

Agenda...NARMS Quarterly Conference Call 4/30/2002

Status of Isolates

2001

2002

Trends in Salmonella

Campylobacter – cipro resistance

Abstracts

EID

Conference on Antimicrobial Resistance

MDR Newport Meeting

Isolate Submission

2002 Submission Protocol

Upcoming changes

Continued Expansion Using ELC funding mechanisms

**Status of Isolates in NARMS (2000-2002)
as of April 26, 2002**

Isolate	Rec'd CDC 2002* (N)	Tested by CDC		Not Tested	
		(N)	(%)	(N)	(%)
Non-typhoidal <i>Salmonella</i>	194	0	(0)	194	(100)
<i>Salmonella</i> Typhi	38	0	(0)	38	(100)
<i>Shigella</i>	75	0	(0)	75	(100)
<i>E. coli</i> O157	25	0	(0)	25	(100)
<i>Listeria</i>	26	0	(0)	26	(100)
<i>Vibrio</i>	1	0	(0)	1	(100)
<i>Campylobacter</i> (human)	91	0	(0)	91	(100)

*Preliminary data

Isolate	Rec'd CDC 2001 (N)	Tested by CDC		Not Tested	
		(N)	(%)	(N)	(%)
Non-typhoidal <i>Salmonella</i>	1451	1342	(92)	109	(8)
<i>Salmonella</i> Typhi	220	189	(86)	31	(14)
<i>Shigella</i>	360	325	(90)	35	(10)
<i>E. coli</i> O157	294	271	(92)	23	(8)
<i>Listeria</i>	74	0	(0)	74	(100)
<i>Vibrio</i>	68	0	(0)	68	(100)
<i>Campylobacter</i> (human)	496	259	(52)	237	(48)

Isolate	Rec'd CDC 2000 (N)	Tested by CDC		Not Tested	
		(N)	(%)	(N)	(%)

Non-typhoidal <i>Salmonella</i>	1378	1378	(100)	0
<i>Salmonella</i> Typhi	84	84	(100)	0
<i>Shigella</i>	451	451	(100)	0
<i>E. coli</i> O157	407	407	(100)	0
<i>Listeria</i>	0	0		0
<i>Vibrio</i>	0	0		0
<i>Campylobacter</i> (human)	324	324	(100)	0

Status of data close-out 2001 NARMS Isolates

4/26/2002

Salmonella			
Site	# Received	# (%) Tested	# (%) Link to FN
CA	55 (Dec)	53 (96%)	13/56 (23%)
CO	63 (Dec)	63 (100%)	2/10 (20%)
CT	51 (Dec)	51 (100%)	46/60 (75%)
FL	55 (Dec)	54 (98%)	na
GA	187 (Dec)	185 (99%)	26/197 (13%)
KS	29 (Dec)	28 (96%)	na
LAC	114 (Dec)	82 (72%)	na
MA	137 (Dec)	137 (100%)	na
MD	95 (Dec)	95 (100%)	14/86 (16%)
MN	63 (Dec)	63 (100%)	50/71 (70%)
NJ	119 (Dec)	56 (47%)	na
NY	140 (Dec)	138 (99%)	3/42 (7%)
NYC	141 (Dec)	138 (99%)	na
OR	26 (Dec)	26 (100%)	24/26 (92%)
TN	74 (Dec)	72 (97%)	18/25 (72%)
WA	76 (Dec)	76 (100%)	na
WV	26 (Dec)	25 (96%)	na

Total	1451	1342 (92%)	195/573 (34%)				
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****PLEASE LIST THE SPECNUM AND EXPLANATION FOR EACH DELETED ISOLATE**

DNG = DID NOT GROW

DUP = DUPLICATE ISOLATE

OUT = OUT OF STATE

Status of data close-out 2001 NARMS Isolates

4/26/2002

Site	E. Coli					
	# Received	# (%) Tested	# (%) Link to FN			
CA	8 (Nov)	8 (100%)	1/8 (13%)			
CO	25 (Nov)	24 (96%)	1/2 (50%)			
CT	14 (Oct)	13 (93%)	12/16 (75%)			
FL	7 (Dec)	7 (100%)	na			
GA	27 (Dec)	27 (100%)	1/32 (3%)			
KS	4 (Nov)	4 (100%)	na			
LAC	6 (Oct)	5 (83%)	na			
MA	23 (Dec)	23 (100%)	na			
MD	14 (Nov)	14 (100%)	0/12 (0%)			
MN	34 (Dec)	34 (100%)	28/36 (78%)			
NJ	21 (Dec)	9 (43%)	na			
NY	34 (Nov)	29 (85%)	1/11 (9%)			
NYC	13 (Sept)	12 (92%)	na			
OR	13 (Dec)	13 (100%)	13/13 (100%)			
TN	11 (Dec)	10 (91%)	1/8 (13%)			
WA	32 (Dec)	32 (100%)	na			
WV	8 (Sept)	7 (87%)	na			

Total	294	271 (92%)	58/138 (42%)			
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Status of data close-out 2001 NARMS Isolates

4/26/2002

Site	Shigella		
	# Received	# (%) Tested	# (%) Link to FN
CA	20 (Nov)	20 (100%)	8/21 (38%)
CO	28 (Dec)	23 (82%)	0/6 (0%)
CT	6 (Dec)	6 (100%)	6/8 (75%)
FL	1 (Jun)	1 (100%)	na
GA	42 (Dec)	42 (100%)	9/55 (16%)
KS	5 (Dec)	4 (80%)	na
LAC	20 (Dec)	14 (70%)	na
MA	21 (Dec)	21 (100%)	na
MD	14 (Dec)	14 (100%)	1/21 (5%)
MN	45 (Dec)	44 (98%)	36/49 (73%)
NJ	35 (Dec)	19 (54%)	na
NY	24 (Nov)	23 (96%)	2/8 (25%)
NYC	46 (Dec)	43 (93%)	na
OR	10 (Dec)	10 (100%)	6/10 (60%)
TN	12 (Dec)	12 (100%)	6/8 (75%)
WA	24 (Dec)	23 (96%)	na
WV	6 (Dec)	6 (100%)	na

Total	360	325 (90%)	74/186 (40%)			
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Status of data close-out 2001 NARMS Isolates

4/26/2002

Site	Typhi		
	# Received	# (%) Tested	# (%) Link to FN
CA	21 (Dec)	19 (90%)	3/24 (13%)
CO	1 (Aug)	0 (0%)	0/0
CT	7 (Dec)	7 (100%)	5/8 (63%)
FL	4 (Dec)	4 (100%)	na
GA	11 (Dec)	10 (91%)	5/11 (45%)
KS	0	na	na
LAC	22 (Nov)	20 (91%)	na
MA	12 (Dec)	12 (100%)	na
MD	14 (Dec)	14 (100%)	0/4 (0%)
MN	7 (Dec)	6 (86%)	7/9 (78%)
NJ	42 (Nov)	21 (50%)	na
NY	13 (Sept)	11 (85%)	0/5 (0%)
NYC	49 (Dec)	48 (98%)	na
OR	9 (Nov)	9 (100%)	8/9 (89%)
TN	2 (Nov)	2 (100%)	0/1 (0%)
WA	6 (Oct)	6 (100%)	na
WV	0	na	na

Total	220	189 (86%)	28/71 (39%)			
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Status of data close-out 2001 NARMS Isolates

4/26/2002

Site	Listeria					
	# Received	# (%) Serotyped	# (%) Link to FN			
CA	8 (Dec)	8 (100%)	8/8 (100%)			
CO	8 (Oct)	8 (100%)	1/3 (33%)			
CT	15 (Oct)	15 (100%)	13/19 (68%)			
GA	10 (Nov)	10 (100%)	3/13 (23%)			
MD	15 (Nov)	15 (100%)	0/12 (0%)			
MN	0	na	0/0			
NY	5 (June)	5 (100%)	0/8 (0%)			
OR	1 (Oct)	1 (100%)	0/4 (0%)			
TN	10 (Dec)	10 (100%)	3/6 (50%)			
Total	74	74 (100%)	28/73 (38%)			

