regulations, especially for children and for the aged and infirmed.

In order to secure more infomration, the following contacts in the U.S.A. should be able to provice you with a better and more informed picture of the situation there.

- 1) Dr. L. James Sharman, Consumer Products Safety Commission,
(301) 492-6554.

He states that there are no national statistics in the U.S.A.

- 2) Earl Johnson, Federal Trade Commission, Division of Product Information, (202) 376-2891.
- 3) Miss Velda Rankin, U.S. Department of Agriculture, Program Leader, Specialist for Textiles and Clothing, (202) 447-2179.
- 4) Sanford Davis, National Bureau of Standard Archives, (301) 921-2963.
- 5) Emil Braun, National Bureau of Standards, Centre for Fire Research, (301) 921-3834.
- 6) Jim Winger, National Bureau of Standards, Centre for Fire Research, (301) 921-3143.
- 7) Ron Palmer, National Bureau of Standards, Centre for Fire Research, (301) 921-3116.

There is also a great deal of information that you could obtain from the Department of Interservice Development in Ottawa.

Based on the almost complete lack of factual data that is available, I am sure you will agree that in order to adopt meaningful and constructive specifications and regulations, a major effort will be needed to secure information on the type of fire e.g. the source and type of flame; the type of material worn; the age of the person involved and related conditions. This information should also be determined for the aged, as I believe more elderly people are killed or injured through fire than are children.

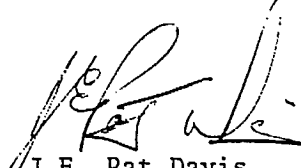
The cost of sleepwear in the U.S.A. did increase considerably after the regulations were adopted. For the low to mid-income group, many purchased cotton clothing such as T shirts etc., which were not actually sold as sleepwear, but that were used for sleepwear in order to reduce the cost of clothing for their children.

Page 3.

I hope this information will be helpful and useful to you and I am planning to attend your meeting in Hull on May 15, 1985.

Sincerely yours,

MONSANTO CANADA INC.,

A handwritten signature in dark ink, appearing to read 'J.E. Pat Davis', written over the typed name.

J.E. Pat Davis,
Marketing Manager,
Textiles Division.

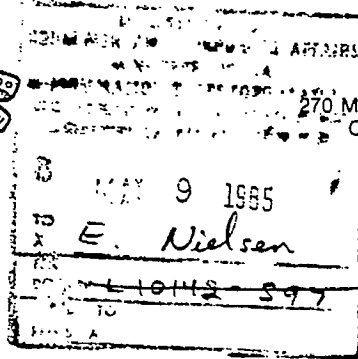
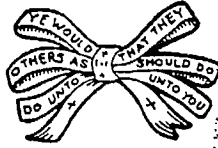
JED/rc

THE NATIONAL COUNCIL OF WOMEN OF CANADA

LE CONSEIL NATIONAL DES FEMMES DU CANADA

PRESIDENT:

MARGARET MacGEE (MRS. J.)
 1048 KINGSTON AVENUE
 LONDON, ONTARIO
 N6H 4C6
 TEL: (519) 471-9156



HEAD OFFICE

(613) 233-4953
 270 MacLAREN ST., ROOM 20
 OTTAWA, ONTARIO
 K2P 0M3

May 6, 1985

L10147-597-85/86

Elizabeth Nielsen, Ph. D.
 Flammability Hazards Division
 Product Safety Branch
 Consumer and Corporate Affairs Canada
 16th Floor, Zone 5
 Place du Portage I
 50 Victoria Street
 Hull, Quebec
 K1A 0C9

Dear Ms. Nielsen:

You will find enclosed a response re. flammability standards of children's sleepwear based on the study of three Local Councils of Women, Saint John, London and Winnipeg and the Officers of the Provincial Council of Women of Saskatchewan.

I will be in Ottawa on May 15, 1985 and would be pleased to personally attend the meeting of the Children's Sleepwear Advisory Committee on that date.

Sincerely,

Mrs. Margaret MacGee
 President, NCWC

FOUNDED 1893

(INCORPORATED BY ACT OF PARLIAMENT OF CANADA)

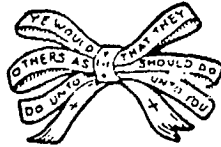
IN FEDERATION WITH INTERNATIONAL COUNCIL OF WOMEN

THE NATIONAL COUNCIL OF WOMEN OF CANADA

LE CONSEIL NATIONAL DES FEMMES DU CANADA

PRESIDENT:

MARGARET MacGEE (MRS. J.)
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 OTTAWA, ONTARIO
 K2P 0M3

NCWC SUBMISSION

to

CHILDREN'S SLEEPWEAR ADVISORY COMMITTEE

Consumer & Corporate Affairs Canada
 Product Safety Branch
 Flammability Hazards Division

May 6, 1985

The National Council of Women of Canada is a national federation of Councils in major Canadian centres in eight of the ten provinces, six provincial Councils, twenty-three nationally organized societies, approximately 1,500 local individual associations with an estimated 750,000 members.

The purpose of the National Council of Women of Canada as it relates to Government is to interpret public mood; to identify need; to monitor the efficiency of government agencies as they relate to community well-being and to educate members to become responsible citizens.

The Canadian Council is an affiliate of the International Council of Women, an international non-governmental organization with Category I consultative status with the Economic and Social Council of the United Nations and consultative status with UNESCO, UNICEF, FAO and WHO.

The Council under normal circumstance speaks only on those issues which have been before the national membership in either resolution form or a Canada-wide survey of membership opinion, i.e. the Council's recent submission to the Information Session on Upholstered Furniture Flammability, March 19, 1985, based on a 1985 NCWC Resolution. In the case of children's sleepwear and flammability standards, we found ourselves without existing policy, but with a desire to participate. The decision was made to seek an opinion and to develop a Council response from three local Councils of Women across Canada: SAINT JOHN, New Brunswick; LONDON, Ontario; WINNIPEG, Manitoba; and from the Committee of Officers of the Provincial Council of Women of Saskatchewan.

The basis of study was: 1) the Product Safety Branch, Working Notes on Children's Sleepwear Flammability (Nov.84); 2) the Product Safety Branch File: 10144-S97 Re. Children's Sleepwear; and 3) research within the local community. The response from the Saint John, London, Winnipeg and Saskatoon Councils of Women follows.

FOUNDED 1893

(INCORPORATED BY ACT OF PARLIAMENT OF CANADA)

IN FEDERATION WITH INTERNATIONAL COUNCIL OF WOMEN

RECOMMENDATIONS

1. The adoption of Option 2(b), with continuing consideration given to accomodating children with allergies and other problems.
2. The labelling of garments as to potential fire hazard but not the Australian category 3, "Keep Away From Fire", as no sleepwear of this type should be sold.
3. Further research should be funded to find new and safer flame retardant treatments for all materials.
4. The labelling of fabrics used in home-sewing of children's sleepwear.
5. The development and implementation of an immediate and continuing educational program directed to parents and the general public on the flammability of children's sleepwear and the inherent dangers created by the children themselves.
6. That such an education program be the responsibility of the government but that consumer and other voluntary organizations be used as a vehicle to help in the spread of information.

Conclusion:

The three Local Councils of Women and the Officers of the Provincial Council of Women of Saskatchewan who have participated in this study of children's sleepwear and who represent four areas of Canada, have expressed united observations and recommendations. An assumption may be drawn that this view and opinion would be the basic view shared by our national membership. However, if time is available, the National Council of Women of Canada would much prefer to seek a NCWC opinion on flammability standards for children's sleepwear for submission to the Product Safety Branch. We trust that even this small measure of opinion will be of use to the Children's Sleepwear Advisory Committee.



National Defence

Défense nationale

National Defence Headquarters
Ottawa, Canada
K1A 0K2

Quartier général de la Défense nationale
Ottawa, Canada
K1A 0K2

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 R. Viau
 L 10142-597

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12 March 1985

R. Viau, Ph.D.
 Chief
 Flammability Hazards Division
 Product Safety Branch
 Consumer and Corporate Affairs
 Place du Portage, Phase I
 16th Floor, Zone 5
 50 Victoria Street
 Hull, Quebec K1A 0C9

CHILDREN'S SLEEPWEAR

1. With reference to your letter of February 28, 1985, please be advised that the view of this office is that option 2, whereby the full scope of the USA regulations would apply, is most suitable. There does not seem to be any justification to expose Canadian children to avoidable hazards, especially when such can be achieved without significant economic impact.

L. MacLean
 Lieutenant Colonel
 Canadian Forces Fire Marshal

Comments re Children's Sleepwear

M. Day and M.T. Mitton

National Research Council

26 March 1985

DEPARTMENT OF CONSUMER AND CORPORATE AFFAIRS MINISTÈRE DE LA CONSOMMATION ET DES CORPORATIONS	
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4	APR 1 1985 4
TO A	<i>L. Vignol</i>
FILE DOSSIER	L10147-377-
FILED INDEXED	84/25

If a selection has to be made between the two options suggested in your letter of February 28, 1985, we much prefer (1). Cotton or blends with cotton have long been considered the most comfortable and practical fibre for use in children's sleepwear and it would be unfortunate if the consumer was denied access to close-fitting cotton pyjamas which are relatively safe. Option (1) should also be broadened to include all full length or belted pyjamas.

Irrespective of the standard or test method employed for children's sleepwear, there are certain points that must be noted:

1) The establishment of performance specifications for fabrics used in children's sleepwear may be of limited success unless those responsible for the garment production are made aware that the use of certain trims, accessories and sewing threads can have an adverse effect on the flammability of sleepwear products.

2) In order to ensure protection from flames, the design of the garment is equally as important as the fabric employed. That is why the Australian Standard stresses the importance of design.

While no specific test has been decided upon at the moment, the U.S. Standard is obviously receiving a great deal of attention. However, it should be pointed out that since the method holds the test specimen taut in the metal sample holders, it means that the specimen is not free to react to the flame front in the manner it would in actual garment form. This problem has been recognised by the international scientific community concerned with the burning behaviour of textile materials (ISO/TC 38/SC 19). This committee (endorsed by Canada) has therefore developed two test methods, ISO 6940 and 6941 to measure ease of ignition, and flame propagation rates using specimens mounted on pins in a semi-restrained manner. This test configuration permits the specimen to react normally to a flame front.

In addition to the above obvious advantage, these two ISO test methods are also:

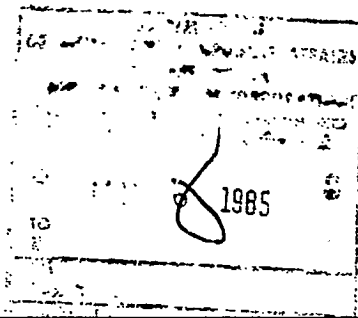
2.

- 1) simple to operate
- 2) the equipment is cheap and easy to fabricate
- 3) the flame-propagation test correlates well with mannequin burn tests.

Until now ISO standards seem to be rarely implemented at the national level. In this case ISO has developed two good enforceable standards. Surely we should look closely at these methods if we are really interested in global standards.



Ontario



PA

Ministry of the
Solicitor
General

Office of the
Fire
Marshal

Public Safety Division
DEPARTMENT OF CONSUMER AND CORPORATE AFFAIRS
MINISTÈRE DE LA CONSOMMATION ET DES CORPORATIONS
CONTENUS NON VERIFIES

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FILE	L10147-97-
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May 1st, 1985

Dr. R. Viau, Ph.D.
Chief
Flammability Hazards Division
Product Safety Branch
Consumer and Corporate Affairs Canada
Place du Portage, Phase I
16th Floor, Zone 5
50 Victoria St.
Hull, Que.
K1A 0C9

Re: Children's Sleepwear

Dear Dr. Viau:

We have reviewed the discussion paper on children's sleepwear and feel that Option 2(b) should be adopted, for the following reasons:

1. Option 1 - would exempt types of sleepwear classified as polo pyjamas and sleepers. Therefore, once exempted, it is likely that they will be forgotten.
2. Option 2(a) - would focus on all sleepwear products. This option although desirable may have considerable impact on the consumer, both in selection and price.
3. Option 2(b) - would be a two stage application, thus focusing on the higher hazard clothing in the first stage and lower hazard clothing at a later date.

