

FOODBORNE, WATERBORNE, ENTERIC ILLNESS COMPLAINT REPORT		Complaint no.*	
Form A			
Complaint received from		Address	Phone Home Work
Person to contact for more information		Address	Phone Home Work e-mail
Complaint Type of complaint:* <input type="checkbox"/> Illness <input type="checkbox"/> Contaminated/spoiled/adulterated food <input type="checkbox"/> Poor quality drinking water <input type="checkbox"/> Poor quality recreational water <input type="checkbox"/> Unsanitary establishment <input type="checkbox"/> Complaint related to media publicity <input type="checkbox"/> Disaster <input type="checkbox"/> Other (specify)			
Illness: <input type="checkbox"/> Yes, ^{1,2*} <input type="checkbox"/> No Number ill* _____ Number exposed _____ Time first symptom: Date* _____ Hour _____			
Predominant symptoms:* <input type="checkbox"/> Vomiting <input type="checkbox"/> Diarrhea <input type="checkbox"/> Fever <input type="checkbox"/> Neurological <input type="checkbox"/> Skin <input type="checkbox"/> Other (specify)			
Physician consulted: <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, Name		Address	Phone
Hospitalized: <input type="checkbox"/> Yes <input type="checkbox"/> No Emergency Room visit: <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, Hospital name _____ Address _____ Phone _____ Physician's name _____ Phone _____ Laboratory examination of specimen: Type specimen _____ Organism/Toxin detected [†]			
Suspect food/water* _____		Source of food/water † _____	
Brand identification † _____		Code/Lot no. † _____	
Suspect meal, event or place:* _____		Date _____	Time _____
Address _____		Phone _____	
NAME	STATUS	ADDRESS	PHONE
1.	<input type="checkbox"/> ill <input type="checkbox"/> well		
2.	<input type="checkbox"/> ill <input type="checkbox"/> well		
3.	<input type="checkbox"/> ill <input type="checkbox"/> well		
4.	<input type="checkbox"/> ill <input type="checkbox"/> well		
Domestic water source: <input type="checkbox"/> Community <input type="checkbox"/> Non-community <input type="checkbox"/> Bottled water <input type="checkbox"/> Stream/lake <input type="checkbox"/> Vended <input type="checkbox"/> Well <input type="checkbox"/> Untreated <input type="checkbox"/> Other (specify)			
Places and locations where foods eaten past 72 hours, other than home * ³	Place and locations where water ingested past 2 weeks, other than home * ³	Place and locations where recreation water contacted past 2 weeks * ³	
History of exposures within past six weeks:* <input type="checkbox"/> Domestic travel (Place) _____ <input type="checkbox"/> International travel (Place) _____ <input type="checkbox"/> Child care <input type="checkbox"/> Contact with ill person outside household or ill person visited household (indicate name) <input type="checkbox"/> Contact with ill person within household (indicate name) <input type="checkbox"/> Ill animal _____			
Received by	Date of complaint/alert	Time	Disposition
Investigator's name		Comments	

¹ If yes, public health professional staff member should obtain information about patient which should be put on Form C.

² Ask person to collect vomitus and/or stool in a clean jar, wrap, identify, and refrigerate; hold until health official makes further arrangements.

³ Ask person to refrigerate all available food eaten during the 72 hours before onset of illness; save or retrieve original containers or packages; sample should be properly identified; hold until health official makes further arrangements. Save any water in refrigerator and trays of ice cubes in freezer; collect was sample from suspect supply in clean jar; put on lid and refrigerate.

* Enter onto complaint log (Form B).

† Enter onto complaint log (Form B) under comments. USE REVERSE SIDE OR ATTACHED SHEET IF MORE SPACE REQUIRED FOR ANY ENTRY

CASE HISTORY: CLINICAL DATA Form CI		Source or place of outbreak, if known		Complaint number	Case identification no.
Name		Address		Phone: Home Work	
Age	Sex	Occupation	Place of work	Ethnic group, special dietary habits, immunocompromised or other pertinent personal or health data	
<i>Signs and Symptoms</i> † (Check appropriate signs and symptoms and circle those that occurred first)					
INTOXICATIONS (Acute and chronic)		ENTERIC INFECTIONS		GENERALIZED INFECTIONS	
<input type="checkbox"/> Nausea* <input type="checkbox"/> Vomiting <input type="checkbox"/> Anemia <input type="checkbox"/> Bloating <input type="checkbox"/> Burning sensation (mouth) <input type="checkbox"/> Cyanosis <input type="checkbox"/> Dehydration <input type="checkbox"/> Excessive salivation <input type="checkbox"/> Flushing <input type="checkbox"/> Foot/wrist drop <input type="checkbox"/> Insomnia <input type="checkbox"/> Metallic taste		<input type="checkbox"/> Abdominal cramps <input type="checkbox"/> Diarrhea <input type="checkbox"/> bloody # <input type="checkbox"/> greasy <input type="checkbox"/> mucoid <input type="checkbox"/> watery No./day _____ <input type="checkbox"/> Chills <input type="checkbox"/> Constipation <input type="checkbox"/> Others (specify) _____ <input type="checkbox"/> Fever _____ °C/F <input type="checkbox"/> Tenesmus _____		NEUROLOGICAL ILLNESSES <input type="checkbox"/> Ear <input type="checkbox"/> Eye <input type="checkbox"/> Itching <input type="checkbox"/> Mouth <input type="checkbox"/> Rash <input type="checkbox"/> Skin lesion <input type="checkbox"/> Pneumonia Describe: _____ _____ _____ <input type="checkbox"/> Blurred vision <input type="checkbox"/> Coma <input type="checkbox"/> Delirium Difficulty in: <input type="checkbox"/> speaking <input type="checkbox"/> swallowing <input type="checkbox"/> breathing <input type="checkbox"/> Dizziness <input type="checkbox"/> Double vision <input type="checkbox"/> Irritability <input type="checkbox"/> Disorientation/loss of memory <input type="checkbox"/> Hot/cold reversal syndrome <input type="checkbox"/> Numbness <input type="checkbox"/> Paralysis Pupils <input type="checkbox"/> dilated, <input type="checkbox"/> fixed, or <input type="checkbox"/> constricted <input type="checkbox"/> Tingling	
Other symptoms Time of onset Date _____ Hour _____ Medications taken for illness _____		Incubation period _____ Duration of illness _____ Amount _____ Hospital attended _____ Address _____ Phone _____		Residual symptoms Fate! Yes <input type="checkbox"/> No <input type="checkbox"/> Medications/inoculations prior to illness _____ Dates _____ Address _____ Phone _____	
Known allergies Address _____ Phone _____		Hospital attended _____ Address _____ Phone _____		Address _____ Phone _____	
Contacts with known cases before illness (names) _____ _____ _____					
Cases in household occurring subsequently (names) _____ _____ _____					
Type of specimens obtained 1. _____ 2. _____ 3. _____		Date collected _____ Specimen number _____		Child care exposure (place) _____ Laboratory results _____ Laboratory Method _____ Laboratory where analysis performed _____	
Case <input type="checkbox"/> Confirmed <input type="checkbox"/> Presumptive <input type="checkbox"/> Suspect					