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Status of data close-out 2001 NARMS Isolates

4/26/2002

Site	Vibrio				
	# Received	# (%) Tested	# (%) Link to FN		
CA	0	na	0/0		
CO	5 (Sept)	na	0/0		
CT	5 (Aug)	na	4/5 (80%)		
GA	8 (Oct)	na	0/8 (0%)		
MD	10 (Sept)	na	0/7 (0%)		
MN	2 (June)	na	2/2 (100%)		
NY	29 (Sept)	na	0/4 (0%)		
OR	5 (Sept)	na	5/5 (100%)		
TN	1 (May)	na	0/1 (0%)		
Total	68	na	11/32 (34%)		

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Status of data close-out 2001 NARMS Isolates

4/26/2002

Site	Campylobacter					
	# Received	# (%) Tested	# (%) Link to FN			
CA	55 (Dec)	33 (60%)	6/59 (10%)			
CO	45 (Dec)	32 (71%)	3/6 (50%)			
CT	48 (Dec)	31 (65%)	39/61 (64%)			
GA	100 (Dec)	41 (41%)	30/117 (26%)			
MD	59 (Dec)	18 (30%)	2/53 (4%)			
MN	55 (Dec)	32 (58%)	43/69 (62%)			
NY	50 (Dec)	26 (52%)	0/39 (0%)			
OR	42 (Dec)	25 (59%)	39/54 (72%)			
TN	42 (Dec)	21 (50%)	21/27 (78%)			
Total	496	259 (52%)	183/485 (38%)			

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Status of 2002 NARMS Isolates

4/26/2002

Site	Salmonella			
	# Received	# (%) Tested	# (%) Link to FN	# (%) Deleted**
AZ	7 (FEB)	0	NA	
CA	1 (JAN)	0		
CO	11 (MAR)	0		
CT	9 (MAR)	0		
FL	7 (FEB)	0	NA	
HI	2 (FEB)	0	NA	
GA	10 (FEB)	0		
KS	4 (MAR)	0	NA	
LA	0	0	NA	
LAC	16 (MAR)	0	NA	
MA	3 (JAN)	0	NA	
MD	13 (MAR)	0		
ME	0	0	NA	
MI	21 (MAR)	0	NA	
MN	8 (MAR)	0		
MT	0	0	NA	
NE	4 (FEB)	0	NA	

Status of 2002 NARMS Isolates

4/26/2002

Salmonella				
Site	# Received	# (%) Tested	# (%) Link to FN	# (%) Deleted**
NJ	0	0	NA	
NX	24 (MAR)	0		
NYC	18 (FEB)	0	NA	
NM	9 (MAR)	0	NA	
OR	0	0		
SD	4 (MAR)	0	NA	
TN	0	0		
TX	11 (FEB)	0	NA	
WA	12 (MAR)	0	NA	
WI	0	0	NA	
WV	0	0	NA	
Total	194	0		

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Status of 2002 NARMS Isolates

4/26/2002

Site	E. Coli			
	# Received	# (%) Tested	# (%) Link to FN	# (%) Deleted**
AZ	1 (JAN)	0	NA	
CA	0	0		
CO	2 (FEB)	0		
CT	2 (MAR)	0		
FL	0	0	NA	
HI	0	0	NA	
GA	5 (FEB)	0		
KS	0	0	NA	
LA	0	0	NA	
LAC	0	0	NA	
MA	1 (JAN)	0	NA	
MD	0	0		
ME	0	0	NA	
MI	3 (MAR)	0	NA	
MN	2 (MAR)	0		
MT	0	0	NA	
NE	1 (JAN)	0	NA	

Status of 2002 NARMS Isolates

4/26/2002

Site	E. Coli			
	# Received	# (%) Tested	# (%) Link to FN	# (%) Deleted**
NJ	0	0	NA	
NX	4 (MAR)	0		
NYC	0	0	NA	
NM	2 (FEB)	0	NA	
OR	0	0		
SD	0	0	NA	
TN	0	0		
TX	1 (MAR)	0	NA	
WA	1 (JAN)	0	NA	
WI	0	0	NA	
WV	0	0	NA	
Total	25	0		

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Status of 2002 NARMS Isolates

4/26/2002

Site	Shigella			
	# Received	# (%) Tested	# (%) Link to FN	# (%) Deleted**
AZ	2 (JAN)	0	NA	
CA	1 (JAN)	0		
CO	4 (FEB)	0		
CT	2 (MAR)	0		
FL	0	0	NA	
HI	1 (FEB)	0	NA	
GA	13 (MAR)	0		
KS	2 (MAR)	0	NA	
LA	0	0	NA	
LAC	7 (FEB)	0	NA	
MA	2 (JAN)	0	NA	
MD	9 (MAR)	0		
ME	0	0	NA	
MI	3 (FEB)	0	NA	
MN	4 (MAR)	0		
MT	0	0	NA	
NE	2 (FEB)	0	NA	

Status of 2002 NARMS Isolates

4/26/2002

Site	Shigella			
	# Received	# (%) Tested	# (%) Link to FN	# (%) Deleted**
NJ	0	0	NA	
NX	3 (JAN)	0		
NYC	7 (FEB)	0	NA	
NM	2 (JAN)	0	NA	
OR	0	0		
SD	6 (FEB)	0	NA	
TN	0	0		
TX	2 (MAR)	0	NA	
WA	2 (MAR)	0	NA	
WI	0	0	NA	
WV	0	0	NA	
Total	75	0		

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Status of 2002 NARMS Isolates

4/26/2002

Typhi

Site	# Received	# (%) Tested	# (%) Link to FN	# (%) Deleted**
AZ	0	0	NA	
CA	3 (JAN)	0		
CO	1 (FEB)	0		
CT	1 (JAN)	0		
FL	2 (JAN)	0	NA	
HI	0	0	NA	
GA	0	0		
KS	0	0	NA	
LA	0	0	NA	
LAC	2 (FEB)	0	NA	
MA	3 (JAN)	0	NA	
MD	0	0		
ME	0	0	NA	
MI	5 (MAR)	0	NA	
MN	2 (MAR)	0		
MT	0	0	NA	
NE	1 (MAR)	0	NA	

Status of 2002 NARMS Isolates

4/26/2002

Site	Typhi			
	# Received	# (%) Tested	# (%) Link to FN	# (%) Deleted**
NJ	0	0	NA	
NX	4 (MAR)	0		
NYC	6 (FEB)	0	NA	
NM	0	0	NA	
OR	0	0		
SD	0	0	NA	
TN	0	0		
TX	4 (MAR)	0	NA	
WA	4 (MAR)	0	NA	
WI	0	0	NA	
WV	0	0	NA	
Total	38	0		

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Status of 2002 NARMS Isolates

4/26/2002

Listeria				
Site	# Received	# (%) Serotyped	# (%) Link to FN	# (%) Deleted**
CA	0	0		
CO	2 (JAN)	0		
CT	4 (FEB)	0		
GA	3 (FEB)	0		
MD	3 (MAR)	0		
MN	0	0		
NX	10 (MAR)	0		
OR	3 (APR)	0		
TN	0	0		
Total	26	0		

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Status of 2002 NARMS Isolates

4/26/2002

Site	Vibrio			
	# Received	# (%) Tested	# (%) Link to FN	# (%) Deleted**
CA	0	0		
CO	0	0		
CT	0	0		
GA	0	0		
MD	0	0		
MN	0	0		
NX	1 (MAR)	0		
OR	0	0		
TN	0	0		
Total	1	0		

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Status of 2002 NARMS Isolates

4/26/2002

Campylobacter				
Site	# Received	# (%) Tested	# (%) Link to FN	# (%) Deleted**
CA	8 (FEB)	0		
CO	9 (MAR)	0		
CT	13 (MAR)	0		
GA	18 (APR)	0		
MD	7 (MAR)	0		
MN	14 (MAR)	0		
NX	10 (MAR)	0		
OR	12 (MAR)	0		
TN	0	0		
Total	91	0		