We have checked into Ontario Fire Loss Statistics and found that we can obtain fairly detailed information on clothing in cases where there has been a fatality. However, where there has been only an injury, not much information can be obtained from our statistics.

Ontario statistics do not indicate who manufactures the garments and it would, therefore, be difficult to establish if the sleepwear were homemade or manufactured.

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I apologize for not responding sooner and also regret that we will be unable to participate in the May 15th meeting. I do hope, however, that we will be kept informed of any initiatives you might undertake.

Yours truly,



J.R. Bateman
Fire Marshal

cc-Mr. R.R. Philippe, P. Eng.

DEPARTMENT OF LABOUR
AND HUMAN RESOURCES
P.O. BOX 6000
FREDERICTON, N.B., CANADA
E3B 5H1



NEW BRUNSWICK
NOUVEAU-BRUNSWICK

MINISTÈRE DU TRAVAIL ET
DES RESSOURCES HUMAINES
CASE POSTAL 6000
FREDERICTON, N.-B.
E3B 5H1

March 18, 1985

Dr. R. Viau
Chief
Flammability Hazards Division
Product Safety Branch
Consumer and Corporate Affairs Canada
Place du Portage, Phase 1
50 Victoria Street
Hull, Québec
K1A 0C9

DEPARTMENT OF CONSUMER AND CORPORATE AFFAIRS MINISTÈRE DE LA CONSOMMATION ET DES CORPORATIONS	
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2	MAR 27 1985 2
TO A	<i>D. Viau</i>
FILE DOSSIER	<i>L 1012A-597</i>
CHG'D. TO REMISS À	<i>H. Jones</i>

Dear Dr. Viau:

Thank you for your letter of February 28th regarding Children's Sleepwear.

I personally favour option 2, i.e. Adoption of the United States Standard for Children's Sleepwear or a test of equivalent stringency for all children's sleepwear products. While I cannot state this to be New Brunswick Government policy, it is certainly the approach I would follow in discussions with my Minister.

I feel that we are dealing with an important life safety aspect here and the incremental costs of meeting the standard are insignificant compared to the consequences possible as a result of enforcing a lower standard. If the clothing manufacturers are selling into the U.S. market, they are already meeting the more stringent requirements. I think I can say that I echo the sentiments of the Fire Service in New Brunswick regarding this subject as well. If the more stringent Regulation results in even one less fire death as a result of burns, it is well worth the effort.

Yours very truly,

M. P. Fitzpatrick

M. P. Fitzpatrick, P. Eng.
Acting Fire Marshal

MPF/dlm



STANFIELD'S Limited

P. O. Box 190, Truro, N. S. B2N 5C2

March 25, 1985.

Mr. R. Viau, Ph. D.,
Chief,
Flammability Hazards Division
Product Safety Branch,
Consumer and Corporate Affairs,
Place du Portage, Phase 1,
16th Floor, Zone 5,
50 Victoria Street,
Hull, Quebec.
K1A 0C9

DEPARTMENT OF CONSUMER AND CORPORATE AFFAIRS LE MINISTRE DE LA CONSOMMATION ET DES CORPORATIONS	
CONTENTS NOT VERIFIED CONTENU NON VÉRIFIÉ	
2	2
TO À	<i>R. Viau</i>
FILE DOSSIER	<i>L10144-S97</i>
CHG'D TO REMS A	

Dear Mr. Viau:

Re: File: 10144-S97

I acknowledge your letter of February 28, re Children's Sleepwear. Naturally, we would prefer the option that would permit the exclusion of Polo Pyjamas and Sleepers. I am not sure that all of the facts contained in your letter of February 28, are correct. I think there has been a loss of market in the United States. I would suggest to you that many of the higher sizes in boys' started to buy the lower sizes in men's since there is very little difference between a boys' large and a man's small in sizing. I also would suggest from my own observation of garments on the counters in the United States that there is far less choice of garment on the counter and there is less space on the counter, therefore, I think there would be less sales. The garments are far less appealing and there is no question that the safety standards have affected the types of garments offered to consumers.

It goes without saying that safety is a major concern. I think you are struggling to find whether or not Polo Pyjamas are part of the problem or not. You seem to be stressing loose fitting garments such as Night Shirts and/or Sleepwear for girls that have a lot of trims on them. I think you are also missing a point when it comes to the fabric content of Sleepwear. I cannot think of a worse fibre to permit than Polyester or derivatives of it that are similar with respect to fusion due to the melt down factor when the garments burn. I think it is this

Continued ...

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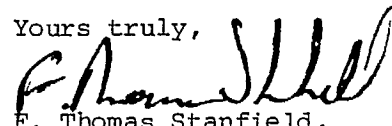
Mr. R. Viau, Ph. D., ... Continued -
March 25, 1985.

- 2 -

fusion that causes a lot of the skin problems afterwards. Therefore, I am at a loss to understand why you would permit 100% Polyester and the rest of it. I can only assume that you are coming with recommendations of treatment with chemicals that appears to be the case in the American market. It is this treatment of chemicals on the fabric and the cost of such that has probably driven most of the garments off of the market in the United States.

I would reiterate what I had said previously in correspondence to your Branch. I think we all have to be concerned about safety. However, I think we must also recognize that we cannot stop everything from happening. What we have to be above all, is realistic. The U. S. has not always been right in many of their standards. I would suggest that you would be wise to go the middle route which is to eliminate the obvious products that are causing trouble and to leave product groups such as Polo Pyjamas alone. This could be reviewed five or ten years from now when you get proper data.

Yours truly,


F. Thomas Stanfield,
President,
Stanfield's Limited.

FTS:dmc

Received May 14, 1985
L. Nielsen
Flammability Hazards
Division

FLAMMABILITY REGULATIONS

FOR

CHILDREN'S SLEEPWEAR

(DISCUSSION DRAFT)

CAMA
MAY, 1985

- I. INTRODUCTION
- II. BACKGROUND
- III. EXPERIENCE IN OTHER COUNTRIES
- IV. THE POTENTIAL BENEFITS
- V. THE POTENTIAL COSTS
- VI. OTHER OPTIONS
- VII. RECOMMENDATIONS

I. INTRODUCTION

This Brief addresses the issue of what steps should be taken regarding the incidence and severity of sleepwear-related burns among children. We make recommendations which, we believe, represent the best trade-off between likely costs and benefits given existing information. Before going into detail, however, we must set the stage as to the nature and role of our Brief, and the arguments presented therein.

What do we mean by "costs and benefits"? Policies can only be evaluated relative to other available alternatives, one of which is the current situation. In comparing alternatives, what is a "cost" and what is a "benefit" depends upon your starting point. For example, if Option 1 gives more consumer choice than Option 2, and if consumer choice is regarded as a positive attribute, then the difference in consumer choice can be viewed as a benefit of Option 1 or as a cost of Option 2. This is just the same as saying that whether a hill slopes up or down depends upon whether you are starting at the bottom or at the top. In this Brief, we treat only one aspect as a "benefit" -- that is, the reduction in the incidence and severity of child burns. All other aspects are treated as "costs". So, an option which offered more consumer choice would be considered "less costly" under this criterion.

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We re-emphasize our desire to work in co-operation with all parties to develop policy measures in the area of clothing-related burns to children. We recognize that the politician is frequently faced with the very difficult task of being final arbiter between different viewpoints, and that the politician's ultimate responsibility is to society as a whole rather than to any specific interest group or groups. Measures which benefit one group will frequently have socio-economic costs for other groups and for society as a whole. In the area of clothing-related burns to children, we as manufacturers of children's sleepwear are obviously particularly sympathetic to the politicians' task and responsibility. To assist them in making their decisions in a responsible manner, politicians must have the best information available as to the relative costs and benefits of all reasonable policy measures. At the present time, such information is sadly lacking.

Absolutes are, unfortunately, few and far between when it comes to political decision-making. If saving one extra life was accepted by society as being worth any extra cost, then we would have an absolute where only the benefit side of the balance was relevant. The politician's decision-making responsibility would be far easier to fulfill. If this absolute was indeed a true

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reflection of reality, however, then society would put a blanket speed limit of 20 kph on all roads and target the vast proportion of government revenues/expenditures towards more medical research and improved hospital facilities. Millions of lives would be saved over the years, but society is simply unwilling to pay the effective costs of such measures. Each individual will have a different view as to what benefit/cost trade-offs are acceptable, but ultimately society, via the politicians and the political process, must decide.

On the benefit side, the analytical/assessment process requires information on the incremental benefits of moving through progressively more costly and restrictive measures, including the quite extreme options recently proposed by Corporate and Consumer Affairs. However, even adequate data on the current national incidence and severity of children's sleepwear-related burns has not been collected, and without this we cannot even begin to estimate the impact (relative or absolute) of various measures. Common sense would suggest that restricting children's sleepwear to man-made, self-extinguishing materials would reduce the incidence and severity of burns, other things constant. Unfortunately, other things are NOT constant, and such measures may generate a behavioural change by consumers in response to higher prices and/or less-preferred materials. Concerns have been expressed that under such extreme option, parents would move towards more home-made garments and/or garments not initially

-4-

intended as children's sleepwear. Since flammability standard for children's sleepwear are more strict than for yard goods and other garments, some children would be put at greater risk than currently. Thus the effect of market forces may or may not more than offset any benefit achieved by the new regulations per se. Quite frankly, we simply do not know given the current state of available information.

On the cost side, there are both direct and indirect costs of each option. Direct costs would incorporate such factors as the dollar costs of a public education program; more complex testing and enforcement processes, and increased expenditures through Unemployment Insurance and other social assistance programs as more people were without work. Even higher unemployment itself, however, has indirect costs which cannot be measured in economic terms. For example, it is an accepted fact that unemployment fosters feelings of inadequacy and uselessness. How should we weigh psychological pain relative to physical pain? It is recognized also that psychological stress and pain contribute to the suicide rate, alcoholism, crime etc. How many extra suicides would be caused by the unemployment resulting from adopting such extreme proposals? How do we weigh these costs against the incremental benefits of more extreme proposals, assuming that burn incidence would indeed fall?

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We have no answers to these questions, nor do we believe that it is within our domain to even try to answer them. We wish merely to highlight two points. First, the decisions and trade-offs are far more complex than they initially appear, and politicians have a responsibility to society as well as to the individual. Second, there is a gross lack of information both on the economic costs and benefits and on the social costs and benefits. Most of the necessary information can only be collected by the government, but to date it has seemed unwilling to do so. All we can do in this Brief is to present what little information we have, and to supplement it with observations and opinions based on our experience in the industry. Obviously we are an interested party. Nevertheless, we believe we have addressed the issues in an objective and responsible manner. Our recommendations represent what we believe to be the best compromise between known costs and benefits; probable costs and benefits, and possible costs and benefits. If society does not agree, then we must accept society's preferred compromise. If society's decision is based on inadequate information, however, we will accept it reluctantly.

II. BACKGROUND

In November 1971, the federal government via Order in Council established standards and testing procedures for the flammability of clothing textiles. These procedures, still currently in force, require a 127mm strip of fabric be held at a 45° angle to a flame for a period of one second. Under the general standard, fabrics without a raised fibre surface must burn no more than 5 inches in less than 3 1/2 seconds, or 4 seconds if they have a raised fibre surface. However, for children's sleepwear, dressing gowns and robes, the material (including lace and trimmings) must burn no more than 5 inches in less than 7 seconds. The standard for children's sleepwear (sizes 0-6X) is therefore twice as strict as for other garments in this respect.