†Signs and symptoms are listed in columns to suggest classification of the disease; their occurrence is not necessarily limited to the category in which they appear on this form.
 *Ask if these symptoms occurred, even if they were not mentioned in the interview.
 #Ask whether there was decreased urine output.

CLINICAL SPECIMEN COLLECTION REPORT
Form E

CLINICAL SPECIMEN COLLECTION REPORT Form E						Complaint no.	Specimen no.	
Place of outbreak			Address			Case I.D. no.	Type of specimen	
Patient name			Address				Phone	
Reason for collecting specimen <input type="checkbox"/> Victim of outbreak <input type="checkbox"/> Person at risk but not ill <input type="checkbox"/> Handler of suspect food or water <input type="checkbox"/> Suspected carrier <input type="checkbox"/> Animal <input type="checkbox"/> Other (specify)								
Physician		Address					Phone	
Symptoms: <input type="checkbox"/> Nausea <input type="checkbox"/> Vomiting <input type="checkbox"/> Diarrhea <input type="checkbox"/> Fever <input type="checkbox"/> Other (specify)								
Time of ingesting/ contacting suspect food, meal, or water Day Hour		Time of onset Day Hour		Incubation period	Duration of illness	Medications Type	Amount	Dates
Method of collecting specimen			Method of preservation			Method of shipment		
Other Information								
Investigator collecting specimen		Title		Agency		Date collected/submitted		
Test requested		Presence/Absence		Count/Titer/ Concentration		Definitive type		
Comments and interpretations								
Laboratory analyst		Lab name & location		Date/Hour received		Date started	Date completed	Etiologic agent as determined by analyst

FOOD SAMPLE COLLECTION REPORT Form F		No. of sample units taken	No. of units in lot	Sample no.	Complaint no.
Place collected		Address		Phone	
Person-in-charge	Description of sample or area swabbed	Date/Hour collected		Code/Lot number	
Product name and description	Brand	Type of container			
Name of manufacturer, buyer, seller, importer (as appropriate)	Address	Container size	Production date	Weight/Size	
Other types of identification	Origin of shipment	Date of shipment		Arrival date	
Bill of lading or contract number		Destination			
Reason for collecting sample: <input type="checkbox"/> Food from alleged outbreak <input type="checkbox"/> Ingredient of outbreak food <input type="checkbox"/> HACCP analysis <input type="checkbox"/> HACCP verification <input type="checkbox"/> Special survey <input type="checkbox"/> Similar food prepared in similar manner to that involved in outbreak <input type="checkbox"/> Port of entry <input type="checkbox"/> Other (specify) _____					
Method of collecting and shipping sample	Collection utensil	Method of sampling <input type="checkbox"/> Judgment <input type="checkbox"/> Random throughout lot <input type="checkbox"/> Random throughout accessible units <input type="checkbox"/> Other			
	Method of sterilizing container				
Point of operation sample taken	Temperature: Food	Temperature: Storage unit	Time between serving and sampling		
Shipped: <input type="checkbox"/> Refrigerated <input type="checkbox"/> Frozen <input type="checkbox"/> Ambient	Carrier		I.D. marks	Cost of sample	
Investigator/Sampler	Title	Agency			
Signature of sampler		Signature of representative of party concerned			
Test requested on basis of epidemiologic data	Presence/Absence	Count/Concentration		Definitive type	
Condition of food when received at the laboratory		pH	a _w	Temperature when received	
Comments and interpretations by the laboratory					
Laboratory analyst	Laboratory name & location		Date/Hour: Received	Date Started	Date Completed

FOOD PROCESSING/PREPARATION HISTORY
Form H

Complaint no. _____

Place under investigation _____ Address _____
 Owner _____ Plant/Store manager _____ Phone _____
 Food being investigated _____ Operation(s) being investigated _____
 Date _____ and time _____ of suspect meal Date _____ and time _____ of food preparation, as applicable
 Food source/brand _____ Manufacturer _____ Distributor _____
 Significant/suspect ingredients _____
 Date of delivery _____ Lot code _____ Addresses of source(s) _____

Food characteristics: Temp F/C pH a _w Redox	Upon arrival	Before heating	After heating	During holding	Final product	Time of measurements

SOURCES OF CONTAMINATION (cite or select operations of concern from flow diagram)	Operation/source	Potential (code) ^a	Observed yes/no	Laboratory confirmed (list pathogen: enter count)
	Raw product/Significant ingredient			
Other ingredients of concern				
Condiments/Spices/Additives				
Cross contamination (raw to cooked)				
Workers				
Equipment/Utensils				
Cleaning cloths				
Workers:				

Diarrhea or other gastrointestinal sign/symptom or absence from work prior to or during outbreak

Worker's name	Date/time of illness/absence	Illness lab confirmed	Ate suspect food	Job assignment
	/			
	/			
	/			

Touching foods that are not subsequently heated	Observed	Reported	Name of worker(s)
Disposable gloves not worn			
Skin infections			
Poor personal hygiene			

Equipment cleaning and sanitizing methods for operation of concern:

Operation _____ Methods _____

Operation _____ Methods _____

Operation _____ Methods _____

Describe other modes of contamination:

^aPotential codes: 1 — Potential but unlikely; 2 — Potential and sometimes observed or related; 3 — Potential and commonly observed or related; 4 — Potential and almost always observed/found/related

FOOD PROCESSING/PREPARATION HISTORY REPORT (continued)