****PLEASE LIST THE SPECNUM AND EXPLANATION FOR EACH DELETED ISOLATE**

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Salmonella – 1980-2001

Selected County Study

Year	# isolates tested	# ABX tested	Resistant to ≥ 1 ABX		Resistant to ≥ 2 ABX		Resistant to ≥ 5 ABX		Resistant to ACSSuT		Resistant to AKSSuT		Resistant to Ceftriaxone (MIC > 64)*		Resistant to Ciprofloxacin (MIC > 4)	
			N	%	N	%	N	%	N	%	N	%	N	%	N	%
1980	542	12	83	15%	66	12%	16	3%	3	0.6%	14	3%	NA	--	NA	--
1985	638	12	166	26%	114	18%	17	3%	9	1%	7	1%	NA	--	NA	--
1990	761	12	232	30%	189	25%	52	7%	23	3%	37	5%	NA	--	NA	--
1995	4045	12	1318	33%	914	23%	441	11%	305	8%	139	3%	3	0.07%	1	0.02%

NARMS

Year	# isolates tested	# ABX tested	Resistant to ≥ 1 ABX		Resistant to ≥ 2 ABX		Resistant to ≥ 5 ABX		Resistant to ACSSuT		Resistant to AKSSuT		Resistant to Ceftriaxone (MIC > 16)*		Resistant to Ciprofloxacin (MIC > 4)	
			N	%	N	%	N	%	N	%	N	%	N	%	N	%
1996	1326	15	493	37%	404	30%	162	12%	117	9%	31	2%	1	0.07%	0	0
1997	1301	15	443	34%	328	25%	180	14%	125	10%	46	4%	5	0.4%	0	0
1998	1466	15	398	27%	334	23%	188	13%	130	9%	50	3%	10	0.7%	1	0.07%
1999	1499	15	388	26%	315	21%	169	11%	125	8%	44	3%	28	1.9%	1	0.07%
2000	1377	15	352	26%	283	21%	165	12%	122	9%	44	3%	22	1.6%	2	0.1%
2001**	1322	15	363	27%	287	22%	151	11%	127	9.6%	22	2%	32	2%	2	0.1%

* broth microdilution 1996-2001

** AS OF 04/26/0

Salmonella Typhimurium – 1980-2001

Selected County Study

Year	# isolates tested	# ABX tested	Resistant to ≥ 1 ABX		Resistant to ≥ 2 ABX		Resistant to ≥ 5 ABX		Resistant to ACSSuT		Resistant to AKSSuT		Resistant to Ceftriaxone (MIC > 64)*		Resistant to Ciprofloxacin (MIC > 4)	
			N	%	N	%	N	%	N	%	N	%	N	%	N	%
1980	239	12	36	15%	30	13%	13	5%	1	0.4%	12	5%	NA	--	NA	--
1985	236	12	71	30%	55	23%	15	6%	8	3%	7	3%	NA	--	NA	--
1990	170	12	90	53%	78	46%	38	22%	18	11%	29	17%	NA	--	NA	--
1995	924	12	501	54%	440	48%	318	34%	248	27%	111	12%	1	0.1%	0	0%

NARMS

Year	# isolates tested	# ABX tested	Resistant to ≥ 1 ABX		Resistant to ≥ 2 ABX		Resistant to ≥ 5 ABX		Resistant to ACSSuT		Resistant to AKSSuT		Resistant to Ceftriaxone (MIC > 16)*		Resistant to Ciprofloxacin (MIC > 4)	
1996	306	15	196	64%	177	58%	125	41%	103	34%	27	9%	0	0%	0	0%
1997	326	15	204	63%	188	58%	154	47%	115	35%	41	13%	5	2%	0	0%
1998	377	15	200	53%	193	51%	159	42%	120	32%	47	12%	7	2%	0	0%
1999	362	15	179	49%	166	46%	129	36%	100	28%	39	11%	7	2%	0	0%
2000	303	15	153	51%	143	47%	112	37%	84	28%	28	9%	6	2%	0	0%
2001**	294	15	146	50%	137	47%	94	32%	82	28%	12	4%	4	1%	1	0.3%

*broth microdilution 1996-2001

** AS OF 04/26/2002

Salmonella Enteritidis – 1980-2001

Selected County Study

Year	# isolates tested	# ABX tested	Resistant to ≥ 1 ABX		Resistant to ≥ 2 ABX		Resistant to ≥ 5 ABX		Resistant to ACSSuT		Resistant to AKSSuT		Resistant to Ceftriaxone (MIC > 64)*		Resistant to Ciprofloxacin (MIC > 4)	
			N	%	N	%	N	%	N	%	N	%	N	%	N	%
1980	30	12	1	3%	0	0%	0	0%	0	0%	0	0%	NA	--	NA	--
1985	52	12	11	21%	0	0%	0	0%	0	0%	0	0%	NA	--	NA	--
1990	188	12	17	9%	8	4%	1	1%	1	1%	0	0%	NA	--	NA	--
1995	1130	12	206	18%	83	7%	6	1%	4	0.4%	3	0.3%	NA	--	0	0%

NARMS

Year	# isolates tested	# ABX tested	Resistant to ≥ 1 ABX		Resistant to ≥ 2 ABX		Resistant to ≥ 5 ABX		Resistant to ACSSuT		Resistant to AKSSuT		Resistant to Ceftriaxone (MIC > 16)*		Resistant to Ciprofloxacin (MIC > 4)	
1996	357	15	110	31%	84	24%	13	4%	1	0.3%	0	0%	0	0%	0	0%
1997	301	15	78	26%	37	12%	17	6%	1	0.3%	1	0.3%	0	0%	0	0%
1998	244	15	30	12%	16	7%	0	0%	0	0%	0	0%	0	0%	0	0%
1999	269	15	44	16%	26	10%	2	1%	2	1%	0	0%	1	0.4%	0	0%
2000	319	15	35	11%	9	3%	0	0%	0	0%	0	0%	0	0%	0	0%
2001**	258	15	37	14%	14	5%	3	1%	0	0%	1	0.4%	1	0.4%	0	0%

*broth microdilution 1996-2001

** AS OF 04/26/02

Salmonella Newport – 1980-2001

Selected County Study

Year	# isolates tested	# ABX tested	Resistant to ≥ 1 ABX		Resistant to ≥ 2 ABX		Resistant to ≥ 5 ABX		Resistant to ACSSuT		Resistant to AKSSuT		Resistant to Ceftriaxone (MIC > 64)*		Resistant to Ciprofloxacin (MIC > 4)	
			N	%	N	%	N	%	N	%	N	%	N	%	N	%
1980	40	12	9	23%	9	23%	2	5%	1	3%	2	5%	NA	--	NA	--
1985	47	12	6	13%	3	6%	0	0%	0	0%	0	0%	NA	--	NA	--
1990	28	12	6	21%	6	21%	6	21%	3	11%	6	21%	NA	--	NA	--
1995	192	12	31	16%	8	4%	4	2%	4	2%	4	2%	NA	--	0%	0%