In Spring of 1983, the Product Safety Branch (PSB) of the Department of Consumer and Corporate Affairs (CCA) initiated a review of current standards for children's sleepwear. This review appears to have been in direct response to a study by Dr. Stanwick of the University of Manitoba, which is discussed below. CCA worked in cooperation with a Working Group established by the Canadian Institute of Child Health (CICH) and comprising representatives from the apparel and textile industries, the

-7-

medical profession, consumer associations, fire authorities, CICH and CCA.

A Working Group meeting held June 20, 1984 discussed a position paper (dated May 1984) put forward by CICH. Subsequently, on July 3, 1984, CICH forwarded a letter to the then Minister of CCA containing several recommendations which it contended represented a consensus of the June 20 meeting. Among these recommendations was one which would essentially ban the use of cotton and cotton fibre blends for use in children's sleepwear (to size 14X). On July 12, 1984, the Children's Apparel Manufacturers' Association (CAMA) sent a letter to the Minister emphasizing that:

"The recommendations proposed to you were modified after the committee met on June 20 and reflect only the opinion of the Canadian Institute of Child Health (CICH).

For the record, the recommendations agreed to by the committee were as follows:

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1. Fabrics to be used in children's sleepwear to size 14X to pass a stringent flame test. The standard to apply to both domestic and imported apparel and fabrics.

2. A public education program be undertaken to inform consumers of the reason for changes in standards for children's sleepwear and to suggest ways in which they can reduce home fire hazards.

These are the only recommendations which are endorsed by our association".

In August 1984, CAMA received a reply from the Minister, which contained the following piece:

"Moreover, I feel that regulations should be developed in full co-operation with industry and all concerned parties. To ensure this, I have requested that officials of my Department's Product Safety Branch form a committee of all interested parties to discuss the technical and economic aspects of the development of more stringent regulations for children's sleepwear".

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Subsequently, in a CCA Trade Communiqué dated October 1984, the following appeared:

"The CICH Working Group recommended to the Minister of Corporate and Consumer Affairs that a more stringent flammability requirement be developed for children's sleepwear up to size 14X; that this apply to both domestic and imported products; that a public information program be undertaken; and that a technical committee be formed to investigate the technical and economic aspects of more stringent requirements."

The same Communiqué gave notice of a meeting to be held on November 20, 1984 to establish a steering committee to discuss the technical and economic aspects. The Summary of Discussion and Decisions (1st draft) of this meeting noted it was proposed that sub-committees be established to examine the technical and economic aspects separately. Among other items, it was agreed that:

- * "A Socio-Economic Impact Analysis (SEIA) must be carried out to assess the impact on the textile ind-

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ustry, clothing manufacturers and consumers of more stringent flammability requirements for children's sleepwear".

- * "Members present would cooperate fully with a consultant or a sub-committee to develop the data required".

- * "The terms of reference for a consultant will be tabled at a meeting to ensure that all aspects of the problem are examined".

Although the technical sub-committee met on January 23, 1985, no apparent moves have been made with regard to the economic sub-committee or the socio-economic analysis. Nevertheless, in a PSB document dated February 28, 1985 sent out to notify interested parties of a full meeting of the Children's Sleepwear Advisory Committee on May 15, 1985, the following "options" were put forward:

- 1) Adopt the United States Standard or an equivalent test for all children's sleepwear except for polo pyjama and sleepers.

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- 2) Adopt the United States Standard for children's sleepwear or a test of equivalent stringency for all children's sleepwear products.

These tests would essentially prohibit the use of cotton or cotton fibre blends in the relevant children's sleepwear categories -- that is, their effect would be the same as CICH's proposals of July 1984 which, as we have noted, were NOT an accurate reflection of the consensus reached by the Working Group.

According to the February 28, 1985 document from PSB, these extreme proposals were put forward as "options" to "expedite the debate surrounding the children's sleepwear problem", ostensibly in response to a request by the technical committee "that specific terms of reference be developed with respect to the test stringency and the type of sleepwear products that would be covered by the test". Two interpretations are therefore possible. EITHER these options are in fact proposals as to the specific terms of reference for the technical committee. If so, we deeply regret that CCA has chosen to support such extreme measures without consulting all members of the Working Group other than CICH, including the manufacturing sector. Furthermore, this interpretation means that the proposals are being supported

-12-

without adequate research and testing, and without even establishing (let alone considering an evaluation from) the proposed sub-committee which was to consider socio-economic aspects. What has happened to this sub-committee? Has the proposed "Socio-Economic Impact Analysis" been shelved? If so, then it will not be possible to objectively evaluate the costs and benefits of alternative measures. If not, then does CCA intend to even consider the analytical findings of the sub-committee's researchers/consultants before deciding upon its recommendations? Regardless, if this indeed is the interpretation to be put upon CCA's "options", then not only would we deeply regret that such extreme options had been effectively decided upon without consultation, especially after the many years over which we as manufacturers have willingly and actively co-operated with the government and other groups in this regard, but also we would be deeply concerned that such steps were to be taken without the necessary and promised research into their costs and benefits.

OR, the "options" could be interpreted at face value -- that is, they are discussion vehicles for establishing terms of reference for the technical sub-committee. Under this interpretation we still have reservations, but of a somewhat different nature. Terms of reference generally establish

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jurisdiction of and the limits beyond which the investigatory body should not go. In this case, terms of reference must encompass all reasonable options and not be restricted to such extremes as the effective banning of specific materials. If the discussion vehicles are confined to extremes, then the resulting terms of references will be unduly biased towards these extremes. This would be unacceptable. The investigatory body must be allowed -- and indeed required -- to do their work without built-in constraints which by their nature will generate biased results. Other less extreme options do exist, and these too must be covered by the terms of reference. This applies both to technical analysis / investigation and to socio-economic analysis / investigation. In this brief we hope to raise other alternatives, and to present preliminary discussions of factors that must be taken into account within any terms of reference, and by those who must ultimately make the decisions on policy. We emphasize the preliminary nature of these discussions since much more information must be collected and assessed before policies can be reasonably formulated.

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III. EXPERIENCE IN OTHER COUNTRIES

Experience in other countries which have stricter flammability standards is frequently cited as indicating the likely impact of similar measures in Canada. In this section, therefore, we take a detailed look at experience in:

- the United States
- Great Britain
- Australia
- Scandinavia

THE UNITED STATES

In 1973 the U.S. introduced stringent flammability standards for children's sleepwear, sizes 0-14. These standards required that children's sleepwear be made either from fabrics treated with flame-resistant chemicals or from inherently flame resistant materials. Some man-made fibres such as modacrylics and cordelan met the standards without chemical treatment, while all natural

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cotton fibres/fibre blends and some man-made fibres such as polyester and nylon required chemical treatment. After it was discovered that the flame-retardant chemicals were carcinogenic, the standards were made less strict in 1978 and the use of chemical retardants was banned. Under the modified standards, untreated polyester and nylon became acceptable for use in children's sleepwear. The standards still effectively prohibit the use of such natural fibres as cotton and cotton blends.

In their document of May 1984 (1), the CICH consider the effectiveness of the U.S. regulations by referring to studies by McLoughlin (2) et al and Knudson (3) et al. While recognizing the potential for other factors to be at work, the CICH document leaves the distinct impression that these studies have proved the effectiveness of the U.S. standards. It seems to maintain that these "independent studies which examine a local or regional experience" do indeed "permit an assessment of the effectiveness of standards" and "indicate the effect of reducing sleepwear flamma-

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1. CICH: "The Reduction of Sleepwear Related Burns to Canadian Children: Recommendations for Action", May 1984.
 2. McLoughlin, Clarke, Stahl and Crawford: "One Pediatric Burn Unit's Experience with Sleepwear Related Injuries", Pediatrics, Vol. 60, No. 4, October 1977.
 3. Knudson, Bolieu and Larson: "Children's Sleepwear Flammability Standards: Have They Worked?", Burns, Vol. 6, No. 4, 1979.

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bility". We, on the other hand, maintain that even the studies themselves admit to having serious reservations about drawing such a conclusion!

a) McLoughlin et al

This study examined children's data from one source in Boston - The Shriners' Burn Institute - for the period 1969 thru 1976. Since Massachusetts imposed the federal standards effective December 1973, the years 1969 thru 1973 represent the pre-standard period and the years 1974 thru 1976 represent the post-standard period. The study concentrates on burns to children from a single ignition source (e.g. matches, lighters, stoves), thereby excluding those sustained in house fires. The figures are as follows:

	1969	1970	1971	1972	1973	1974	1975	1976
Total flame burns:	34	40	50	54	46	47	32	35
Total clothing-ignited:	29	33	46	46	37	41	26	26
Daywear:	19	24	26	30	26	31	23	25
Sleepwear:	10	8	17	15	11	10	3	1

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Comparing pre-standard (1969-73) with post-standard, we see that sleepwear-related burns as a percentage of total clothing-ignited burns fell from 31.9% pre-standard to 12.3% post-standard. (If we include 1974 in the pre-standard period on the grounds that substantial numbers of children might still be wearing clothing purchased before the standards became effective, these figures change to 29.8% pre-standard and 6% post-standard. The CICH document compares the percentage over the whole 1969-1973 period with the percentage in 1976 alone - an unfair comparison). There is no discernable trend in total clothing-ignited burns over the 1969-1976 period. Beckwith (4) presents additional information on sleepwear-related burns from the same Institute for subsequent years, though no additional information is given on all clothing-related burns:

1977	2
1978	6
1979	2

The significant drop in the number of sleepwear-related burn admissions to this institute thus appears to continue except for 1978. Beckwith reports Mcloughlin speculating that the 1978 admissions to this Institute thus appears to continue except for

4. Beckwith: "Status of Children's Sleepwear: Manufacturing and Marketing", Textile Industries, February 1980.

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1978. Beckwith reports McLoughlin speculating that the 1978 increase may have resulted from publicity surrounding the use of chemicals in 1977 causing parents to move away from flame-retardant materials. (Whether a similar behavioural effect would be caused by an increase in consumer prices in Canada remains an open question).

Standing alone, then, these data would at first glance appear to indicate a significant drop in the incidence of children's sleepwear-related burns as a result of the stricter standards. HOWEVER, we draw your attention to the following quotations from the McLoughlin study itself:

- * "In 1975 and 1976 admission for acute cases were lower than in the four previous years. There is no known single reason for this drop, although the recent trend towards the establishment of small burn units within larger general hospitals could account for fewer referrals".
- * "It is tempting to conclude a cause-and-effect relationship particularly inasmuch as no trend was evident in the referrals for burns because of ignition of clothing other

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than sleepwear. Nevertheless, certain cautions must be cited. Statutes are seldom passed without much discussion by the legislation constituents. Possibly the resultant education of the public as to the hazards of clothing ignition led to behaviour changes more important to safety than the diminished flammability of sleepwear. Manufacturers, ever alert to avoiding criticism of their product, may have altered design features of children's nightwear".

It would be unfair of us not to point out that McLoughlin also speculates that "Yet another possibility is that sleepwear accidents are occurring but due to the flame resistance of the

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available sleepwear garments, the injuries are less severe and can therefore be adequately treated at local general hospitals rather than requiring referral to a remote burn facility". Nevertheless, the fact remains that it is mainly speculation. The study itself concludes that:

- * "Additional data must be sought to determine what is the actual effect of the flammability legislation on injury and severity rates resulting from ignition of children's sleepwear."

Beckwith, for example, found some information on the percentage of sleepwear-related burn injuries for the 5 years prior to August 31, 1970, and for the period July 1, 1977 to June 30, 1978. These data were for all age groups, and he notes that:

- * "Comparing the two tables, it can be seen that there is a good improvement in the 0-5 category and a striking one (emphasis added) in the 65+ category for the 1977 to 1978 year. While some may say this is a statistical screw up, if the comparison is reasonably valid, it immediately brings to mind that education may be playing an effective part in reducing burn injuries. Otherwise, how would the 65+ group show such a radical improvement?"