	Name, model, location, settings volume, dimensions (as applicable)	Date and time of operation	Time/Temperature exposure records (chart/log data) reported	Time/Temperature exposures during investigation (enter data)
SURVIVAL				
Retorting				
Responsible person(s)	_____	____/____		
Equipment used/can size	____/____		____/____	____/____
Food/can	_____		____/____	____/____
Heat process/Cooking				
Responsible person(s)	_____	____/____		
Equipment used	_____		____/____	____/____
Food	_____		____/____	____/____
Reheating				
Responsible person(s)	_____	____/____		
Equipment used	_____		____/____	____/____
Food	_____		____/____	____/____
Other (specify)	_____	____/____	____/____	____/____
Responsible person(s)	_____	____/____		
Equipment used	_____		____/____	____/____
Food	_____		____/____	____/____
PROLIFERATION				
During refrigerated/frozen transport/delivery/storage				
Responsible person(s)	_____	____/____		
Equipment used	_____		____/____	____/____
Food	_____		____/____	____/____
After thawing				
Responsible person(s)	_____	____/____		
Equipment used	_____		____/____	____/____
Food	_____		____/____	____/____
While outdoors				
Responsible person(s)	_____	____/____		
Equipment used	_____		____/____	____/____
Food	_____		____/____	____/____
While in kitchen				
Responsible person(s)	_____	____/____		
Equipment used	_____		____/____	____/____
Food	_____		____/____	____/____
During hot/warm holding				
Responsible person(s)	_____	____/____		
Equipment used	_____		____/____	____/____
Food	_____		____/____	____/____

FOOD PROCESSING/PREPARATION HISTORY REPORT (continued)

PROLIFERATION (continued)	Name, model, location, settings volume, dimensions (as applicable)	Date and time of operation	Time/Temperature exposure records (chart/log data) reported	Time/Temperature exposures during investigation (enter data)
During chilling				
Responsible person(s)	_____	____/____		
Equipment used	_____		____/____	____/____
Food	_____		____/____	____/____
During cold storage				
Responsible person(s)	_____	____/____		
Equipment used	_____		____/____	____/____
Food	_____		____/____	____/____
While on cold display				
Responsible person(s)	_____	____/____		
Equipment used	_____		____/____	____/____
Food exposure	_____		____/____	____/____
Other contributory situations (specify)	_____	____/____	____/____	____/____
Responsible person(s)	_____	____/____		
Equipment used	_____		____/____	____/____
Food exposure	_____		____/____	____/____

Verification of calibration of establishment time-temperature measuring devices. Test using an ice-bath. Record findings below (if temperatures vary from 32°F/0°C, calibrate)

Item _____ Temperature in ice bath _____
 Item _____ Temperature in ice bath _____
 Item _____ Temperature in ice bath _____

Other calibration procedures _____

FACTORS CONTRIBUTING TO OUTBREAK (Check all appropriate boxes and describe on back of form)

CONTAMINATION	PROLIFERATION/AMPLIFICATION	SURVIVAL (lack of inactivation)
<input type="checkbox"/> Toxic substance part of tissue <input type="checkbox"/> Poisonous substance intentionally added <input type="checkbox"/> Poisonous or physical substance accidentally/ incidentally added <input type="checkbox"/> Addition of excess quantities of ingredients under these situations are toxic <input type="checkbox"/> Toxic container or pipelines <input type="checkbox"/> Raw product/ingredient contaminated by pathogens from animal or environment <input type="checkbox"/> Prolonged cold storage for several weeks <input type="checkbox"/> Contaminated raw products eaten <input type="checkbox"/> Obtaining foods from polluted sources <input type="checkbox"/> Cross contamination from raw Ingredient of animal origin <input type="checkbox"/> Bare-hand contact by handler/worker/preparer <input type="checkbox"/> Handling by intestinal carrier <input type="checkbox"/> Inadequate cleaning or processing/preparation equipment/utensils <input type="checkbox"/> Storage in contaminated environment <input type="checkbox"/> Other source of contamination (Specify)	<input type="checkbox"/> Allowing foods to remain at room/warm outdoor temperature _____ for _____ (several) hours <input type="checkbox"/> Slow cooling; depth _____ <input type="checkbox"/> Inadequate cold-holding temperature _____ <input type="checkbox"/> Preparing foods a half day or more before serving; _____ hours <input type="checkbox"/> Insufficient thawing procedure followed by insufficient cooking <input type="checkbox"/> Insufficient time and/or temperature during hot holding _____ time _____ temp <input type="checkbox"/> Insufficient acidification; pH _____ <input type="checkbox"/> Insufficiently low water activity; a _w _____ <input type="checkbox"/> Inadequate thawing of frozen products <input type="checkbox"/> Anaerobic packing/modified atmosphere <input type="checkbox"/> Inadequate fermentation <input type="checkbox"/> Other situations that promoted or allowed microbial growth or toxin production (specify)	<input type="checkbox"/> Insufficient time _____ and/ or temperature _____ during cooking/heat processing <input type="checkbox"/> Insufficient time _____ and/ or temperature during reheating <input type="checkbox"/> Inadequate acidification; pH _____ <input type="checkbox"/> Other process failure (specify)