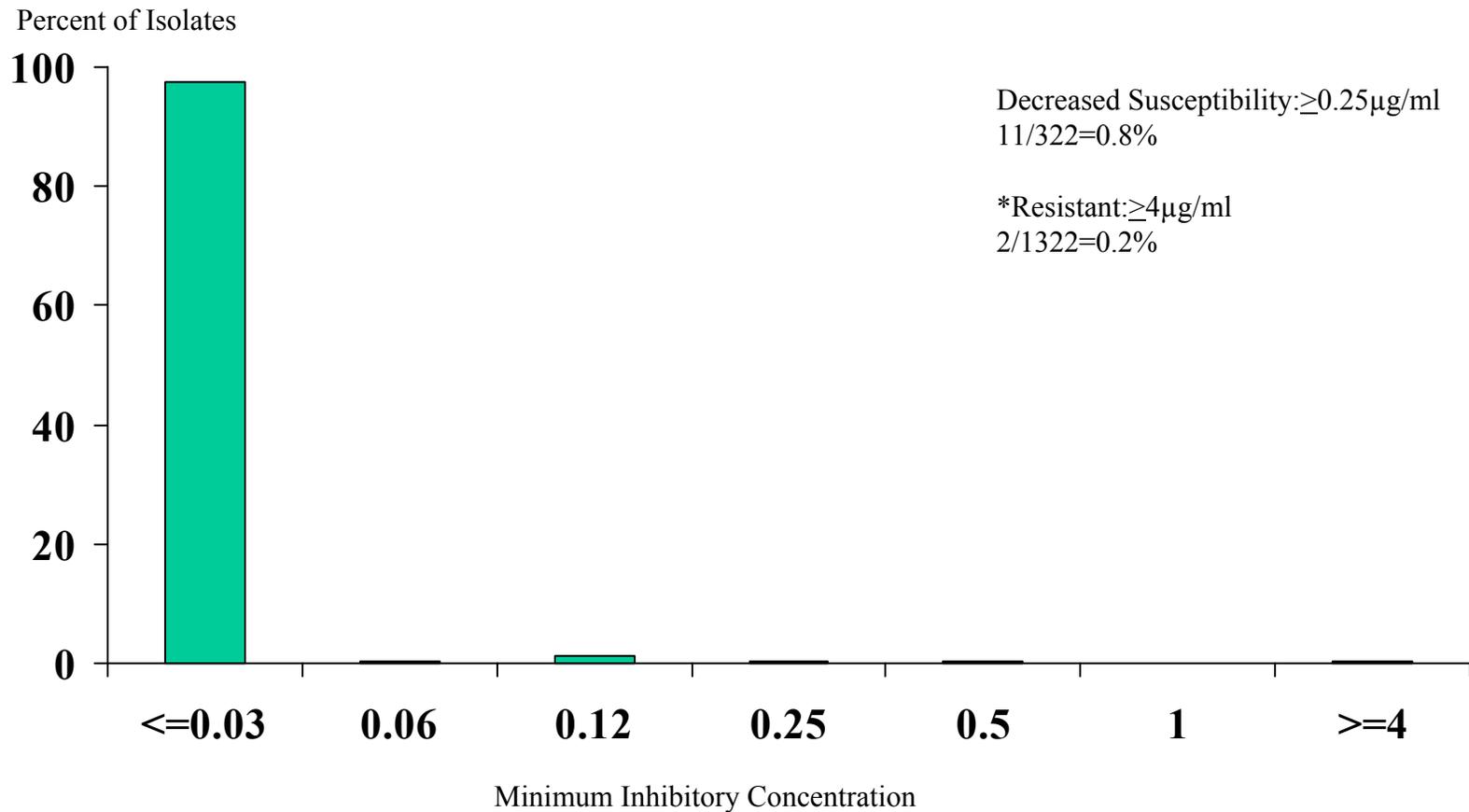
NARMS

Year	# isolates tested	# ABX tested	Resistant to ≥ 1 ABX		Resistant to ≥ 2 ABX		Resistant to ≥ 5 ABX		Resistant to ACSSuT		Resistant to AKSSuT		Resistant to Ceftriaxone (MIC > 16)*		Resistant to Ciprofloxacin (MIC > 4)	
			N	%	N	%	N	%	N	%	N	%	N	%	N	%
1996	51	15	9	18%	4	8%	3	6%	3	6%	1	2%	0	0%	0%	0%
1997	48	15	6	13%	3	6%	2	4%	2	4%	0	0%	0	0%	0%	0%
1998	78	15	4	5%	2	3%	2	3%	1	1%	0	0%	1	1%	0%	0%
1999	98	15	23	23%	17	17%	17	17%	17	17%	1	1%	17	17%	0%	0%
2000	124	15	30	24%	28	23%	28	23%	28	23%	6	5%	15	12%	0	0%
2001**	113	15	41	36%	38	34%	32	28%	31	27%	7	6%	25	22%	0	0%

*broth microdilution 1996-2001

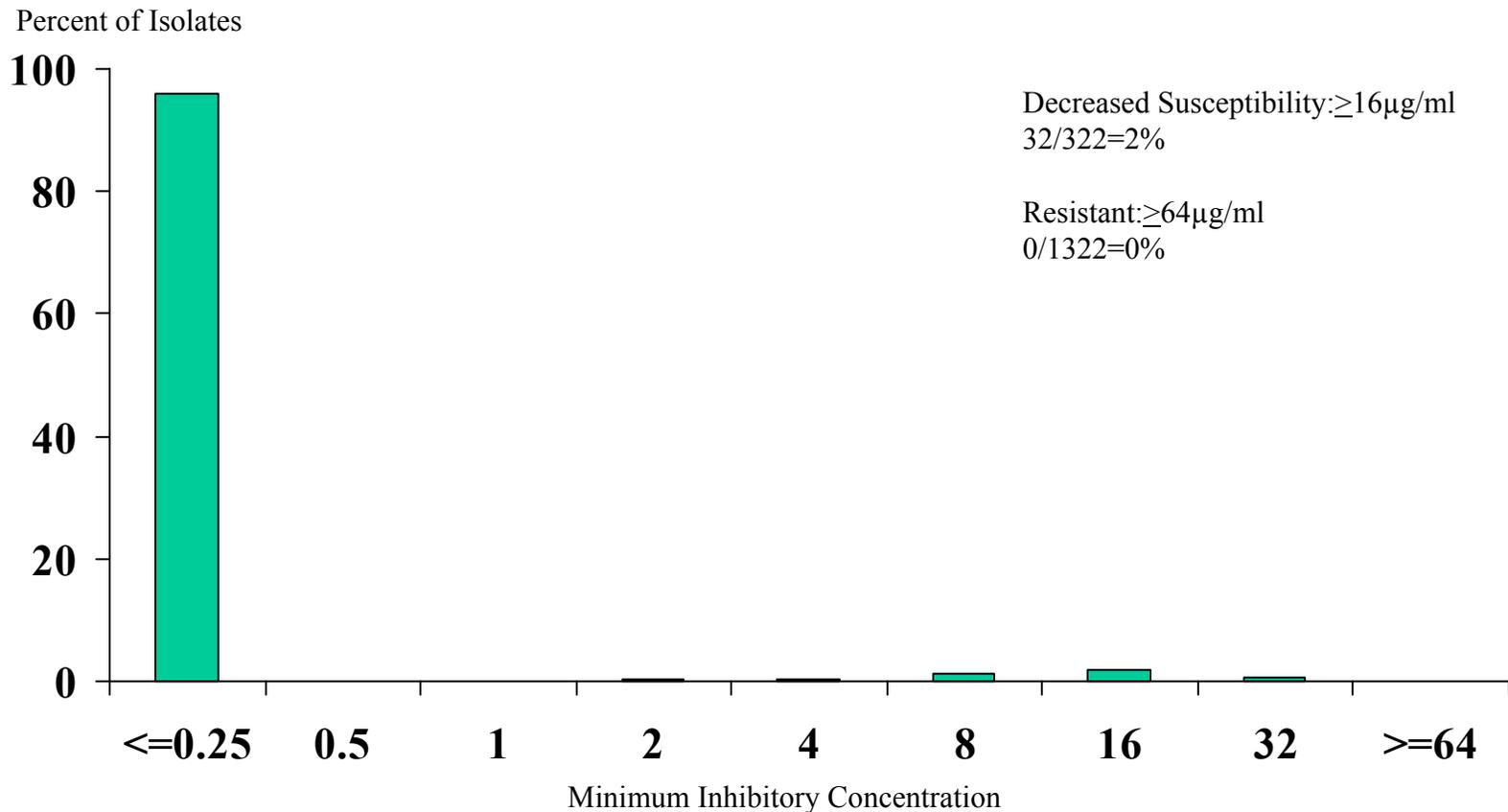
** AS OF 04/26/02

MICs for ciprofloxacin among non-Typhi *Salmonella* isolates (N=1322), 2001



*Resistant isolates: *S. Typhimurium* (n=1), *S. Senftenberg* (n=1)