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When Beckwith was researching his 1980 paper, he contacted friends and colleagues in government, industry, hospitals and trade associations with regard to whether sleepwear-related burn injuries had declined. He states:

- * "They seemed to agree that there was no good data except that compiled by Liz McLoughlin of the Boston Shriners' Burn Institute".

If this is the general concensus, then is it not unreasonable to draw cause-and-effect conclusions when the McLoughlin study itself states that:

- * "Because the Institute is not the sole burn facility serving this population, epidemiological studies of its patients cannot be extrapolated to reflect the pattern of burn injuries in the population at large"?

In essence, the persons generally acknowledged as having the best information are themselves saying that it is grossly inadequate for use at the national level!

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b) Knudson et al

The Knudson et al study presents data showing the same type of drop in children's sleepwear-related burn injuries as the McLoughlin data. HOWEVER, two factors are apparent. First, the data seems to be presented by the CICH document in a manner specifically designed to maximize its impact. Sleepwear-related burns are reported as falling from 12% (1966-1973) to 3% (1974-1977) of total admissions to the children's burn unit. These figures imply that the post-standard incidence is one-quarter of the pre-standard incidence. Since the stricter standards were only imposed for children's sleepwear, the relevant comparison must be between sleepwear-related burns and other clothing-related burns. Using this approach on the figures available in the study, we find that sleepwear-related burns fell from 46.4% (1966-1973) to 22.4% (1974-1977) of total clothing-related burns. This shows a reduction in incidence to one-half, not one-quarter, of pre-standard levels.

Second, this study too looks only at one specialized burn unit -- The Shriners' Burn Institute in Galveston -- and consequently suffers from all the resultant problems of the McLoughlin study. As the Knudson study itself notes:

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- * "Whether or not these data reflect changes in pediatric sleepwear-related injuries nationally must wait analysis of a much larger patient population, hopefully to be conducted by the Federal government utilizing a large injury data acquisition program".

The authors of the study recognize the potential impact of changing referral patterns, education etc. on their incidence data, and also recognize that "--- our data do not warrant a conclusive statement that flame-retardant sleepwear has reduced the severity of the burn injury---".

Great Britain

In 1964, stricter regulations governing the maximum rate of flame spread were introduced for children's nightdresses (sizes 0-14) only. In 1967, the regulations were modified to require that adult nightdresses either conform to the same standards or carry a warning label.

The May 1984 document of the CICH states that "The effect of children's sleepwear legislation is evident from an examination of the experience in Great Britain". HOWEVER, the interpretation of what is "evident" is open to question on two grounds. First,

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during the periods considered, other factors were definitely at work. The British government introduced regulations/requirements for the safety guards on gas or electric fires and on oil heaters; there was a definite trend away from the use of open coal fires for home heating, and regulations were introduced regarding the supervision of children under 12 near unguarded fires. Second, the studies cited in evidence only refer to data from 1968 -- that is, from four years after the stricter nightdress regulations for children were introduced. Consequently, they do not present any comparison of pre-standard and post-standard evidence.

As the study by Warne (5) notes, "The data that are available suggest that since 1968 (the first date for which comparable statistics are available) there has been a fall in these accidents" -- that is, in accidental ignition of clothing. Over the 1968-1976 period, his data shows a reasonably steady decline in deaths from all clothing-ignited burns for all age groups. For age groups above 14, this decline certainly can't be attributed to

5. Warne: "The Continuing Problem of Serious Burns Involving the Ignition of Clothing, Particularly Nightwear," Fire and Materials, Vol.3, No. 4, 1979.

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regulations which effectively ban the use of natural fibres, since no such requirements exist. For age groups under 15, in which the decline has been greatest over the 1968-1976 period, the requirements only apply to nightdresses and were introduced in 1964. How can we attribute the fall in deaths in this age group, from 15 in 1970 to 2 in 1976, to regulations which were introduced in 1964? Other factors must surely have caused this decline.

Similarly, data from the Birmingham Accident Hospital Burns Unit covering the period 1969-1976 show a steady decline in sleepwear-related burns (all ages) from 48.4% of total clothing-related burns in 1971 to 7.4% in 1976. Furthermore, the decline is about equal for nightdresses (which are covered by the regulations) and pyjamas (which are not covered). Even within the nightdress category, can whatever fall that occurred in child burns since 1971 be reasonably attributed to stricter standards that were introduced in 1964? Is it not far more likely that it resulted from increased public awareness regarding home safety and child supervision, and/or from a steady increase in the proportion of household heating appliances which were bought after the fireguard regulations were introduced, combined with the reduction in the use of open coal fires?

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Some might say that the effect of the 1964 regulations did indeed continue to be felt through the 1969-1976 period as children grew out of their pre-standard nightwear, and as pre-standard hand-me-downs continued to wear out. However, 12 years seems an exceptionally long time for such effects to continue being felt! The average life of even a high quality sleepwear garment must be substantially less than 12 years. If not, then the U.S. studies which considered very short post-standard periods would have to be interpreted as demonstrating that the standards definitely had no effect, and that the drop in incidence must be due to other factors.

Other U.K. data from Coroner's reports in the District of Birmingham is referred to in the CICH paper of May 1984, as reported by Carr (6) in a letter to the editor of the British medical journal, "The Lancet". These data, confined to cases where no item other than the child's own clothing caught fire, show a definite absolute reduction in deaths between the 1961-65 and 1971-75 periods. (Severe burns not resulting in death are not reported). Again, the extent to which this reduction is due to the flammability regulations cannot be determined, as indicated by the following quotation from Carr's letter:

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"The reduction in deaths due to clothes on fire is gratifying and is doubtless partly due to such legislation as The Oil Burners (Standards) Act 1960 and the Nightdress (Safety) Regulations 1967, together with other regulations which applied to fireguards; also important might be the the changing pattern of home heating towards central-heating systems and the increased popularity of pyjamas as apposed to nightdresses."

Thus no direct causal relationship can be established for any single aspect, and as Carr also concludes:

"There is need for a more detailed restrospective investigation and for prospective monitoring."

6. M.J.T. Carr: "Trends in Causes of Fatal Burns in Children", The Lancet (Letters to the Editor), June 3, 1978.

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In short, it seems unreasonable to conclude that the effect of British legislation is "evident" from these data. Because of the time lag involved, it makes much more sense to interpret the data as demonstrating the importance of factors other than the flammability of materials!

Australia

Current national standards for children's sleepwear in Australia recognize that fire hazard is not solely a function of material flammability, but also of garment design and the environmental conditions under which garments may be exposed to an ignition source. The standards divide sleepwear into 3 categories, with appropriate labelling requirements. As identified by the label wording, the 3 categories are:

- 1) Low fire hazard.
- 2) Designed to reduce fire hazard
Flammable fabric.
- 3) High Fire Hazard.
Keep away from fire.

The combustion characteristics tested for the 3 categories are ease of ignition, rate of flame propagation and surface burn

characteristics. Garments in Category 3 need only satisfy the surface burn test. Their warning labels are, however, much bigger and their colours more spectacular. For Category 1, the garment must have an ignition time of greater than 6 seconds; the rate of flame propagation must be greater than 18 seconds, and the material must not propagate flame on the surface pile or nap for more than 10 seconds. The data obtained from clothing burns were used to design burning experiments on a manikin in order to establish the standards.

A paper by Gordon (7), which summarizes work done by members of the Standards Association of Australia committee responsible for standards for the burning behaviour of textile and textile

7. Gordon, P.G.: "Standards for the Fire Hazard of Clothing: The Australian Experience, Fire and Materials, Vol. 2, No. 4, 1978. (Paper presented at International Organization for Standardization Conference, Washington D.C., 1977).

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products, stresses the importance of designing material combustion tests to reflect the circumstances under which fire accidents generally occur. (Gordon is/was in the Division of Protein Chemistry of the Commonwealth Scientific and Industrial Research Organization, Department of Science and Technology). He gives the following example:

"For the testing of rate of burn and ease of ignition characteristics the sample is conditioned at 200C and 65% relative humidity. However, for the surface burn test the sample is oven dried. This apparent inconsistency was introduced because some fabrics which were known from accident data to surface burn in practice and to be responsible for serious burn accidents failed to surface burn when conditioned at 200C and 65% relative humidity. This was due to the fact that in practice the wearer of the garment had stood in front of a fire or heater for some time and the garment had been caused to ignite when it was essentially bone dry."

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Gordon presents other examples, but the fundamental point which he repeatedly stresses is that flammability testing methods must reflect the real fire hazard, which in turn depends in part upon environmental circumstances and which can only be determined from information on real accidents and real fires. (Presumably, if most children's sleepwear accidents in Canada were shown to result from contact with matches, lighters or stove elements, the appropriate surface burn test would not be on oven-dried material). A great deal of research and experimentation went into the development of appropriate standards for Australia, with the objective of representing reality in that country. Such work has most certainly not been performed for Canada, yet its importance is illustrated by several quotations from Gordon:

- * "It is a waste of time to pontificate on what might be dangerous: a textile might be potentially dangerous because of one property but perfectly safe because either some other property is more relevant in its particular end usage or the garment made from it may be so designed that the potentially hazardous property of the material cannot manifest itself. In other words, the importance of a particular combustion characteristic depends on the way the material is used".

- * "For example, a material such as polyester may be relatively easy to ignite under a particular set of experimental conditions but in real life it is a slow burning polymer erratic in its flame propagation properties because it melts away from the flame. On the other hand acrylic may be generally more difficult to ignite under a particular series of circumstances yet once alight in a vertical direction it will burn fiercely with the release of molten droplets".

- * "Furthermore garments made from fabrics which melt had to bear the additional label: Do Not Wear Under Any Flammable Garment".

- * "Generally, thermoplastics will melt away from an ignition source but if the thermoplastic is supported or restricted in its movement by a cellulosic material then the thermoplastic material becomes hazardous by virtue of the clothing design".

With reference to what he terms "small scale tests", Gordon notes that if a flame is held horizontally to materials in ease of ignition tests, then nylon could pass while acrylic failed.

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However, "In real accidents, nylon is relatively safe whilst acrylic can be dangerous because of the ferocity with which it burns". Of particular relevance to the Canadian situation are Gordon's comments on the standards governing cotton materials in Australia. He states that:

"An inconsistent aspect of the classification system is the incorporation into the standards in 1977 of criteria to prevent the classification of cotton flannelette nightdresses and the incorporation of arbitrary requirements for other nightdresses containing cotton. These inconsistencies have been caused fundamentally by a problem which continues to bedevil the writing of good standards in Australia -- that is, the lack of nationwide statistics on burn accidents".

"In other words, the regulation has placed unrealistic emphasis on the material properties of cotton flannelette rather than on design criteria and the fire performance of the finished product. Thus we have a situation that while some textiles are unfairly penalized, equally or more dangerous garments can still be sold".

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Elsewhere in this Brief we have expressed concern over the reaction of consumers to strict regulations via the "home-made effect". A similar concern is expressed by Gordon, in a somewhat different context:

"Thus different performance limits may need to be defined for the same material depending upon the product in which it is incorporated. It is essential that these precautions be taken because (i) the results may be quite irrelevant and inequitable and (ii) the results may lull people into a false sense of security if they are ignorant of the shortcomings of the test method (which is generally the case)".

This false sense of security could, in Gordon's words, "lead to neglect of essential safety precautions". Nevertheless, he also notes that "--- there is an apparent increasing awareness of the fire hazard of children's clothing generally. This has undoubtedly occurred because of the publicity given to the labelling requirements in both the press and in literature supplied by Government Departments and Safety Organizations."