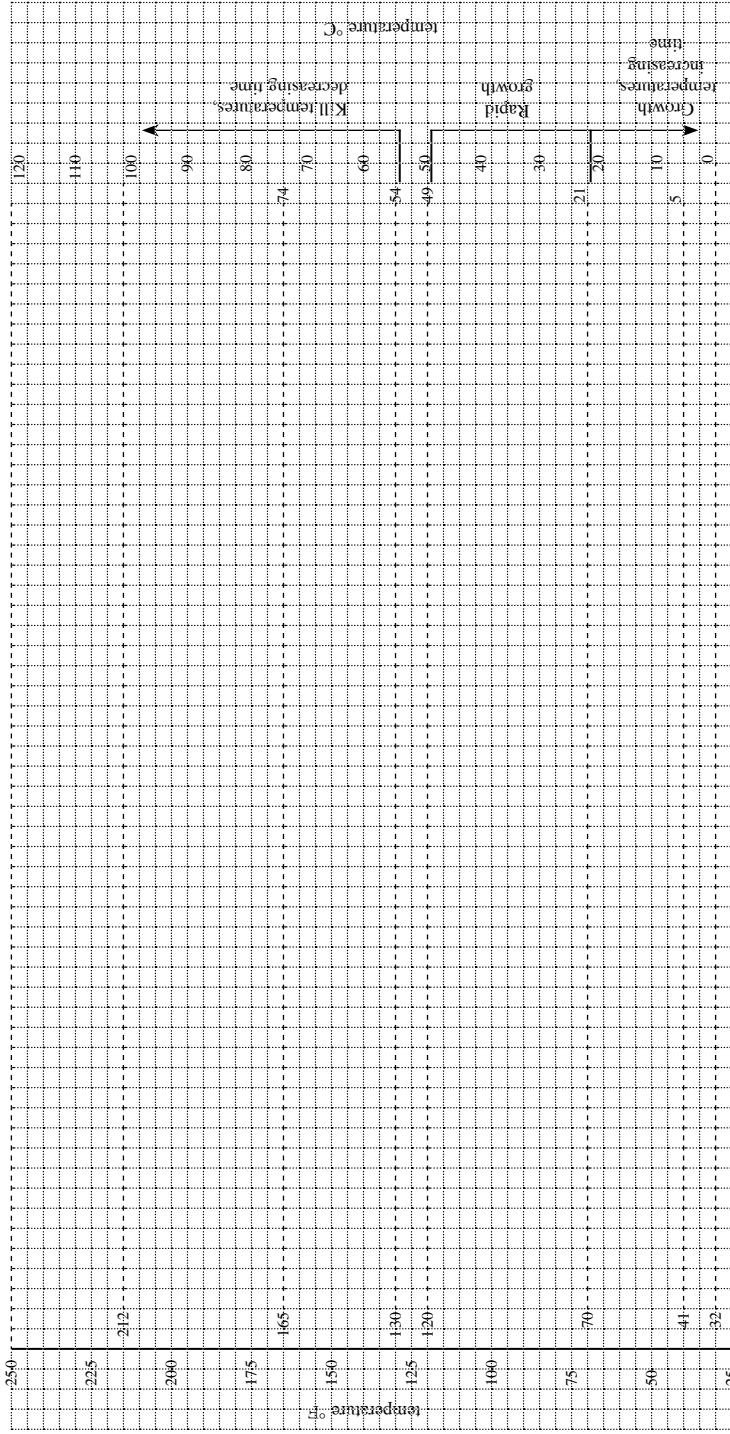
GRAPH OF TIME-TEMPERATURE MEASUREMENTS^{1,2}

Form I

Food _____

Complaint No. _____

Process _____



Title: _____

¹Enlarge area of concern so as to focus attention on operation(s) (e.g., heat processing, reheating, hot holding, and cold storage), temperature range or time span of concern, as appropriate. Fill in time intervals at bottom.

²Indicate whether seconds, minutes, hours, days, weeks or other time intervals or time of day.

FOOD TRACEBACK REPORT: PLACES OF SERVICE AND PREPARATION

Form J1

PLACE OF SERVICE INVESTIGATION					Complain/Event no.
Food/ingredient under investigation			Agent		Type/Markers
Place of service ¹			Address		
Owner/Operator			Person interviewed		Phone/Fax
Suspect meal/food product		Date / /	Time	Preparation Date / /	
Other meals at which suspect food/ ingredient was served (list meals) _____ _____ _____			Dates served / / / / / /		Known illness _____ _____ _____
Other dishes/products in which suspect food/ingredient was served/incorporated (list dishes or product) _____ _____ _____			Dates served/ processed / / / / / /		No. cases _____ _____ _____
Operations being investigated (e.g., cooking, slicing)			Factors contributing to outbreak		
PLACE OF PREPARATION (If different than place of serving)					
Place prepared/purchased ¹			Address		
Owner/Operator			Person interviewed		Phone/Fax
Label name			Product characteristics (e.g., color, grade, grind size, % fat, size)		
Other meals at which suspect food/ ingredient was served (list meals) _____ _____ _____			Dates served / / / / / /		Known illness _____ _____ _____
Other dishes/products in which suspect food/ingredient was served/incorporated (list dishes or product) _____ _____ _____			Dates served/ processed / / / / / /		No. cases _____ _____ _____
Operations being investigated (e.g., cooking, slicing)			Factors contributing to outbreak at place of service		
PLACE OF PURCHASE OF SUSPECT FOOD OR INGREDIENT					
Supplier ¹			Address		Phone/Fax
Date suspect food/ingredient (lot) received by preparer ² / /		Quantity received		Lot number	Other product codes/bills of lading numbers
Manufacturer/Brand			Condition when received (e.g., packaged, loose)		
Product characteristics (e.g., package/container, size/weight/volume, grade)					
Investigator		Title		Agency	
				Date	

¹Show initials or code used in boxes on flow diagram, Form J3²Attach documentation (e.g., copies of freight bills, air bills, receipts (receiving and sales), signed sworn statements, labels)

FOOD TRACEBACK REPORT: SUPPLIER TO SOURCES OF IMPLICATED ¹ FOOD/INGREDIENT Form J2					Complaint/Event no.
SUPPLIER INVESTIGATION ^{2,3}					Date
Food/ingredient under investigation		Lot code	Agent		Type/Markers
Supplier name		Address	Person interviewed		Phone/Fax
Other shipments of lot of suspect food that could have been present when suspect meal was prepared:					
Brand ²	Quantity	Lot code	Date received	How used/menu item	Characteristics
1			/ /		
2			/ /		
3			/ /		
4			/ /		
Other consignees to whom the suspect lot was shipped		Address		Phone/Fax	No. persons ill
1					
2					
3					
4					
Factors contributing to contamination, if any			Factors contributing to propagation, if any		
Investigator	Title		Agency	Date	
DISTRIBUTOR INVESTIGATION ^{2,3} (Other middlemen, stops, wholesalers between source and place of service: List in time sequence)					Date
Distributor/whole-sale/shipper name	Address		Person interviewed		Phone/Fax
Shipments received of suspect products		Quantity	Date	Address	Phone/Fax
1			/ /		
2			/ /		
3			/ /		
4			/ /		
Other consignees to whom the suspect lot was shipped		Address		Phone/Fax	No. persons ill
1					
2					
3					
4					
Factors contributing to contamination, if any			Factors contributing to propagation, if any		
Investigator	Title		Agency	Date	
SOURCE INVESTIGATION ^{2,3}					
Name	Location	Person interviewed		Phone	Date(s) of harvest/production
Factors contributing to contamination, if any			Factors contributing to propagation, if any		
Investigator	Title		Agency	Date	