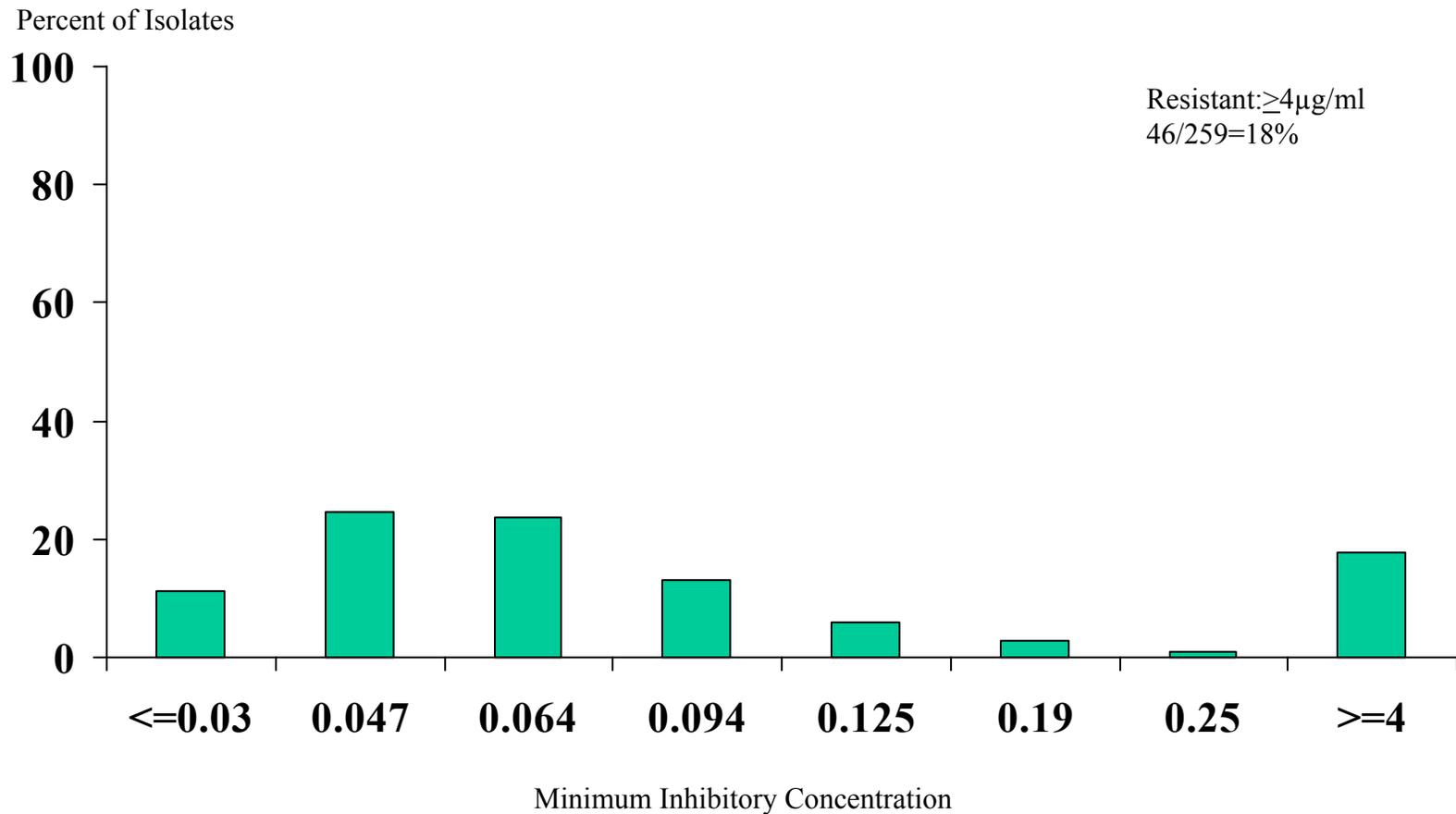
MICs for ceftriaxone* among non-Typhi *Salmonella* isolates (N=1322), 2001



*Sensititre results only.

*Decreased susceptibility isolates: *S. Newport* (n=25), *S. Typhimurium* (n=4), *S. Enteritidis* (n=1), *S. Heidelberg* (n=1), *S. Stanley* (n=1)

MICs for ciprofloxacin among *Campylobacter* isolates (N=259), 2001



Narms Working Group Abstracts

ICEID 2002

Epi	Title and Authors	Status
1	Emerging Fluoroquinolone Resistance among Non-Typhoidal <i>Salmonella</i> in the United States: NARMS 1996-2000 S. Rossiter, J. McClellan, T. Barrett, K. Joyce, A.D. Anderson, and the NARMS Working Group	Accepted; Slide Presentation
2	Enhanced Surveillance for Antimicrobial Resistance among Enteric Bacteria: NARMS Retail Food Study J.E. Stevenson, D.G. White, D.J. Torpey III, A.S. Craig, K.E. Smith, M.M. Park, M.A. Pascucilla, A.D. Anderson, and the NARMS Working Group	Accepted; Poster Presentation
3	Prevalence and Consequences of Fluoroquinolone-Resistant <i>Campylobacter</i> Infections: NARMS 1997-2000 J. McClellan, S. Rossiter, K. Joyce, K. Stamey, A.D. Anderson, and the NARMS Working Group	Accepted; Slide Presentation
4	Multidrug-Resistance among Human Non-Typhoidal <i>Salmonella</i> Isolates in the United States: NARMS 1999-2000 S. Rossiter, K. Joyce, J.E. Stevenson, T. Barrett, A.D. Anderson, and the NARMS Working Group	Accepted; Poster Presentation
5	Antimicrobial Resistance in <i>Salmonella</i> Serotype Typhimurium, R-Type ACSSuT, is Associated with Bacteremia: NARMS 1996-2000 K. Molbak, J.K. Varma, S. Rossiter, J.C. Lay, K. Joyce, K. Stamey, F.J. Angulo, and the NARMS Working Group	Accepted; Slide Presentation
Lab	Title and Authors	Status
6	Quinupristin-Dalfopristin Resistant <i>Enterococcus faecium</i> Isolated from Human Stools, Retail Chicken, and Retail Pork: EIP Enterococci Project K. Gay, K. Joyce, J.E. Stevenson, F.J. Angulo, T. Barrett, and the NARMS Working Group	Accepted; Slide Presentation
7	Expanded-Spectrum Beta-Lactam Resistance among Human Clinical Enterobacteriaceae in the United States: Results and Characterization of 2000 NARMS Surveillance J.M. Whichard, K. Joyce, P.D. Fey, J. McClellan, F.J. Angulo, T. Barrett, and the NARMS Working Group	Accepted; Poster Presentation

Epi Abstract (Non-NARMS Working Group)

Epi	Title and Authors	Status
8	Outbreaks of Multidrug-Resistant <i>Salmonella</i> Serotype Typhimurium Infections Associated with Small Animal Veterinary Facilities in Idaho, Minnesota, and Washington, 1999 J.G. Wright, K.E. Smith, L. Tengelsen, J. Grendon, D. Boxrud, B. Holland, A. D. Anderson	Accepted; Slide Presentation

9 The Use of Pulsed Field Gel Electrophoresis and Automated Ribotyping to Monitor the Increased Prevalence of a Multidrug Resistant *Salmonella* Serotype Newport in Massachusetts Associated with Cows
Fontana J, Stout A, Tyndall M, Bolstorff B, Rossiter S, Timperi R

Accepted; Poster Presentation

Conference on Antimicrobial Resistance - 2002

Epi	Title and Authors	Status
1	Enhanced Surveillance for Antimicrobial Resistance among Enteric Bacteria: NARMS Retail Food Study J.E. Stevenson, D.G. White, D.J. Torpey III, A.S. Craig, K.E. Smith, M.M. Park, M.A. Pascucilla, A.D. Anderson, and the NARMS Working Group	Submitted
2	Prevalence and Consequences of Fluoroquinolone-Resistant <i>Campylobacter</i> Infections: NARMS 1997-2000 J. McClellan, S. Rossiter, K. Joyce, K. Stamey, A.D. Anderson, and the NARMS Working Group	Submitted
3	Antimicrobial Resistance in <i>Salmonella</i> is Associated with Increased Hospitalization: FoodNet and NARMS 1996-2000 J.K. Varma, K. Molbak, S. Rossiter, M.A. Hawkins, T.F. Jones, S.H. Mauvais, T. Rabatsky-Ehr, Sara Stenzel, D.J. Vugia, M. Park, K. Joyce, H. Chang, and F.J. Angulo	Submitted
4	Expanded-Spectrum Beta-Lactam Resistance among Human Clinical Enterobacteriaceae in the United States: Results and Characterization of 2000 NARMS Surveillance J.M. Whichard, K. Joyce, P.D. Fey, J. McClellan, F.J. Angulo, T. Barrett, and the NARMS Working Group	Submitted