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To conclude, although there are no data which can be used to assess the impact of Australia's regulations, there is at least one obvious and clear message throughout Gordon's paper which is directly relevant to the problems we are currently addressing in Canada. Specifically, that without adequate national data on burn accidents and without substantial testing/experimentation, extreme standards which concentrate mainly or solely on combustion properties of materials would be unfair and, depending upon environmental circumstances, could be potentially hazardous in some cases.

Scandinavia

Quoting from draft working notes (November 1984) of the PSB we find:

"Norway recently adopted flammability regulations for Children's Sleepwear that are exactly the same as the Canadian Children's Sleepwear Regulation". "The other Scandinavian countries are also considering adopting a regulation similar to that of Canada."

We would welcome the PSB obtaining analysis and/or discussion papers from these governments presenting the balance of arguments as to why they chose/are considering the current Canadian regulations rather than adopting more extreme measures.

SUMMARY

The U.S. studies referred to by CICH do show a fall in admissions for sleepwear-related child burns, at the particular institutions studied, since current flammability standards were put in place. However, the authors of these localized studies explicitly warn that, because of the small sample sizes, the results cannot be used to reflect the national experience. Furthermore, even within the context of their own localized data, the authors warn against drawing cause-and-effect conclusions because factors other than the flammability regulations may have been at work, including changing referral patterns as more and more burn units were established in the catchment areas served by the two institutions studied. Given this, it is not possible to know the incidence pattern of child burns even in the catchment areas, let alone impute causal relationships at the local or the national levels.

In the U.K., one set of data noted by CICH and the PSB does appear to indicate a fall in sleepwear-related child deaths in a comparison of coroner's data before and after legislation. However, the author again warns that other factors were at work including legislation aimed directly at ignition sources. That these other factors have likely had a significant impact is indicated by data in other U.K. studies noted by CICH. Here, the

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data indicate a continuing steady decline in sleepwear-related burns for up to 12 years after stricter flammability regulations were introduced. The fact that incidence continued to fall for so long a period, rather than first falling and then remaining relatively constant at a new lower level, is more indicative of the importance of factors other than the new flammability regulations.

In Scandinavia, at least the Norwegian government has recently adopted standards identical to those in Canada, presumably after having assessed the potential costs and benefits of various alternatives. Other Scandinavian countries are considering similar measures.

In Australia no data exist, but the document noted by CICH strongly emphasizes the need for adequate information on real-world cases and for detailed technical investigation / experimentation before policies can reasonably be established. In short, common sense leads us to the conclusion that the more extreme options will have a potentially greater impact on incidence and severity, assuming no offsetting consumer substitution. However, neither common sense nor reported data from other countries can tell us how much greater! All the studies

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noted stress the need for adequate information. Without adequate information for Canada on both sides of the balance, the cost / benefit assessment will be either impossible or misleading, and policy-making will essentially be based on speculation. The reported experience in other countries does not alter this conclusion.

IV. THE POTENTIAL BENEFITS

To assess the potential benefits of various options, two factors must be considered. First, the current incidence of sleepwear-related burns to children in Canada. Second, the estimated relative reduction in this incidence caused by progressively more strict and restrictive options. The options put forward by CCA reflect probably the most extreme measures. As noted in Section III, reported experience in other countries is of little or no help in estimating the impact of such measures relative to less extreme options, and in at least one case is more indicative of the impact of factors other than flammability regulations. Perhaps one way that we could obtain supportive information for Canada is by initially adopting and monitoring the effect of less extreme measures -- in essence, a process of elimination.

Whatever way we approach the assessment of the relative impact of various options, an acceptable methodology first requires reasonably accurate knowledge of current incidence and severity, including direct causes (e.g. ignition source, garment style, material type) and indirect causes (e.g. parental supervision, socio-economic environment, imported / domestic / home-made garment). Unfortunately, national data is sadly lacking. In 1974, the Children's Sleepwear Committee reported to the Minister of Consumer and Corporate Affairs that, without reliable statistics, the weighing of probable benefits and costs

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with regard to flammability regulations is essentially a matter of judgement. In the same document a recommendation was made that every effort be taken to collect the required data. To the best of our knowledge, this recommendation was never acted upon and national data is still not available. Going to extremes without adequate information could be seen as the equivalent of taking a sledgehammer to crack a nut, when a nutcracker is readily available. Also, the nutcracker entails less risk of smashing the nut as well as the shell. Again, it is a problem of inadequate information.

The first source of data relating to children's sleepwear is the cases actually reported to the PSB. According to reports, 77 cases (up to age 16) were reported to the PSB over a 13 year period between August 1971 and October 1984 (i.e. 6 per year). Of these, 15 suffered no injury or minor first degree burns or the degree of injury was unknown. Of the remaining 62 cases (i.e. 5 per year), 10 suffered 2nd degree burns (i.e. approx. 1 per year), 45 suffered severe 3rd degree burns (i.e. 3.5 per year) and 7 died (i.e. 0.54 per year). As to ignition source, 54 of the 77 cases (i.e. 70%) involved children playing with matches or lighters or climbing onto cooking stoves in their nightwear. As to material type, it was unknown in 30 cases (i.e. 39%); one case (i.e. 1.3%) involved sleepwear made from polyester; one case is unclear since the garment is described as both an acrylic / polyester sleeper and a cotton / polyester sleeper, and the remaining 45 cases

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(i.e. 58.4%) involved cotton or cotton / man-made blended garments. Several points must be noted with regard to this data:

- * These figures do not allow a comparison of sleepwear-related and other clothing-related cases.

- * The cases must be regarded as examples, since the method by which the data was obtained rules out its being regarded as a random / representative sample reflective of the national situation.

- * The fact that 70% of the cases involved matches, lighters and stoves indicates a gross lack of parental supervision -- a prime target for a public education program.

- * Since cotton/cotton blends cover a substantially greater share of the Canadian children's sleepwear market than 100% polyester etc., then simple probability would lead us to expect that cotton/cotton blends would be involved in a substantially higher proportion of burn cases, even if materials were of equal flammability. Relevant incidence comparisons must therefore incorporate market shares.

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- * The very fact that the one known case of a 100% polyester nightgown generated 3rd degree burns over 40% of the child's body shows that banning cotton and cotton blends will not eliminate the problem. (This is also apparent from post-standards data in the U.S. and U.K.). It is unfortunate that no details regarding ignition source etc. are available in this case.

The other Canadian data source on sleepwear-related child burns is the study performed by Dr. Richard Stanwick (8). Dr. Stanwick sent questionnaires to 17 major university pediatric

8 Stanwick, R.S., "Flammability of Children's Sleepwear in Canada". Presentation at 59th Annual Meeting of Canadian Pediatric Society, June 26, 1982, London, Ontario. (Publication forthcoming).

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centres, receiving 11 replies (Subsequently, 2 others replied but Dr. Stanwick notes that the basic results remained unchanged). On the basis of their catchment areas, these 11 centres are estimated to serve some 59% of Canadian children. Although responses covered various time periods, Dr. Stanwick's analysis was based on a common 3 year period, between 1976 and 1979. On the basis of burn incidence per head of child population within the 11 catchment areas, the reported data were inflated to national child population levels. Unfortunately, because of requirements placed upon Dr. Stanwick that data be reported only in aggregate to avoid the possibility of patient identification, we do not have access to information regarding specific cases in order to perform a detailed analysis. Deflating the reported national figures, however, we estimate that, from the 11 centres:

- * 65 clothing-related burn cases were reported. (i.e. 22 per year)
- * 9 of the 65 died as a result (i.e. 3 per year)
- * 33 of the 65 involved sleepwear (i.e. 11 per year)
- * 2 or 3 of the 33 died as a result (i.e. approx. 1 per year)

Approximately 49% of the total number of reported burn cases and between 66.67% and 77.78% of reported deaths did NOT involve

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sleepwear. Eight of the 9 deaths (88.89%) involved girls. Apparently, of the 65 cases of all clothing-related burns, the most powerful predictor of severity was "loose and flowing" garments, which are reported in the literature as having more of a "chimney effect" which increases the speed of flame spread relative to more tight-fitting garments. As with PSB data, ignition via playing with matches and lighters was significant. No equivalent statistics as yet have been reported for the 33 (our estimate) sleepwear-related cases.

Our comments on Dr. Stanwick's study must of necessity be regarded as preliminary and tentative at this time for two reasons. First, as noted, we will not have access to individual case data. Second, we will not have access to the details of the study until a later date. It is shortly to be published in a medical journal, but the journal's regulations specify that it cannot be distributed prior to publication. However, Dr. Stanwick has very kindly given us additional general information over the phone, which would in no way broach journal regulations. We would like, therefore, to make the following preliminary observations:

- * To date, we have no information regarding the severity of burns involved in the sleepwear-related cases.

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- * No information was available to Dr. Stanwick as to the type of materials involved in the reported cases -- a very important issue in assessing the proposed PSB options, and the relative potential benefits of alternative policy measures.

- * The sample of data sources does not include burn units in general hospitals or coroners' reports.

- * We have reservations about inflating Dr. Stanwick's data to the national level. In part this is due to our own ignorance as to the method and reliability of "catchment area" definitions. In part it is due to concern as to whether or not the 11 catchment areas in the study are an accurate reflection of climatic conditions and socio-economic levels nationally. Geographical variations in incidence were observed by Dr. Stanwick - there was a suggestion that colder winters (and therefore colder climates) increased the reported incidence, and a suggestion that lower income groups tended to have a higher incidence of burns. However, the data base was not sufficient to assess these factors with any statistical reliability. Dr. Stanwick noted verbally that adequate national data could give a higher or a

lower incidence than that generated by inflating his current data to national levels. For example, none of the Atlantic provinces are represented. On the one hand, the more moderate climate in these provinces would suggest a lower incidence. On the other hand, the lower average income would suggest a higher incidence.

- * In Dr. Stanwick's study (and in the PSB data) there is no information as to whether / which garments involved were domestically produced or imported. This concerns us because, given current Canadian sampling / testing procedures for imports (and given current concerns in the United States), we have reservations that some garments may be coming into Canada which do not meet current flammability standards, or which do meet them but are nevertheless more flammable than most of our domestically produced garments. While some garments in Dr. Stanwick's study were apparently tested by CCA and passed current standards, the number actually tested was so small that no significance can be attached to this result.

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To summarize, our preliminary observations must lead us to conclude that current data is not sufficiently complete, nor necessarily accurate, to draw robust conclusions as to the national incidence of children's sleepwear-related burns or to use as a basis for assessing the role played by different options for fabric flammability standards. We are pleased to note that Dr. Stanwick is currently designing another study to collect better and more complete data. Particularly if the government has already decided not to collect its own national data, we would like to recommend that it give Dr. Stanwick every assistance, financial or otherwise, in his efforts to gather the necessary information before considering the type of policy measures put forward in CCA's "options".

Once adequate national data on the incidence, severity and causes of children's sleepwear-related burns have been gathered, the second step on the benefit side of the cost / benefit trade-off will be to consider the relative change in the incidence and severity to be expected under alternative policy options. Alternatives are considered in Section VI below, but first we would like to raise one particular concern about the potential change in incidence resulting from CCA's proposed options. Specifically, if the options resulted in higher prices, or simply because cotton garments preferred by consumers were no longer

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available on the market, to what extent would consumers switch to making their own children's sleepwear? It is noted that this concern has been voiced elsewhere:

- * "One other consideration expressed by several members of the committee was the fact that introduction of more stringent standards, or essential fire retardancy, may force lower income consumers to cut and sew children's sleepwear from purchased yard goods. This would, in effect, circumvent any sleepwear standard adopted that was more stringent than the basic textile flammability standard and so defeat the new regulation" (December 1974 Report of the Children's Sleepwear Committee).