¹Use additional forms as needed

²Attach documentation/identification of contamination or temperature abuse during forward tracing and record on Form H

³Laboratory results of samples collected (Attach copy of Form M)

FLOW DIAGRAM OF PRODUCT SOURCE AND DISTRIBUTION Form J3			Complaint/event no.
			Date
Food Product	Lot(s) no.	Place of Serving	Number of cases
<p>Illustrate distribution of implicated food/ingredient. Start with place of service, traceback the product flow to its source. Show all suppliers and means of distribution to the source of contamination/survival/propagation or harvester¹. Also show other consignees that received the contaminated lot(s). Indicate the supplier, distributor, and consignees by a firm code inside a box with arrows showing sequential flow of the food/ingredient. Indicate date of lot movement along side each entry. If additional cases have been identified with serving the implicated food or foods in which the implicated ingredients was or were used, enter these either in or aside the appropriate box.</p>			
Investigator	Title	Agency	Phone/Fax

¹Record complete data (including names of all suppliers, distributors, consignees and the source of the food product; their addresses and phone numbers; and the initials used on this form) on Form [J1](#) and [J2](#)

CALCULATION OF CHI SQUARE TEST, RELATIVE RISK AND ODDS RATIO Form L1				Complaint no.	Place of outbreak	Vehicle	
Outbreak table (Step 1)			Expected table (Step 2)				
	III	Well	Total		III	Well	Total
Ate/drank	a	b	a+b	Ate/drank	a _e	b _e	a _e +b _e
Did not eat/drink	c	d	c+d	Did not eat/drink	c _e	d _e	c _e +d _e
Total	a+c	b+d	<nau>	Total	a _e +c _e	b _e +d _e	n _e
Explanation			Calculation				
Step 1			Step 1				
Fill in the outbreak table and calculate the marginal totals (a+b, c+d, a+c, b+d) and the sum of these totals (n) from Form K1 or K2. If any of the marginal totals are less than 10, skip steps 2 through 4 and use Fisher's exact test (Form L2).			<i>i)†</i> a + b = _____ † <i>ii)†</i> c + d = _____ † <i>iii)</i> a + c = _____ <i>iv)</i> b + d = _____ <i>v)</i> n = _____				
Step 2			Step 2				
Fill in the marginal totals in the expected table; copy from those in outbreak table. Calculate the expected frequencies a _e , b _e , c _e , and d _e and fill in the cells of the expected table. If a _e , b _e , c _e , or d _e are less than 5, skip steps 3 and 4 and use Fisher's exact test (Form L2).			<i>vi)</i> a _e = i × iii/v = _____ <i>vii)</i> b _e = i - vi = _____ <i>viii)</i> c _e = iii - vi = _____ <i>ix)</i> d _e = ii - viii = _____				
Step 3			Step 3				
If <i>vi</i> , <i>vii</i> , <i>viii</i> , and <i>ix</i> are greater than 5, calculate the chi-square statistic			<i>x)*</i> a × d = _____ * <i>xi)*</i> b × c = _____ * <i>xii)</i> x - xi = _____ <i>xiii)</i> n/2 = _____ <i>xiv)</i> xii - xiii = _____ <i>xv)</i> xiv × xiv = _____ <i>xvi)</i> xv × n = _____ <i>xvii)</i> i × ii × iii × iv = _____ <i>xviii)</i> X ² = xvi / xvii = _____				
Step 4			Step 4				
Compare X ² to probability (p-value) critical values for the chi square distribution:			<i>(xviii)</i> = X ² = _____ <i>(xix)</i> p-value = _____				
X ² - values ^{1,2}		p-values					
2.71		0.1		Calculate relative risk †RR = a√i / c√ii RR = _____			
3.84		0.05					
6.64		0.01					
7.88		0.005					
10.83		0.001					
15.14		0.0001		Calculate odds ratio *OR = x / xi OR = _____			
19.51		0.00001					
23.93		0.000001					

¹X² value of 3.84 or greater (p<0.05) indicates that there is evidence to suggest a difference between the outbreak table and the expected table, and thus the exposure food/beverage under investigation is related to the observed illness. ²X² value of 7.88 or greater (p<0.005) indicates that there is strong evidence to suggest a difference between the outbreak table and the expected table, and thus the exposure food/beverage under investigation is related to the observed illness

CALCULATION OF FISHER'S EXACT TEST
Form L2

Complaint number	Place of outbreak	Vehicle
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Step 5 (Consider only if steps 3 and 4 are not performed on Form L1)

Formula for calculation

$$\frac{(a + b)! (c + d)! (a + c)! (b + d)!}{(n!) (a!) (b!) (c!) (d!)}$$

One-tailed test
p1.1 Observed table

vi
$$p1.1 = \frac{(\quad)! (\quad)! (\quad)! (\quad)!}{(\quad)! (\quad)! (\quad)! (\quad)! (\quad)!}$$

Exposure	Ill	Well	Total	Attack Rate
Ate/drank	a	b	a+b(i)	
Did not eat/drink	c	d	c+d(ii)	
Total	a+c(iii)	b+d(iv)	n(v)	

- vii Cancel any possible factorial (!) values
List individual values from factorials
- viii Cancel any possible remaining values
- ix Calculate p1.1 from the remaining values

p1.2 Table

vi
$$p1.2 = \frac{(\quad)! (\quad)! (\quad)! (\quad)!}{(\quad)! (\quad)! (\quad)! (\quad)! (\quad)!}$$

Exposure	Ill	Well	Total	Attack Rate
Ate/drank	a+1	b-1	a+b(i)	
Did not eat/drink	c-1	d+1	c+d(ii)	
Total	a+c(iii)	b+d(iv)	n(v)	

- vii Cancel any possible factorial (!) values
List individual values from factorials
- viii Cancel any possible remaining values
- ix Calculate p1.2 from the remaining values

p1.3 Table

vi
$$p1.3 = \frac{(\quad)! (\quad)! (\quad)! (\quad)!}{(\quad)! (\quad)! (\quad)! (\quad)! (\quad)!}$$

Exposure	Ill	Well	Total	Attack Rate
Ate/drank	a+2	b-2	a+b(i)	
Did not eat/drink	c-2	d+2	c+d(ii)	
Total	a+c(iii)	b+d(iv)	n(v)	

- vii Cancel any possible factorial (!) values
List individual values from factorials
- viii Cancel any possible remaining values
- ix Calculate p1.3 from the remaining values

Etc. continue for all other p-values needed

x $p1\text{-value} = p1.1 + p1.2 + p1.3 + p1.x$ for one-tailed test

Interpretation: If the p-value is less than or equal to 0.05, then there is evidence to suggest that the food/beverage under investigation is related to the observed illness; if it is 0.005 or less, there is strong evidence for this relationship.