Meeting on Multidrug-resistant *Salmonella* Newport, CDC, Clifton Campus (Auditorium B)
March 28, 2002

7:00-8:00am **Registration**

8:00 –9:00am **Introduction & Keynote Speakers**

Welcome

Amita Gupta, Jean Whichard- CDC

Why we are here? *S. Newport* and the emergence of a highly multidrug- resistant phenotype in the United States: A brief overview of CDC's data

Fred Angulo - CDC

Antimicrobial-resistant *Salmonella*: A historical perspective

Thomas O'Brien - Brigham & Women's Hospital, Harvard Medical School

9:00-11:00am **Epidemiology of *S. Newport* in humans: What state health departments are seeing**

Cows, Bugs, and Drugs: An investigation of sporadic illnesses due to multidrug-resistant *Salmonella* Newport in New England

Amita Gupta - CDC

Outbreak of MDR Newport associated with consumption of an Italian-style soft cheese, Connecticut

James Hadler - Connecticut Department of Public Health

Emergence of MDR *Salmonella* Newport infections in Minnesota and comparison of humans and animal isolates

Kirk Smith - Minnesota Department of Health

9:45-10:00am *Break*

MDR *Salmonella* Newport in Los Angeles County

Roshan Reporter - Los Angeles County Department of Health Services

MDR Newport infections in humans in Michigan and a comparison to animal isolates

Patricia Somsel - Michigan Department of Community Health

An Outbreak of MDR Newport in Northern California, 2002

Michele Cheung - California Department of Health Services

10:45-11:00am **Panel discussion** (moderator – Patricia Griffin, CDC)

11:00-11:45am **Epidemiology of MDR *S. Newport* in Animals and On-farm Studies**

MDR Newport in the NVSL diagnostic isolates

Kathleen Ferris – USDA-APHIS

Extended-spectrum cephalosporin resistance of *Salmonella Newport* and other *Salmonella* isolated from animals in Canada

Cornelius Poppe - Health Canada, Population and Public Health Branch

Extended-spectrum cephalosporin resistance in animal isolates of *Salmonella Newport* in Georgia

Susan Sanchez - University of Georgia College of Veterinary Medicine

11:45am - 1:00pm *LUNCH*

1:00-1:45pm

Isolation of *Salmonella Newport* from samples submitted to a veterinary diagnostic lab, Purdue, Indiana

Ching Ching Wu – Purdue University School of Veterinary Medicine

Epidemic multiresistant *Salmonella Newport* in the Pacific Northwest

Tom Besser - Washington State University College of Veterinary Medicine

A look at veterinary diagnostic isolates and management of farm outbreaks: the Cornell experience

Patrick McDonough - Cornell University College of Veterinary Medicine

1:45-2:00pm **Panel discussion** (moderator – Alicia Anderson, CDC)

2:00- 3:15pm

On-farm ecology of multiresistant *Salmonella Newport* in dairy cattle: preliminary findings from field investigations

Helen Aceto - University of Pennsylvania School of Veterinary Medicine

Using antibiotic susceptibility patterns to study the emergence of a unique strain of *Salmonella enterica* serovar Newport in dairy cattle

Catharina Berge – UC Davis VMTRC

Spatial pattern of *S. Newport* in a dairy milkshed
William Sischo – UC Davis VMTRC

**Oxytetracycline Resistant Gram-Negative Bacteria in Dairy Cattle:
Risk Factors and Implications on Food Safety**
Bhushan JayaRao - Penn State Department of Veterinary Medicine

Nosocomial outbreak of MDR Newport among horses, Michigan
Elizabeth Carr - Michigan State University College of Veterinary
Medicine

3:15-3:30pm **Panel Discussion** (moderator – Fred Angulo, CDC)

3:30-3:45pm *Break*

3:45-5:00pm **Molecular characterization**

**Molecular characterization of MDR *Salmonella* Genomic Island 1
and variants in Typhimurium, Agona, and Paratyphi: Is there any
connection to *Salmonella* Newport?**
Michael Mulvey – Canadian Science Centre for Human and Animal
Health

***Salmonella* enterica Newport in Animals in Pennsylvania and
molecular characterization of antimicrobial resistance**
Shelley Rankin - University of Pennsylvania School of Veterinary
Medicine

**DNA sequence and characterization of pNF1358, a plasmid carrying
cmy-2 isolated from *Salmonella* enterica serotype Thompson, and its
relationship to MDR Newport**
Paul Fey - University of Nebraska Medical Center

**A comparison of ribotyping and PFGE methods for Newport;
molecular epidemiology of human and animal isolates in
Massachusetts**
John Fontana - Massachusetts Department of Public Health

**CDC's laboratory investigations of antimicrobial-resistant *S.*
Newport**
Jean Whichard - CDC

5:00-5:15pm **Panel Discussion** (moderator-Tim Barrett, CDC)

5:15-6:00pm **Wrap-up/Discussion-Recommendations**
(moderator-Rob Tauxe/Amita Gupta/Jean Whichard-CDC)

PROPER HANDLING AND COOKING PREVENTS FOODBORNE ILLNESS

WASHINGTON, April 19, 2002 – The U.S. Department of Agriculture's Food Safety and Inspection Service, is issuing a public health alert to remind consumers of the importance of following food safety guidelines when handling and preparing raw meat and poultry products.

FSIS has been recently informed by the Centers for Disease Control and Prevention (CDC) and by various state health and agriculture departments of an outbreak of *Salmonella* Newport in February and March. Consumption or handling of raw or undercooked ground beef is a suspected vehicle.

Food contaminated with *Salmonella* can cause salmonellosis, one of the most common bacterial foodborne illnesses. *Salmonella* infections can be life-threatening, especially for infants, the frail or elderly and persons with chronic disease, with HIV infection, or taking chemotherapy. The most common manifestations of salmonellosis are diarrhea, abdominal cramps and fever within eight to 72 hours. Additional symptoms may be chills, headache, nausea and vomiting that can last up to seven days. Anyone concerned about an illness should contact a physician.

In an effort to reduce incidences of foodborne illness, USDA works to educate consumers on the importance of following food safety guidelines. As a member of the Partnership for Food Safety Education, USDA is involved in the Fight BAC!™ campaign. The goal of this campaign is to educate consumers on the following four easy steps that they can take to decrease the risk of foodborne illness:

- **Cook** – Cook to a safe internal temperature. Ground beef should be heated to 160 °F.
- **Separate** – Separate raw and cooked/ready-to-eat food to prevent cross-contamination.
- **Clean** – Clean your thermometer after using it. Be sure there are plenty of clean utensils and platters on hand. Wash your hands often.

-more-



FIGHT BAC!™ Food Safety Guidelines

- **Cook** – Cook to a safe internal temperature. Ground beef should be heated to 160 °F.
- **Separate** – Separate raw and cooked/ready-to-eat food to prevent cross-contamination.
- **Clean** – Clean your thermometer after using it. Be sure there are plenty of clean utensils and platters on hand. Wash your hands often.
- **Chill** – At home, store leftovers in the refrigerator or freezer within 2 hours of taking food off the grill. On hot days above 90 °F refrigerate or freeze within 1 hour. Make sure the temperature in your refrigerator is 40 °F or below and 0 °F or below in the freezer. Check the temperature occasionally with a refrigerator/freezer thermometer.

- **Chill** – At home, store leftovers in the refrigerator or freezer within 2 hours of taking food off the grill. On hot days above 90 °F refrigerate or freeze within 1 hour. Make sure the temperature in your refrigerator is 40 °F or below and 0 °F or below in the freezer. Check the temperature occasionally with a refrigerator/freezer thermometer.