- * The representative of the Retail Council of Canada "raised the concern about cost increases once again. He felt that cost increases may lead some people to circumvent the new standards by making their own sleepwear. All agreed" (emphasis added). (Minutes of April 12, 1984 Meeting).

- * In slightly different context but following the same principle of substitution, the Sears representative noted that "-- the consumer will find cheaper alternatives i.e. active wear. There is need for a market study" (emphasis added). (Minutes of June 20, 1984 Meeting).

Currently, children's sleepwear (0-6X) is subject to the 7 second burn standard while yard goods must pass only the 3 1/2 second burn standard. If banning preferred materials caused some consumers to switch to making their own, then this "home-made effect" would result in some children wearing sleepwear that is more flammable than currently. Given the existing relatively low estimated incidence, it would require only a small percentage of consumers switching to home-made, more hazardous sleepwear to actually increase the incidence of severe burns and deaths. Also, the sleepwear styles which are easiest to sew at home are probably nightgowns and pyjamas -- that is, those considered most conducive to rapid flame spread because of the "chimney effect". While a price-induced home-made effect is most likely to occur among low-income families, the potential for some effect among higher-income families cannot be ruled out because cotton and cotton blend materials seem to be preferred for comfort and/or perceived health reasons. In short, we strongly support the Sears representative's position that there is need for a market study.

We should also note that potential reductions in the financial cost of burn treatment have been presented as a benefit of reduced burn incidence. The CICH paper of May 1984 used Dr. Stanwick's estimate of 19 sleepwear-related burns per year nationally, and applied it to data from Toronto's Hospital for Sick Children to generate an estimate of direct costs (excluding

subsequent costs of plastic surgery and visits to health professionals). They estimated an average stay of 48 days for flame burns (reproduced in PSB's paper of Nov. 1984) at an average daily cost of \$1,000. This gave a total cost of $19 \times 48 \times \$1,000 = \$912,000$. While we certainly do not question the fact that child burns are costly, both in dollar and in emotional / psychological term, we would nevertheless like to see proper estimates if financial savings are to play a part in decision-making. For example, average length of stay at other institutions have been reported for fire burns (9):

Janeway Child Health Centre:	32 days
Alberta:	20 days
Statistics Canada:	11.9 days

⁹ See Commentary by Janet MacLachlan entitled "Burn and Scald Injuries to Canadian Children" published by Canadian Association of Fire Chiefs Inc., January 1984.

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Taking Statistics Canada figures on average length of stay and average daily cost over the 1976-1978 period, we would get an equivalent cost figure for 19 sleepwear related burns of:

$$19 \times 20 \times 300 = \$114,000.$$

Obviously, estimates vary widely and more research is needed if such figures are to be used in assessing the relative benefits of alternative measures.

V. THE POTENTIAL COSTS

Even if we make the highly unrealistic assumption that we know the relative impact of various options on the benefit side of the scale, we must still consider the cost side of the scale. The major cost factors which must be considered when comparing options are:

- (1) Reduction in output/employment.
- (2) Costs to the consumer.
- (3) Administrative cost and complexity.

These factors too are extremely difficult to assess without adequate information from the promised technical and socio-economic studies. Again, only a preliminary discussion is possible.

(1) OUTPUT/EMPLOYMENT COSTS

One concern here is the extent to which various options will generate higher children's sleepwear prices which cause a reduction in consumer demand for domestically produced garments, which in turn causes a reduction in output and an increase in unemployment. The children's sleepwear manufacturing sector (sizes 0-14) currently produces an estimated \$120 million of clothing at wholesale prices, and employs between 3,000 and 4,000

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workers. Applying the standard 2.5 multiplier, this gives between 7,500 and 10,000 workers who are directly or indirectly dependent upon this manufacturing sector. While individual estimates of the effect on consumer prices of moving to 100% man-made fibres vary widely, there seems a reasonable consensus among manufacturers that, based on current market prices, the retail price of children's sleepwear manufactured in Canada would rise by between 30% and 70% depending upon garment type, style and quality.

An immediate danger is that such a price rise could result in domestically produced sleepwear becoming more expensive than products of similar quality imported from other developed countries such as U.S.A. This could cause a substantial reduction in the market share of domestic manufacturers, with the associated loss of jobs. Reports indicate that when the United States regulations were imposed, their prices increased substantially. This effect was reported as short-term, and the average price rise over a period of years was rationalized as consistent with overall inflation rates. However, consistency does not imply causality. The annual average increase in sleepwear prices cannot be attributed to inflation without first knowing what prices would have been in the absence of the new regulations. The consumer price index is an average of the prices of many items, some of which will have experienced a decline in price and others an increase in price. The index itself cannot be used to impute a causal relationship --

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or in this case, the lack of a causal relationship -- nor can it tell us what would have happened to the price of a particular item under a different set of circumstances. For example, it appears that the potential price rise that would otherwise have resulted from U.S. regulations was offset/moderated by manufacturers moving to lower quality (and therefore lower priced) garments. The price index does NOT show the regulatory effect on prices of garments of similar quality. Even comparing the before-and-after prices of only children's sleepwear would underestimate the real impact.

What if prices did not rise to exceed those of similar quality imports from other developed countries, but merely narrowed (or eliminated) the differential? Even so, the resulting price rise, combined with the domestic producers' loss of competitive edge by no longer producing garments from material preferred by consumers, would still cause some reduction in market share. To avoid a reduction in employment, it would require an offsetting reduction in quotas from low-cost and state-trading countries under the market disruption clause of GATT's Article XIX, or some other equivalent measure. This in turn would require a narrower definition of garment type than currently exists in bilateral agreements. A vigorous "Buy Canadian" campaign would also help, but would not be adequate on its own.

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A reduction in domestic output and employment may also be caused by consumers switching to lower priced but also lower quality imports. Since the larger Canadian producers of children's sleepwear are relatively few in number and service a domestic market which is much smaller than that of United States manufacturers, each manufacturer regards his reputation for producing good quality durable garments as an integral part of his marketing strategy. Quality garments made in Canada from cotton or cotton fibre blends compete favourably with most lower quality polyester garments made abroad because Canadian consumers generally prefer these fabrics. Preventing Canadian consumers from exercising their preferences for material type and thereby putting much more weight upon price differentials, will likely cause a switch to a lower quality range of imports by many consumers. They will be more attracted to the lower priced garments, frequently without recognizing the difference in quality and durability. What may first appear to be the better buy for the consumer would in fact turn out to be worse value for money. Nevertheless, the switch would occur and the market share of domestic manufacturers would suffer, with the associated loss of jobs.

Regardless of the specific cause or combination of causes, the market share of imports would rise and/or higher prices would reduce consumer demand. Under the extreme options proposed by

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CCA, unemployment would undoubtedly increase. With inadequate data and without the benefit of the government-sponsored socio-economic study, it is difficult to put hard numbers on the loss of jobs. However, estimates by various CAMA members indicate that the loss would be substantial. Indeed, many/most of the smaller producers would likely be eliminated from the industry.

As unemployment rises, Unemployment Insurance and other government social security expenditures will increase. Furthermore, given current and predicted national and regional unemployment rates, it is highly likely that most of these newly unemployed will not find other jobs for a considerable period of time. Less extreme alternatives do exist which would not cause this increase in unemployment, with all its associated financial, social and psychological hardships.

(2) COSTS TO THE CONSUMER

The most obvious cost to the consumer of more extreme measures is the potential rise in the retail price of children's sleepwear. As previously noted, estimated price rises would be between 30% and 70%. Taking an average of 50%, this would imply an additional \$60 million at the wholesale level on current sales. Furthermore, the percentage price rise would be greater for lower-priced garments, thus having a disproportionate impact on lower-income families.

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Also, restriction of consumer choice is itself a cost which must be evaluated at the political level. There does appear to be a strong preference among Canadian consumers for natural fibres on the grounds of comfort and health, and some children are actually allergic to man-made fibres. Quoting from the minutes of the meeting of June 20, 1984, the Sears Canada Ltd. representative expressed the concern that:

"--- the consumer will find cheaper alternatives i.e. active wear. There is need for a market study."

Essentially, this notes that consumer preferences will not easily be overruled, and that garments not initially designed as sleepwear -- and consequently need not meet the stricter standards -- will be found (e.g. sundresses, etc.). In similar vein:

"--- concern was expressed about numerous complaints received with respect to allergic reaction to synthetic fibres. It was agreed by the group that we should get documented 'expert' opinion as to the extent of this problem."

We still do not have this documentation, except for the reported view of one person that allergic reactions could frequently be eliminated by washing.

(3) ADMINISTRATIVE COST AND COMPLEXITY

It is obvious that, if flammability tests were to be performed at the manufacturer level, they must not be sufficiently costly and/or complex as to have an adverse impact on production costs, nor result in manufacturers simply deciding that the whole process is just "not worth the effort". Even if testing were to be performed at the government level, however, the problem of enforcement of standards on imported goods must be addressed. As noted, we already have reservations as to the enforcement of current standards at ports of entry. Even now we would like to see stricter (and presumably more costly) enforcement. Under still more strict standards, this would become imperative. Indeed, we are receiving reports from industry in the United States that garments which do not meet their standards yet which nevertheless manage to circumvent the enforcement procedures at ports of entry have become a significant problem. As part of the promised socio-economic and/or technical studies, we would like to see government proposals, including cost estimates, for ensuring that enforcement of standards on imported goods will be ensured whatever standards are adopted. Any set of standards must be equally applicable to imports, and strict enforcement at ports of entry is imperative. We are obviously concerned that the more numerous and complex the standards, the harder will it be to

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enforce them and the more the domestic manufacturer will be put at risk by unfair competition from imports. Proper enforcement may well be costly, but that cost is a responsibility of the authorities which impose the standards.

To summarize, the administrative costs of moving to extremes, as compared to other options, will doubtless depend upon the number of different standards; the complexity of the tests, and the degree of enforcement at ports of entry. Estimates are required, along with a commitment to rigidly enforce standards on all imports. The cost to consumers will in part be the resulting price increase, and in part the reduction in consumer choice. The latter will tend to be a personal judgement, but is nevertheless a cost that must be considered. The direct cost in terms of reduced domestic output and employment would likely be substantially greater than for less extreme measures, along with the associated social and psychological costs of unemployment. A socio-economic study of the effects of various alternatives is vital.

VI. OTHER OPTIONS

Up to this point we have observed that current Canadian data on incidence and severity is not adequate; that estimates of the potential change in incidence will be invalid without adequate information on the current incidence and without a study of consumer attitudes; that foreign data gives little, if any, indication of the likely relative impact of various policy measures on Canadian incidence, and that the proposed technical / socio-economic investigations must be performed in order to obtain an indication of both the relative benefits and the relative costs of various measures. Remembering the sledgehammer and the nutcracker, we again emphasize that the relative or incremental benefits of different options must be considered along with their relative or incremental costs. In line with this principle, we will now consider other options, which can be viewed as alternative to or complementary to each other. Because of the gross lack of information, we approach this in a very brief and tentative manner, and some issues / aspects will be purely speculative. The fact that we have to resort to this type of "analysis" only serves to further highlight the need for more information.

1. Import Standards Enforcement

This aspect has two thrusts. First, at the enforcement level and applicable under all options including the current situation, is rigid enforcement of Canadian standards on imports at ports of entry through efficient and more frequent testing of samples. The more numerous and complex the Canadian tests / standards, the more costly the enforcement on imports.

Second, at the information level, a comprehensive testing of imported garments on the Canadian market to not only ensure that they actually pass current standards, but also to determine if there is a significant difference between the flammability of imported and domestically produced garments. This type of information is particularly important given our concerns regarding the efficiency and effectiveness of current import sampling and testing, and given that existing incidence data does not differentiate between imported and domestically produced garments.