CALCULATION OF FISHER'S EXACT TEST continued					
Two-tailed test					
<i>p</i> 2.1 Table					<i>vi</i> $p_{2.1} = \frac{(\quad)!(\quad)!(\quad)!(\quad)!}{(\quad)!(\quad)!(\quad)!(\quad)!}$
Exposure	III	Well	Total	Attack Rate	<i>vii</i> Cancel any possible factorial (!) values List individual values from factorials
Ate/drank	a	b=a+b	a+b(<i>i</i>)		<i>viii</i> Cancel any possible remaining values
Did not eat/ drink	c=a+b	d	c+d(<i>ii</i>)		<i>ix</i> Calculate <i>p</i> 2.1 from the remaining values
Total	a+c(<i>iii</i>)	b+d(<i>iv</i>)	n(<i>v</i>)		
<i>p</i> 2.2 Table					
Exposure	III	Well	Total	Attack Rate	<i>vi</i> $p_{2.2} = \frac{(\quad)!(\quad)!(\quad)!(\quad)!}{(\quad)!(\quad)!(\quad)!(\quad)!}$
Ate/drank	a	b=a+b-1	a+b(<i>i</i>)		<i>vii</i> Cancel any possible factorial (!) values List individual values from factorials
Did not eat/ drink	c=a+c-1	d	c+d(<i>ii</i>)		<i>viii</i> Cancel any possible remaining values
Total	a+c(<i>iii</i>)	b+d(<i>iv</i>)	n(<i>v</i>)		<i>ix</i> Calculate <i>p</i> 2.2 from the remaining values
Etc. for all other <i>p</i> -values					<i>xi</i> $p_{2\text{-value}} = p_1 + p_{2.1} + p_{2.2} + p_{2.x}$ for two-tailed test _____ _____ _____

Interpretation: If the *p*-value is less than or equal to 0.05, then there is evidence to suggest that the food/beverage under investigation is related to the observed illness; if it is 0.005 or less, there is strong evidence for this relationship

LABORATORY RESULTS SUMMARY Form M		Complaint no.	Outbreak	Dates of outbreaks
Case/Control (Date from Forms B, C, D, and/or E)				
I.D. No.	Case No.	Specimen	Organism/Test result	Marker (serotype, phage pattern, colicin type, toxin type)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Food/Environment (Data from Form F)				
Sample No.	Sample	Organism/Toxin	Count	Marker
_____	_____	_____+	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Food worker/handler/preparer (Data from Forms C, D, and/or E)				
I.D. No.	Specimen	Organism	Marker	
_____	_____	_____	_____	
_____	_____	_____	_____	
_____	_____	_____	_____	
Interpretations and Remarks				
Etologic Agent				
			Vehicle	Source of Contamination
Prepared by			Title	Date

CONTROL ACTIONS TAKEN AND PREVENTIVE MEASURES RECOMMENDED

Form N

Control actions taken:

Exclusion of infected persons _____. Cases _____. Carriers _____. Contacts of cases _____. (Infected food workers are usually excluded from work when they have signs or symptoms. Occasionally, microbiological tests of specimens are made over a duration of several days or weeks before permission is given to work with foods again. Workers can usually return to work without such testing after they have recovered if there is assurance that they practice good personal hygiene and are effectively supervised.)

Announce the outbreak in the mass media so that the public who purchased the food can be alerted to return it to the place of purchase or other designated location _____. Heat or otherwise prepare implicated food safely _____. Seek medical consultation/treatment _____. Or acquire vaccines; take prophylactic or drugs _____. (The latter two decisions should be made with consultation from supervisors and medical personnel.)

Seizure of food _____. (Detention [embargo] until tested _____. Removal/destruction _____. Reprocessed _____. Converted to feed _____. Denatured _____. Buried _____. Other _____.) Reject product _____. Recall of lot _____

(Seizure action may take various forms depending upon the type and degree of contamination and the estimated extent of the contamination and food distributed. Such foods may be held in locked facilities until tested and either released or removed; removed from the premises and reprocessed under supervision, converted to animal feed, denatured, buried, or otherwise destroyed; rejected by processor/preparer or place of use or at port of entry; or recalled (all units of the implicated lots which would be handled as those otherwise removed). The majority of processors/caterers whose foods are under suspicion of being a vehicle voluntarily recall their products despite the associated financial losses and embarrassment.)

Cease preparation of the implicated food until corrections are made _____. (When a vehicle has been identified, the contributing factors should be corrected before that food is prepared again. The process should be modified so as to avoid or minimize contamination, kill pathogens or inactivate toxins, and prevent or significantly slow growth of pathogenic bacteria so that a recurrence is prevented. Control criteria must be established or followed and the process monitored with sufficient frequency to ensure prevention of the events that lead to the outbreak. The implementation of a hazard analysis critical control point system should be considered for that food and associated operations and perhaps all foods prepared/process/stored in the establishment.)

Closure of premises/establishment _____. (When imminent risk to health exists if the operations continue, or when contributing factors that cannot be corrected or are continuing, the establishment may be closed. Reopening is considered when the contributing factors are identified and corrected or the operation is brought up to industry standard. Consultation with supervisors is advisable because of legal ramifications, but the prime consideration must be protection of the public health. The majority of operators whose establishment are implicated usually wish to cooperate and may voluntarily offer to close.)

Premises with intentionally contaminated food _____. For food that has been intentionally contaminated, special conditions may apply for disposal, clean-up and re-opening of facilities affected.