Because color is not a reliable indication that meat and poultry products are thoroughly cooked, a food thermometer is the only way to tell if food has reached a high enough temperature to destroy bacteria. USDA recommends using a food thermometer to ensure that hamburgers made of ground beef are cooked to an internal temperature of 160 °F; ground poultry to 165 °F. Roasts, steaks, and chops of beef, veal, or lamb should be cooked to an internal temperature of 145 °F for medium rare and 160 °F for medium. Fresh pork should reach 160 °F. Whole poultry should reach 180 °F, as measured in the thigh.

Consumers with food safety questions can phone the toll-free USDA Meat and Poultry Hotline at 1-800-535-4555. The hotline can be reached from 10 a.m. to 4 p.m. (Eastern Time) Monday through Friday, and recorded food safety messages are available 24 hours a day

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NOTE: Access news releases and other information at the FSIS Web site at <http://www.fsis.usda.gov>

Enteric Pathogen Isolate Submission to CDC: FoodNet and NARMS

Pathogen	NARMS Isolate Submission Requirement / FoodNet Performance Standards	Contact Person	Where to Submit
<i>Campylobacter</i> (FoodNet Sites Only)	1 st isolate received every week	Kevin Joyce	CDC/NCID/DBMD/FDDB/NARMS MS G-29 NARMS Laboratory Building 17/ Room 1227 1600 Clifton Rd. Atlanta, GA 30333
<i>E.coli</i> 0157	every 5th		
<i>Listeria monocytogenes</i> (FoodNet Sites Only)	ALL		
Non-Typhoidal <i>Salmonella</i>	every 10th		
<i>Salmonella</i> Typhi	ALL		
<i>Shigella</i>	every 10th		
<i>Vibrio</i>	ALL non-cholerae		
<i>Vibrio</i>	ALL cholerae	Joy Wells	CDC/NCID/DBMD/FDDB MS C-03 Building 1/ Room B-311 1600 Clifton Rd. Atlanta, GA 30333

**ELC Cooperative Agreement Funding Schedule
FY2002**

April 1 Start Date

Alabama	Houston	New Jersey	Philadelphia
Alaska	Idaho	New York City	Puerto Rico
Arizona	Iowa	New York State	South Carolina
Arkansas	Maryland	North Carolina	Tennessee
California	Massachusetts	North Dakota	Vermont
Chicago	Minnesota	Nevada	Virginia
Connecticut	Mississippi	Oregon	Washington, D.C.
Delaware	New Hampshire	Pennsylvania	West Virginia

July 1 Start Date

Colorado	Kansas	Missouri	Rhode Island
Florida	Kentucky	Montana	South Dakota
Georgia	Los Angeles	Nebraska	Texas
Hawaii	Louisiana	New Mexico	Utah
Illinois	Maine	Ohio	Washington
Indiana	Michigan	Oklahoma	Wisconsin
			Wyoming

**FY2002 Cooperative Agreement Guidance for Non-Competing Continuation Application
Epidemiology and Laboratory Capacity (ELC) for Infectious Diseases
Program Announcements 97020, 99032, & 01022
for APRIL 1, 2002 Awards
Centers for Disease Control and Prevention**

AVAILABILITY OF FUNDS

Approximately \$22,000,000 is available in Fiscal Year 2002 to fund 12-month renewals for the Epidemiology and Laboratory Capacity (ELC) cooperative agreement for the 32 state, local, and territorial health departments for the new 12-month budget period beginning April 1, 2002. Depending on the number of specific program areas funded (see Application Content section, below), the total award per grantee in most cases will range from approximately \$180,000 to approximately \$4,000,000 with an average of approximately \$687,500. This amount includes both direct and indirect costs. Funding estimates for the program overall and for the individual program areas may change.

Consistent with the Centers for Disease Control and Prevention's (CDC) intent to streamline the grant and cooperative agreement process, only the following items are required:

1. Application Form CDC 0.1246 (E).
2. Progress Report
Summarize ELC-funded activities and accomplishments during the current budget period (from April 1 to-date). Provide evidence of how ELC cooperative agreement funds are being used to strengthen collaboration between epidemiology and laboratory practice. Also describe how these funds are contributing to effective disease surveillance and response by building epidemiologic and laboratory capacity (e.g., hiring staff, descriptions of outbreak investigations, expanded surveillance, improved laboratory technology, etc.); through training and education efforts (e.g., professional staff development, educational posters or campaigns for the public or health professionals, etc.); and through enhanced reporting systems or communications (e.g., NEDSS implementation, EFORS, improved communications with reporters, etc.).

If funds were provided for activities within specific program areas listed below, provide a brief description of overall progress for meeting stated objectives under each program area as follows:

Antimicrobial Resistance

Surveillance - monitoring antimicrobial resistance and patterns of antimicrobial use
Public Health Education Campaign - implementing a health communication intervention to promote the appropriate use of antibiotics for outpatient upper respiratory infections
Clinical Laboratory Quality Assurance - developing training and proficiency testing for clinical laboratories

Foodborne Diseases

Outbreak Investigations - enhancing capacity for investigation, control, and reporting of foodborne disease outbreaks. In particular, describe progress in hiring an MPH-level epidemiologist dedicated to enteric disease outbreaks.

Electronic Foodborne Outbreak Reporting System (EFORS) - converting to electronic reporting of foodborne disease outbreaks through EFORS.

Laboratory-based Surveillance - implementing molecular identification of foodborne parasites; participating in PulseNet; enhancing capacity to detect non-O157 Shiga toxin-producing *E.coli* (STEC), including progress using Shiga toxin detection assays in public health laboratories and strategies to assure the isolation of non-O157 STEC, specifically those originally identified by Shiga toxin detection in hospital or commercial clinical laboratories; diagnosing parasitic diseases through DPDx.

Hepatitis Prevention and Control

Hepatitis C Coordinators - establishing a focus in the health department responsible for the management, networking, and technical expertise required for successful integration of hepatitis C prevention and control activities.

Surveillance for Chronic HBV and/or HCV Infections - developing, implementing, and evaluating surveillance systems to identify persons with chronic hepatitis B virus and hepatitis C virus infections.

Influenza Surveillance and Response

Enhancing and maintaining the sentinel physician influenza surveillance program and/or laboratory surveillance for influenza. Include information on changes in the number of enrolled and regularly reporting sentinel physicians, respiratory specimens submitted by sentinel physicians for influenza virus isolation, and recruitment/education/and feedback programs for sentinel physicians. Also include information regarding changes in the number of specimens received by your laboratory for influenza virus testing, the proportion of influenza A viruses subtyped, and any changes in methods or procedures implemented using ELC funds. If ELC funds were used to maintain the previously existing influenza surveillance activities or expand surveillance activities to year round, describe these activities.

West Nile Virus

Developing or enhancing bird, mosquito, human, and equine encephalitis surveillance activities; establishing/enhancing capabilities to capture, identify and test mosquito vectors and for capturing, identifying, and testing avian and vertebrate exposure to WN virus; participating in Arbonet; enhancing laboratory capacity to identify WN virus infections in humans and other animal species; and providing education and public outreach to reduce human exposure to WN virus and other arboviruses.

NEDSS

Completing activities associated with assessment and planning for NEDSS and implementing element development.

3. Operational Plan

Submit a detailed and time-phased operational plan for continued performance of ELC activities for the next 12 months of the project beginning April 1, 2002. Applicants should identify gaps in current epidemiologic and laboratory surveillance and response capacity and develop continuation applications that address the needs of their respective health jurisdictions. **Of particular importance are activities that strengthen the collaboration between laboratory and epidemiology practice.** Applicants should also consider activities outlined in Attachments 1-5 in the following program areas: antimicrobial resistance (Attachment 1), foodborne diseases (Attachment 2), hepatitis prevention and control (Attachment 3), influenza surveillance and response (Attachment 4), West Nile virus (Attachment 5). Additionally, applicants currently funded for NEDSS activities should address Attachment 6.