2. Public Education

The data on ignition source indicate an obvious need for public education regarding lack of parental care, perhaps even to the extreme of passing legislation as in England. In the Canadian case, such legislation could set requirements for storing lighters, matches etc. out of the reach of young children, and for constant supervision of young children in the vicinity of space heaters and hot stove elements. Enforcement would presumably rely on deterrence. The other aspect of a public education program would emphasize the different degrees of flammability of various garment styles and materials, and how to identify them.

As we have seen in Section III, studies on experience in other countries have frequently stressed the importance of public education. The CICH paper of May 1984 questions the usefulness of public education by reporting that Project Burn Prevention in Boston, Massachusetts found that public education did not reduce the burn injury rate. However, the Project was only an 8 month experiment, and the paper to which CICH refers (10) also notes that:

10 McLoughlin, Vince, Lee and Crawford: "Project Burn Prevention: Outcome and Implications", American Journal of Public Health, Vol. 2, No. 3, March 1982.

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- * "The apparent success of the school program to increase knowledge and the failure of the adult program to do so might be explained by the differences in the amount of exposure to the educational program and in the evaluation of program design".

- * "A criticism of this program could be that it may have addressed too many topics for persistent learning about any topic to occur, or for learning to motivate changes in behaviour related to burn prevention. The effectiveness of the British Chip Pan Fire Campaign -- is probably attributable to its sharp focus. The rapid public acceptance of smoke detectors (in the United States) -- resulted from intensive advertising campaigns stressing one message---".

- * "--- the North Kanelia Project provides evidence that an education program can facilitate community - wide behaviour change when the initiative for the program arises out of community demand."

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- * "A related criticism could be that the duration of the program (eight months) may not have been long enough for persistent learning to take place, or for enough people to come into contact with the educational materials to observe a measurable difference in the burn rates of the entire community. Unfortunately this time constraint was fixed by the contract for the demonstration project".

The message, then, seems clear. An effective public education program needs a sharp focus and a reasonably long duration. The Boston Project had neither, and it appears that programs which did satisfy these criteria have been successful.

3. Labelling

Policies in other countries have recognized the role played by adequate labelling of garments. We suspect that similar measures in Canada would be most effective if properly integrated with a public education program. That is, where the basic "campaign message" is incorporated into the wording on the labels. In this manner, the labels would be the buyer's trigger for remembering the precautionary lessons of the advertising campaign. We emphasize that whatever labelling requirements are adopted, they MUST apply to imports at port of entry.

4. Current Standards Covering 0-14 Range

This option would apply the current stricter standards for young children's clothing (0 - 6X) and to the older children's sleepwear sizes as well. Given current data -- or more accurately the current lack of data -- on incidence, causes etc., we are in no position to even speculate on the potential effects of this option. More information must be collected.

5. Stricter "Canadian Standards"

The terminology is used to differentiate this option from those going to the extremes of adopting United States regulations which would essentially prohibit the use of materials currently used in Canada. The "Canadian Standards" option would consider two approaches:

- (a) Raising flammability standards to a level which can be met by current domestic materials in use, but which might exceed levels currently being met by imports. Again, the information is lacking. For example, even ignoring our suspicions that some imports may not even satisfy the 7 second burn test but are nevertheless slipping through the net, what if our domestic garments can satisfy a 9 second test while

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imports can only meet a 7 second test? Imports are almost half the market, so what would be the effect of imposing a 9 second standard and enforcing it on imports at ports of entry? Consumer choice would not suffer; prices of domestically produced garments would be unaffected, and no jobs would be lost. What would be the potential effect on the number of burn cases? Even attempting to answer this question requires more knowledge regarding:

- the current burn incidence differences between imported and domestically produced garments; and/or
 - a broad sample of tests, in cooperation with industry, to determine maximum flammability standards which can currently be met domestically, and the degree of difference (if any) in flammability levels of domestic and imported garments / materials.
- (b) Raising flammability standards beyond levels which can be met by current domestic materials / garments, but which could be met by changing the nap / weave etc. while

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still allowing the use of cotton / cotton blends. The same questions apply as for 5(a). The same basic data is needed, along with additional data as to the potential effects on consumer prices and employment.

Whenever we go beyond Option 5(a), we must recognize that extra costs to the consumer, the manufacturer and the work force will result. When considering such steps, we must remember that the relevant comparison is the incremental costs and benefits relative to other options. TO RESPONSIBLY ASSESS THE OPTIONS, WE MUST FIRST HAVE ADEQUATE INFORMATION.

We close this section with two quotations, which essentially summarize our current position:

- * "In setting standards, the government must be aware of some special problems. First, it must not set standards which will increase the costs of production so much that consumers can no longer purchase them. Second, it must be careful not to set standards for which there is no

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meaningful method of evaluation ---. Thirdly, it must not set standards which the industry is not able to meet---"(11).

- * "Decision-makers in the public and private sectors should be given evidence from epidemiologic studies, from cost-benefit analyses, and from the experience of other nations, that changes can and should be made to protect the population from injuries" (12).

We need considerably more data/information to satisfy the conditions (explicit and implicit) in either.

11 Crown, E.M.; "Is There Really a Need for Textile Flammability Legislation?", Canadian Home Economics Journal, April 1973.

12 McLoughlin et al, (1982) op. cit.

VII RECOMMENDATIONSSERIES A: INFORMATION

1. Given the current lack of reliable information, a study be initiated to gather nationwide data on the incidence and severity of sleepwear-related burns to children, including information on causes, prevailing environment, socio-economic group, parental supervision, garment type and style, garment material, and whether the garment was imported or domestically produced.
2. A market study be initiated to determine the likely behavioural responses of consumers to changes in the price of sleepwear, and to changes in the style and material types available on the market.
3. IF experience in foreign countries is to be a factor in decision-making, then every reasonable effort be made to enter into informative discussion with other governments and to obtain statistically reliable data.
4. A technical study be initiated to investigate the effects of alternative testing procedures and standards, including potential impact on price, quality, domestic output, domestic employment, and imports.

5. A socio-economic study be initiated to investigate the ultimate impact of various options on the government, the consumer, the manufacturer and the worker, taking into account both financial and socio-psychological costs and benefits.

SERIES B: ACTION

6. Until the information in Series A has been collected, analysed and discussed, no change be made to the current Canadian flammability testing procedures and standards.
7. Measures be immediately taken to improve the enforcement of Canadian flammability regulations on imports at port of entry.
8. The government establish a public information/education program aimed at increasing the awareness of the need for basic safety precautions and parental supervision in potentially hazardous environments. At the same time, consideration be given to taking legal action with regard to parental supervision and, in a manner similar to smoke detectors, consider making domestic fire extinguishers mandatory in all households.

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9. A labelling requirement be instituted to differentiate children's sleepwear by degree of hazard, reinforced by a public information program to ensure that consumers can identify the labels and interpret their meaning accurately.

Annex F

Dardis R. "The role of cost and benefit analysis
The selection of Consumer Product Safety Programs

THE ROLE OF COST AND BENEFIT ANALYSIS
THE SELECTION OF CONSUMER PRODUCT SAFETY PROGRAMS

Dr. Rachel Dardis*

The purpose of this research was to apply cost-benefit analysis to an evaluation of consumer protection programs in the area of flammable fabrics and to compare the cost effectiveness of various flammability standards. Various cost-benefit parameters such as the degree of protection provided by the standard, demand conditions in the marketplace, and the discount rate were varied in order to assess the sensitivity of cost-benefit ratios to such variations. The results indicated that the 0-6X and 7-14 Children's Sleepwear Standards were cost effective. Extension of the flammability standards to children's clothing would have resulted in unfavorable cost-benefit ratios even under the assumption that no reduction in consumer choice would occur due to the standard. It was concluded that specific rather than generic standards are likely to be more cost effective.

Introduction

Cost-benefit analysis may be used to estimate the economic gains and losses from consumer product safety programs and to compare alternative protection strategies. The purpose of this research was to apply cost-benefit analysis to an evaluation of flammability standards for children's sleepwear and clothing and to demonstrate the role of cost-benefit analysis in selecting the most cost-effective consumer product safety program.

Direct Costs of Standards

Estimation of costs of safety standards depends on whether the regulated industry is in long-run equilibrium once the standard becomes effective.¹ If the industry is in long-run equilibrium, then it is only necessary to estimate the loss in consumer welfare since there is no loss in producer welfare in the long-run.² This is due to the fact that the firm may engage in other productive enterprises.

Consumer costs are based on the consumer's willingness to pay for the product which is measured by the area under the demand curve.³ The difference between the consumer's willingness to pay and actual consumer expenditures comprises the benefits from consumption. In Figure 1 the benefits from consumption of Q_1 units for a price of P_1 are given by the shaded area cP_1a . Product banning or the imposition of a standard which results

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in product removal due to compliance failure, means that the entire benefits are foregone, thus the shaded area cP_1a represents the consumer loss due to product removal. If the safety standard results in a price increase from P_1 to P_2 then the benefits from consumption decrease and the loss in consumer welfare is equal to P_2P_1ab . As the diagram indicates, the loss in consumer welfare from a price increase is less than the loss from product banning or product removal.

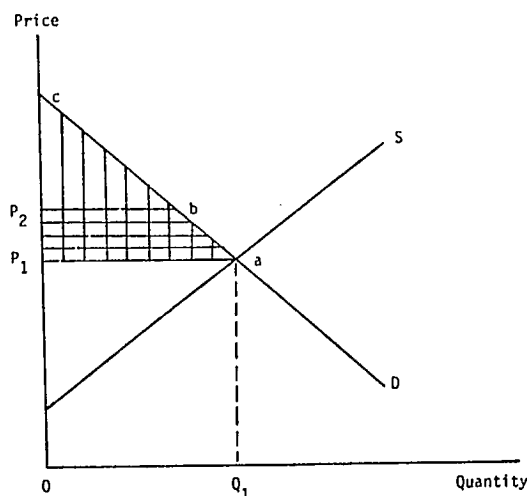


Figure 1. Costs of Safety Standard in the Long-Run

Other direct costs in the long-run include the costs of standard development and compliance and standard enforcement costs. The costs of standard development should be amortized over the expected life of the standard.

Indirect Costs of Standards

The indirect costs of product regulation include:

- (a) changes in competitive conditions
- (b) changes in innovative activity, and
- (c) hazards to health or the environment created by the regulation.

Changes in competitive conditions are due to a reduction in the number of firms due to unfavorable cost conditions and the quality control requirements of the regulation. Imports may also be affected since the foreign supplier may not wish to establish a separate production line for a single export market. The impact of product regulation on innovation may be positive or negative depending on whether new products are developed to meet the regulation or are inhibited due to the unforeseen hazard to the consumer, worker, or the environment when products are modified to meet a safety standard.

Benefits from Standards

Benefits are based on the direct and indirect costs of consumer product accidents and the degree of protection provided by the safety program. The direct costs of accidents include property damage, medical costs, legal costs, and accident investigation costs. The indirect costs are the output losses resulting from accidents and the pain and suffering incurred by the victim and his family. Measurement of output losses takes into consideration valuation of output including services of housewives, labor force participation and employment rates, and the appropriate rate of discount. Output is generally measured by the mean wage earnings of members of the labor force with imputed values for the services of housewives.

Cost Benefit Analysis of Flammability Standards for Children's Sleepwear Sizes 0-6X

Two different models were used to estimate the costs of flammability standards in 1974. In the first instance it was assumed that FR garments were equivalent to non-FR garments, with the exception of price and flammability characteristics, so that no reduction in consumer choice occurred (Model I). In the second instance it was assumed that some reduction in consumer choice also occurred due to the displacement of cotton products by synthetic products (Model II).

Only the direct costs of the standards were estimated. It was assumed that there had been no reduction in competition since price increases in the long-run for sleepwear corresponded to price increases for apparel in general. The effects on innovation were probably positive since flammability research was stimulated in all sectors of the textile industry (fibers, yarns, fabrics, apparel). However, it was not possible to quantify this effect. The remaining indirect cost component, the hazard to the health of the individual or the environment, could not be measured at this time due to insufficient data.