Other control actions taken _____ (describe):

Recommendations for prevention of recurrences:

Comments on effectiveness of control actions and preventive measures taken:

Person interviewed _____ Title _____
Investigator _____ Title _____ Date _____

ECONOMIC EVALUATION OF A FOODBORNE DISEASE OUTBREAK
Form O

Complaint no.	Disease
---------------	---------

DIRECT COSTS							
	Unit cost	No.	Total cost		Unit cost	No.	Total cost
Medical				Investigation of illness			
1. Physicians' fees				1. Epidemiological team			
2. Nurses' visits				a. salaries ¹			
3. Hospitalization				b. administration			
a. bed and board				c. other			
b. emergency dept.				2. Laboratory team			
c. acute care				a. salaries ¹			
d. surgery				b. material/equipment			
4. Medication				c. shipping			
5. Ambulance				d. other			
6. Other							
SUBTOTAL				SUBTOTAL			
Loss to food supplier				Loss of productivity			
1. Recall of food				1. Days off work ¹			
2. Storage of food				a. ill person			
3. Destruction/reprocessing				b. enteric pathogen carrier			
4. Laboratory testing, consultant				c. care of ill person			
5. Purchase of new equipment/modification of premises				d. Other personal care			
6. Legal action				2. Workers' compensation payments			
7. Loss of sales				3. Travel to visit sick persons			
8. Increase in insurance premium/bankruptcy				4. Cost of preventive actions			
8. Promotional campaign				5. Other			
9. Other							
SUBTOTAL				SUBTOTAL			
TOTAL DIRECT COSTS							
INDIRECT COSTS							
1. Pain, grief, and suffering ² =				4. School/study time ² =			
2. Death ³ =				5. Inability to work at previous occupation ³ =			
3. Leisure time ⁴ =				6. Other =			
TOTAL INDIRECT COSTS							
TOTAL COSTS =			NUMBER OF CASES			COSTS PER CASE	

¹Salaries or wages, if not known, can be estimated from the type of occupation reported by ill persons. Daily income can be determined by dividing an annual salary by 365 less days for weekends, holidays and other paid leave; overtime is an extra cost.

²Not usually calculated but may be given as a result of a legal settlement.

³Calculated on the basis of adjusted willingness-to-pay/human capital estimates (page 67).

⁴Assumed to be equivalent to worth of income.

⁵Calculated on the difference of the incomes before and after illness.