Price data indicated that a situation of long-run equilibrium had been reached when the standard became effective so that only standard development and compliance costs and the long-run loss in consumer welfare were estimated. In the case of Model I consumer losses were based on the impact of a price increase due to FR treatment while the impact of both a price increase and product displacement were considered in Model II. Two price elasticities of demand--0.5 and 1.0--were used in the estimation of consumer losses in order to examine the impact of demand conditions on the costs of protection.

Benefits were based on the number of burn injuries and deaths which would have occurred in 1974 in the absence of the standard, the direct and indirect costs of such injuries and deaths,

and the degree of protection provided by the standard. Foregone earnings were used in the estimation of indirect costs. High benefit estimates were based on the assumption of 100% protection while moderate benefit estimates were based on the assumption that the flammability standard would only provide 50% protection for burn injuries in the 0-10% body surface burn category.

Cost-benefit ratios for Models I and II are given in Tables 1 and 2.

TABLE 1 COST-BENEFIT RATIOS FOR 0-6X CHILDREN'S SLEEPWEAR STANDARD IN 1974

MODEL I

Degree of Protection	Price Elasticity of Demand	Discount Rate	
		5%	10%
Moderate	0.5	0.83	0.90
	1.0	0.78	0.84
High	0.5	0.75	0.81
	1.0	0.70	0.75

TABLE 2 COST-BENEFIT RATIOS FOR 0-6X CHILDREN'S SLEEPWEAR STANDARD IN 1974

MODEL II

Degree of Protection	Price Elasticity of Demand	Discount Rate	
		5%	10%
Moderate	0.5	2.15	2.32
	1.0	1.21	1.31
High	0.5	1.94	2.08
	1.0	1.10	1.17

Cost-benefit ratios are higher for Model II than for Model I reflecting higher consumer losses due to product removal. Cost-benefit ratios for Model I range from 0.70 to 0.90 which is relatively close. Demand conditions (i.e., price elasticity of demand) have a small impact on the results. This contrasts with the results for Model II, where cost-benefit ratios range from 1.10 to 1.31 for a price elasticity of demand of one and from 1.94 to 2.32 for a price elasticity of demand of one-half. The latter ratios reflect the fact that the cost of product banning or displacement is affected by the availability of substitutes. The more inelastic the demand for the product the fewer the number of available substitutes and the higher the cost of product removal.

The two elasticity values were used primarily to examine the impact of demand conditions on consumer losses. However, statistical analysis and consultation with retailers indicated that a price elasticity of one was the more appropriate value. It might be concluded, therefore, that the 0-6X sleepwear standard

was cost effective, in particular since pain and suffering costs were omitted in the estimation of benefits.

Children's Clothing, Sizes 0-6X

Cost-benefit ratios were also obtained for a hypothetical 0-6X children's clothing standard assuming that such a standard would (a) entail a price increase similar to the sleepwear standard, (b) provide the same degree of protection as the sleepwear standard, and (c) entail no change in product quality. Cost estimates based on these assumptions are conservative in view of the importance of cotton and polyester/cotton products in children's clothing. The resulting cost-benefit ratios are considerably lower than those that could be achieved with existing technology.

Cost-benefit ratios range from 3.59 to 4.88 reflecting variations in the price elasticity of demand, the degree of protection and the discount rate. (Table 3)

TABLE 3 COST-BENEFIT RATIOS FOR HYPOTHETICAL 0-6X CHILDREN'S CLOTHING STANDARD IN 1974

MODEL I				
Degree of Protection	Price Elasticity of Demand	Discount Rate		
		5%	10%	
Moderate	0.5	4.40	4.88	
	1.0	4.09	4.53	
High	0.5	3.87	4.23	
	1.0	3.59	3.93	

The most interesting result is the relationship between cost-benefit ratios for sleepwear and clothing. Cost-benefit ratios for clothing are more than five times greater than cost-benefit ratios for sleepwear (Model I). If the more realistic Model II were used it seems likely that an even greater discrepancy between the two standards would occur in view of the greater impact of a clothing standard on consumer choice. The results indicate that the sleepwear standard is cost effective in contrast to a hypothetical clothing standard.

Cost-Benefit Analysis of Flammability Standards for Children's Sleepwear, Sizes 7-14

The analysis of actual and hypothetical flammability standards for sizes 7-14 was identical to the analysis for sizes 0-6X.

Two models were again used to estimate the costs of flammability standards. In Model I only the impact of a price increase was considered while provision for both a price increase and a reduction in consumer choice was made in Model II. The direct costs of the sleepwear standard included the loss in consumer surplus and standard development and compliance costs since price data indicated that a situation of long-run equilibrium existed once the standard became effective. Benefits were based

on the number of projected burn deaths and injuries in 1975, the costs of such deaths and injuries, and the degree of protection provided by the standard.

The results for both models are given in Tables 4 and 5.

TABLE 4 COST-BENEFIT RATIOS FOR 7-14 CHILDREN'S SLEEPWEAR STANDARD IN 1975

MODEL I

Degree of Protection	Price Elasticity of Demand	Discount Rate	
		5%	10%
Moderate	0.5	1.43	1.50
	1.0	1.27	1.33
High	0.5	1.29	1.35
	1.0	1.15	1.20

TABLE 5 COST-BENEFIT RATIOS FOR 7-14 CHILDREN'S SLEEPWEAR STANDARD IN 1975

MODEL II

Degree of Protection	Price Elasticity of Demand	Discount Rate	
		5%	10%
Moderate	0.5	2.59	2.72
	1.0	1.60	1.68
High	0.5	2.34	2.44
	1.0	1.44	1.51

Cost-benefit ratios range from 1.15 to 1.50 for Model I. Cost-benefit ratios range from 2.34 to 2.72 for a price elasticity of demand equal to one-half and from 1.44 to 1.68 for a unitary elasticity of demand in the case of Model II. Again the latter results are more realistic in view of elastic demand conditions for children's sleepwear. Since the omission of paid and suffering costs permits cost-benefit ratios greater than one it might be concluded that the 7-14 Children's Sleepwear was also cost effective.

Children's Clothing, Sizes 7-14

Cost-benefit ratios were also obtained for a hypothetical clothing standard. It was assumed that such a standard would (a) entail a price increase similar to the sleepwear standard, (b) provide the same degree of protection as the sleepwear standard and (c) entail no change in product quality. The results are given in Table 6.

TABLE 6 COST-BENEFIT RATIOS FOR HYPOTHETICAL 7-14 CHILDREN'S CLOTHING STANDARD IN 1975

MODEL I

Degree of Protection	Price Elasticity of Demand	Discount Rate	
		5%	10%
Moderate	0.5	11.23	11.04
	1.0	9.98	10.52
High	0.5	10.15	10.64
	1.0	9.02	9.46

Cost-benefit ratios range from 9.02 to 11.84 and are approximately eight times greater than cost-benefit ratios for sleepwear (Model I). Use of the more realistic Model II should result in even greater differences in view of the importance of cotton and polyester/cotton blends in the children's clothing market. The results indicate that the sleepwear standard is cost effective in contrast to the hypothetical clothing standard.

Comparison of Flammability Standards for Children's Sleepwear and Clothing

The results for Model I, based on a price elasticity of demand of one, are summarized below.

Rank	Item	Cost-Benefit Ratios
1	0-6X Sleepwear	0.70 - 0.84
2	7-14 Sleepwear	1.15 - 1.33
3	0-6X Clothing	3.59 - 4.53
4	7-14 Clothing	9.02 - 10.52

The results indicate the role of cost-benefit analysis in program comparisons. Thus every dollar saved through a reduction in burn injuries and deaths requires expenditures ranging from nine to ten dollars in the case of the 7-14 clothing standard as opposed to expenditures of less than one dollar in the case of the 0-6X sleepwear standard.

These results provide support for the decision of the U.S. Department of Commerce and the Consumer Product Safety Commission to develop mandatory standards for children's sleepwear while delaying the introduction of mandatory standards for children's clothing. The different cost-benefit ratios for the two merchandise categories indicate a major problem facing a regulatory agency. When the scope of mandatory standards is increased, the cost to the consumer may also increase without a commensurate increase in benefits if the target population is expanded to include the "low-risk" groups. Thus, while it may be more efficient from an engineering and regulatory perspective to issue generic standards, e.g., a general wearing apparel standard, it may also be cost-ineffective. An alternative strategy is to conduct consumer education programs in the area of flammable fabrics. Education programs may be preferable to safety standards when the hazard depends on conditions of use. In addition the indirect costs of product regulation are avoided. Thus, in the case of the children's sleepwear standard, questions were raised concerning the potential risk of cancer from certain FR apparel due to chemical treatment.⁴ The greater the scope of the regulatory activity the more important the estimation of indirect costs.

Conclusion

There has been increased interest in consumer protection in recent years, particularly in the area of product safety. Possible consumer product safety programs which might be initiated by government and/or private enterprise include:

- a) education
- b) education combined with voluntary marketing of safety standards
- c) mandatory safety standards, and
- d) product banning.

Two major interdependent issues facing the government are a) determination of the most appropriate level of safety for a particular product and b) selection of the most cost-effective consumer protection program. Both of these issues require a detailed appraisal of the nature and magnitude of the risks associated with a consumer product and the costs and benefits of a protective program. Both costs and benefits should be expressed in monetary terms.

The results of this study indicate the role of cost-benefit analysis in evaluating and comparing mandatory safety standards for consumer products. Similar analyses could be applied to the alternative consumer protection strategies mentioned earlier. Such analyses should assist in the selection of the most effective consumer product safety program. However, it is important in such analyses to remember the limitations of cost-benefit analysis. Major limitations concern the prices used to measure costs and benefits (in particular indirect costs and benefits), the appropriate rate of discount for ensuring that costs and benefits are measured in the same time frame, treatment of uncertainty, and spillover costs and benefits. Provided such limitations are recognized, cost-benefit analysis can make a valuable contribution to the consumer product safety decision process.

A major advantage of cost-benefit analysis is that it makes explicit the costs and benefits on which decisions are based. A quantitative assessment of costs and benefits, including the underlying assumptions, replaces personal hunches or vague qualitative judgments. Society is provided with a clearer understanding of the problem and the reasons why a particular regulatory activity was or was not undertaken. The detailing of costs and benefits also serves to focus the decision process on objective rather than on subjective considerations. This is particularly important in an area where emotionalism renders objectivity difficult and where political pressures may result in a demand for action which is detrimental to the public interest in the long-run.

Finally in any discussion concerning the role of cost-benefit analysis in program evaluation or selection, it is important to separate the social or political decision from the economic decision. Thus, the amount of money that society is willing to spend to reduce injuries and deaths is a political decision which may vary

over time and from culture to culture. However, the number of injuries or deaths that may be prevented for a given expenditure of resources is an economic decision. Failure to recognize the importance of the economic component will result in unnecessary injuries and deaths since limited resources will have been used unproductively.

FOOTNOTES

1. Most safety regulations provide for a time period between the promulgation and effective date of the regulation. If the transition period is sufficient to permit adjustment by manufacturers then no producer losses should be incurred since sales and production of the non-complying product are permitted during the transition period. One method for determining the existence of long-run equilibrium is to examine price changes over time once the standard becomes effective. If the industry is in long-run equilibrium once the standard becomes effective then no further price increase should occur.
2. E. J. Mishan, Cost-Benefit Analysis, Praeger Publishers, New York, 1971.
3. Ideally the compensated demand curve should be used to estimate the benefits from consumption. The compensated demand curve and the demand curve are equivalent when the income effect of a price change may be neglected.
4. See R. Dardis, et. al., "Cost-Benefit Analysis of Consumer Product Safety Programs", Final Report, NSF, February 1978.