FOODBORNE ILLNESS SUMMARY REPORT
Form P

FOODBORNE ILLNESS SUMMARY REPORT Form P		Complaint nos.	Agent and definitive type	Disease
Agency		City	State/Province	
Date of onset of first case	Number ill	Number at risk	Number hospitalized	Fatalities
Symptoms/signs (percentages) Nausea ____ Vomiting ____ Abdominal Cramps ____ Diarrhea ____ Fever ____ Sore/burning mouth/throat ____ Neurological ____ Flushing/itching ____ Other significant (specify) ____			Incubation period Shortest _____ Longest _____ Median _____	Duration Shortest _____ Longest _____ Median _____
Vehicle (Responsible food)			Significant ingredient	
Method of processing/preparation			Case definition	
<p>PLACE FOOD ACQUIRED (Check one)</p> <input type="checkbox"/> Farm <input type="checkbox"/> Aquatic source <input type="checkbox"/> Woods/lands <input type="checkbox"/> Food processing <input type="checkbox"/> Bakery <input type="checkbox"/> Canning <input type="checkbox"/> Egg processing <input type="checkbox"/> Frozen food <input type="checkbox"/> Meat <input type="checkbox"/> Poultry <input type="checkbox"/> Seafood <input type="checkbox"/> Other (specify) <input type="checkbox"/> Retail outlet <input type="checkbox"/> Food service <input type="checkbox"/> Banquet <input type="checkbox"/> Cafeteria <input type="checkbox"/> Camp <input type="checkbox"/> Day <input type="checkbox"/> Military <input type="checkbox"/> Overnight <input type="checkbox"/> Recreation <input type="checkbox"/> Catering <input type="checkbox"/> Airline/Transport <input type="checkbox"/> Banquet <input type="checkbox"/> Central kitchen <input type="checkbox"/> Religious/fraternal <input type="checkbox"/> Party/social event <input type="checkbox"/> Picnic <input type="checkbox"/> Street/office <input type="checkbox"/> Vending machine <input type="checkbox"/> Delicatessen <input type="checkbox"/> Fast food <input type="checkbox"/> Ice cream parlor <input type="checkbox"/> Industry/office <input type="checkbox"/> Institution <input type="checkbox"/> Hospital <input type="checkbox"/> School <input type="checkbox"/> Child care <input type="checkbox"/> Nursing home <input type="checkbox"/> Jail/prison <input type="checkbox"/> Mental care <input type="checkbox"/> Mobile/itinerant <input type="checkbox"/> Rooming/tourist home <input type="checkbox"/> Smorgasbord <input type="checkbox"/> Ship <input type="checkbox"/> Street vending <input type="checkbox"/> Table service <input type="checkbox"/> Take out <input type="checkbox"/> Tavern/bar <input type="checkbox"/> Temporary <input type="checkbox"/> Train <input type="checkbox"/> Other (specify) <input type="checkbox"/> Home <input type="checkbox"/> Residence <input type="checkbox"/> Outdoor (picnic/ beach) <input type="checkbox"/> Potluck gathering <input type="checkbox"/> Private transport <input type="checkbox"/> Other (specify)	<p>SITE OF CONTAMINATION (Check all applicable)</p> <input type="checkbox"/> Farm <input type="checkbox"/> Aquatic source <input type="checkbox"/> Woods/lands <input type="checkbox"/> Food processing <input type="checkbox"/> Bakery <input type="checkbox"/> Canning <input type="checkbox"/> Egg processing <input type="checkbox"/> Frozen food <input type="checkbox"/> Meat <input type="checkbox"/> Poultry <input type="checkbox"/> Seafood <input type="checkbox"/> Other (specify) <input type="checkbox"/> Retail outlet <input type="checkbox"/> Food service <input type="checkbox"/> Banquet <input type="checkbox"/> Cafeteria <input type="checkbox"/> Camp <input type="checkbox"/> Day <input type="checkbox"/> Military <input type="checkbox"/> Overnight <input type="checkbox"/> Recreation <input type="checkbox"/> Catering <input type="checkbox"/> Airline/transport <input type="checkbox"/> Banquet <input type="checkbox"/> Central kitchen <input type="checkbox"/> Religious/fraternal <input type="checkbox"/> Party/Social event <input type="checkbox"/> Picnic <input type="checkbox"/> Street/Office <input type="checkbox"/> Vending machine <input type="checkbox"/> Delicatessen <input type="checkbox"/> Fast food <input type="checkbox"/> Ice cream parlor <input type="checkbox"/> Industry/Office <input type="checkbox"/> Institution <input type="checkbox"/> Hospital <input type="checkbox"/> School <input type="checkbox"/> Child care <input type="checkbox"/> Nursing home <input type="checkbox"/> Jail/prison <input type="checkbox"/> Mental care <input type="checkbox"/> Mobile/Itinerant <input type="checkbox"/> Rooming/tourist home <input type="checkbox"/> Smorgasbord <input type="checkbox"/> Ship <input type="checkbox"/> Street vending <input type="checkbox"/> Table service <input type="checkbox"/> Take out <input type="checkbox"/> Tavern/Bar <input type="checkbox"/> Temporary <input type="checkbox"/> Train <input type="checkbox"/> Other (specify) <input type="checkbox"/> Home <input type="checkbox"/> Residence <input type="checkbox"/> Outdoor (picnic/ beach) <input type="checkbox"/> Potluck gathering <input type="checkbox"/> Private transport <input type="checkbox"/> Other (specify)	<p>SITE OF SURVIVAL (Check all applicable)</p> <input type="checkbox"/> Farm <input type="checkbox"/> Aquatic source <input type="checkbox"/> Woods/lands <input type="checkbox"/> Food processing <input type="checkbox"/> Bakery <input type="checkbox"/> Canning <input type="checkbox"/> Egg processing <input type="checkbox"/> Frozen food <input type="checkbox"/> Meat <input type="checkbox"/> Poultry <input type="checkbox"/> Seafood <input type="checkbox"/> Other (specify) <input type="checkbox"/> Retail outlet <input type="checkbox"/> Food service <input type="checkbox"/> Banquet <input type="checkbox"/> Cafeteria <input type="checkbox"/> Camp <input type="checkbox"/> Day <input type="checkbox"/> Military <input type="checkbox"/> Overnight <input type="checkbox"/> Recreation <input type="checkbox"/> Catering <input type="checkbox"/> Airline/transport <input type="checkbox"/> Banquet <input type="checkbox"/> Central kitchen <input type="checkbox"/> Religious/fraternal <input type="checkbox"/> Party/social event <input type="checkbox"/> Picnic <input type="checkbox"/> Street/office <input type="checkbox"/> Vending machine <input type="checkbox"/> Delicatessen <input type="checkbox"/> Fast food <input type="checkbox"/> Ice cream parlor <input type="checkbox"/> Industry/office <input type="checkbox"/> Institution <input type="checkbox"/> Hospital <input type="checkbox"/> School <input type="checkbox"/> Child care <input type="checkbox"/> Nursing home <input type="checkbox"/> Jail/prison <input type="checkbox"/> Mental care <input type="checkbox"/> Mobile/itinerant <input type="checkbox"/> Rooming/tourist home <input type="checkbox"/> Smorgasbord <input type="checkbox"/> Ship <input type="checkbox"/> Street vending <input type="checkbox"/> Table service <input type="checkbox"/> Take out <input type="checkbox"/> Tavern/bar <input type="checkbox"/> Temporary <input type="checkbox"/> Train <input type="checkbox"/> Other (specify) <input type="checkbox"/> Home <input type="checkbox"/> Residence <input type="checkbox"/> Outdoor (picnic/ beach) <input type="checkbox"/> Potluck gathering <input type="checkbox"/> Private transport <input type="checkbox"/> Other (specify)	<p>SITE OF PROPAGATION (Check all applicable)</p> <input type="checkbox"/> Farm <input type="checkbox"/> Aquatic source <input type="checkbox"/> Woods/lands <input type="checkbox"/> Food processing <input type="checkbox"/> Bakery <input type="checkbox"/> Canning <input type="checkbox"/> Egg processing <input type="checkbox"/> Frozen food <input type="checkbox"/> Meat <input 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type="checkbox"/> School <input type="checkbox"/> Child care <input type="checkbox"/> Nursing home <input type="checkbox"/> Jail/prison <input type="checkbox"/> Mental care <input type="checkbox"/> Mobile/itinerant <input type="checkbox"/> Rooming/itinerant <input type="checkbox"/> Rooming/tourist home <input type="checkbox"/> Smorgasbord <input type="checkbox"/> Ship <input type="checkbox"/> Street vending <input type="checkbox"/> Table service <input type="checkbox"/> Take out <input type="checkbox"/> Tavern/bar <input type="checkbox"/> Temporary <input type="checkbox"/> Train <input type="checkbox"/> Other (specify) <input type="checkbox"/> Home <input type="checkbox"/> Residence <input type="checkbox"/> Outdoor (picnic/ beach) <input type="checkbox"/> Potluck gathering <input type="checkbox"/> Private transport <input type="checkbox"/> Other (specify)	<p>METHOD OF PROCESSING/PREPARATION (Check all applicable)</p> <input type="checkbox"/> Raw <input type="checkbox"/> Harvest <input type="checkbox"/> Clean/sort/ wash <input type="checkbox"/> Slaughter/ cut <input type="checkbox"/> Grind/ blend <input type="checkbox"/> Refrigerated <input type="checkbox"/> Frozen <input type="checkbox"/> Retorted <input type="checkbox"/> Pasteurized <input type="checkbox"/> Cooked/ Heated <input type="checkbox"/> Smoked <input type="checkbox"/> Dried <input type="checkbox"/> Salted <input type="checkbox"/> Cured <input type="checkbox"/> Acidified <input type="checkbox"/> Fermented <input type="checkbox"/> Chemically preserved <input type="checkbox"/> Vacuum/ anaerobic pack <input type="checkbox"/> Mixed/blended <input type="checkbox"/> Food service <input type="checkbox"/> Assemble serve <input type="checkbox"/> Cook serve <input type="checkbox"/> Cook hold (ambient) <input type="checkbox"/> Cook hold hot <input type="checkbox"/> Cook chill serve <input type="checkbox"/> Cook chill serve <input type="checkbox"/> Cook chill reheating <input type="checkbox"/> Acidify serve <input type="checkbox"/> Other (specify)
COMMENTS:				