4. Budget

A. Submit a complete line-item budget request and accompanying detailed justification consistent with the purpose and objectives of this program. To the extent possible, provide separate budgets for each program area (Attachments 1-6) addressed in your application. Summary budget information must be presented on the Form 424A included in the application package (e.g., use the columns in Section B for each individual program area budget). Detailed budget information for each area should be provided in a format such as that in the enclosed Sample Budget.

If requesting funds for any contracts, to avoid restrictions or funding delays, provide the following information for each proposed contract: (1) Name of proposed contractor, (2) breakdown and justification for estimated costs, (3) description and scope of activities to be performed by contractor, (4) period of performance, and (5) method of contractor selection (e.g., sole-source or competitive solicitation), (6) method of accountability.

B. Include a separate line-item listing of non-Federal contributions (funding, personnel, other resources) that are dedicated to implementing and maintaining the activities under the ELC cooperative agreement program. Identify any non-applicant sources of these funds.

5. Unobligated Funds

A. **You are required to identify on the budget form (Form 424A -Section A) the estimated unobligated balance from the current budget period.** Consistent with Federal appropriations law and DHHS grants management policy, some or all of the reported estimated unobligated may be applied towards your award for the new budget period.

- B. You may request a carryover of a portion of the above reported estimated unobligated balance into the new budget period to complete certain activities/expenses that (1) were specifically approved and funded in the current budget period, and (2) could not be accomplished prior to the end of the current budget period, and (3) for which new funding is not requested or expected in the upcoming continuation. To request such carryover, you may include a separate request (within this application) that includes a brief description of the carryover activities and a line-item budget (not to exceed 75% of the total estimated unobligated reported per above) with narrative justification.
6. Human Subjects
If any activities involve human subjects research, include in the application, plans to assure that appropriate Institutional Review Board (IRB) approval is obtained. Include protocols and IRB review/approval status if available.
7. Indirect Cost Rate Agreement
If indirect costs are being charged, include a copy of your organization's most current indirect cost rate agreement or cost allocation plan.
8. CDC Activities
For all activities under the ELC cooperative agreement, CDC will provide:
- A. Overall multi-site project coordination including convening periodic meetings
 - B. Technical support in the design, implementation, and evaluation of activities as needed
 - C. Assistance in data analysis and dissemination of project findings
 - D. If during the project period, research involving human subjects is planned or conducted and CDC scientists will be co-investigators in that research, CDC will assist in the development of a research protocol for IRB review by all institutions participating in the research project. The CDC IRB will review and approve the protocol initially and on at least an annual basis until the research project is completed.

A signed original and two copies of your application must be postmarked by **December 14, 2001** and mailed to:

Gladys T. Gissentanna
Grants Management Specialist
Procurement and Grants Office
Centers for Disease Control and Prevention
2920 Brandywine Road, Room 3000
Atlanta, Georgia 30341-4146

WHERE TO OBTAIN ADDITIONAL INFORMATION

Information on application procedures and business management technical assistance, contact:

Gladys T. Gissentanna, Centers for Disease Control and Prevention, Grants Management Branch, Procurement and Grants Office, 2920 Brandywine Road, Room 3000, Atlanta, GA 30341-4146. Telephone: (770) 488-2753

Information on program technical assistance for the overall ELC program, contact:

Deborah A. Deppe, M.P.A., Centers for Disease Control and Prevention, National Center for Infectious Diseases, 1600 Clifton Road, N.E., Mailstop C-12, Atlanta, GA 30333.
Telephone: (404) 639-4668

ATTACHMENT 1 ANTIMICROBIAL RESISTANCE

Purpose

The purpose is to develop or improve state and local health department capacity for surveillance, prevention, and control of antimicrobial resistant infections. Activities should be related to action items in the Public Health Action Plan to Combat Antimicrobial Resistance (Part 1: Domestic Issues) available on the internet at: <http://www.cdc.gov/drugresistance/actionplan/>

Funding Guidance

Amount requested by each applicant will vary depending on the range and scope of activities addressed.

Recipient Activities

Surveillance: Proposals should address one or more Surveillance action items and must include an explanation of how the proposal will help to address top priority items 2 or 5 (development of a coordinated national plan to monitor antimicrobial resistance and patterns of antimicrobial use). It is the intent of this announcement to promote interactions between CDC and state and local health departments, that will result in the fulfillment of top priority items 2 and 5 over an approximately 3 year period. Projects should include developing and implementing programs to meet state and local needs that are consistent with development of a national plan, that are or will lead to systems compatible with the National Electronic Disease Surveillance System (NEDSS), that are comparable among multiple states, and that lead to better understanding of state and local "core capacity" for antimicrobial resistance surveillance. In general, proposals are preferred that implement coordinated rather than disease or pathogen-specific projects.

Public Health Education Campaign (Implementing a health communication intervention to promote the appropriate use of antibiotics for outpatient upper respiratory infections): Proposals should address top priority action item 25 (public health education campaign) and/or 26 (assisting clinicians in appropriate prescribing).

The CDC and other groups around the country have developed educational materials and behavioral strategies which promote the appropriate use of antibiotics for the treatment of outpatient respiratory infections as a means of preventing the emergence of antimicrobial resistance. Projects are most effective when multiple communication and behavioral modalities are used in working with the targeted audiences – health care providers and consumers. Projects will be considered more favorably if they incorporate what has been learned and what has been successful from previous intervention studies. Projects should include collaborative efforts between epidemiologists and health educators, communication professionals, or behavioral scientists. The purpose of this project is to:

1. Assist states in implementing broad-based health communication and behavioral interventions to promote appropriate antibiotic use for outpatient upper respiratory infections. These interventions can utilize existing materials and behavioral activities or may develop such

specifically for use in their states. These funds are not to be used for the development or implementation of research or surveillance projects.

2. Insure that appropriate use health communication and behavioral interventions contain an evaluation component to assess impact. This may be limited to measuring the extent to which the health communication and behavioral messages reach the targeted audiences and whether the messages are understood.

Part of this award will provide funding for 1-2 persons to attend 1-2 national meetings of state and community groups to share materials and experiences with behavioral strategies used in interventions.

Clinical Laboratory Quality Assurance: Proposals should address one or more pertinent action items (e.g., 7, 8, 9) and include work by the State Public Health Laboratory and other partners to develop and promote training and proficiency testing among clinical laboratories in their states.

Physicians need accurate and timely information on the response of organisms to local prescribing patterns. An adequate quality assurance program for antibiotic susceptibility testing, which would address these items, is lacking in many clinical microbiology laboratories. In part, this may be due to laboratories replacing highly experienced and knowledgeable personnel with laboratory generalists with little experience or interest in microbiology for the sake of cost savings. In addition, there is increasing complexity in susceptibility testing requiring up-to-date training.

Organizations interested in antimicrobial resistance surveillance (health care organizations, state health departments, federal government), rely on the information reported and isolates that are referred from clinical microbiology laboratories to assess levels of antimicrobial resistance and predict emergence of resistance and target interventions. This information must accurately reflect conditions at the local level. To help quality assurance and control, state health departments may consider holding workshops, offer training in local hospitals across the state, and off-site continuing education activities for technologists who perform microbiological testing. States can also provide an antibiogram review service, in which hospitals submit antibiograms before they are released to providers for assessment of anomalies and errors.

ATTACHMENT 2 FOODBORNE DISEASE

Purpose

The purpose of these funds is to enhance capacity for detection, investigation, and reporting of foodborne disease and improve laboratory-based surveillance for emerging foodborne pathogens.

Funding Guidance

The amount requested per applicant will vary depending on the range and scope of activities addressed. See additional guidance for each activity below.

Recipient Activities

1. Enhance capacity for investigation, control, and reporting of foodborne disease outbreaks

A. Outbreak Investigations

New surveillance tools have enhanced the recognition of foodborne disease outbreaks. There are increasing demands on state and local health departments to conduct timely, effective, and cross-jurisdictional outbreak investigations. The investigations require sufficient personnel, specialized training (e.g., the analysis of epidemiologic data related to clusters detected through PulseNet), and data collection tools that facilitate sharing of information with other jurisdictions.

Funds are expected to be available to support hiring of an MPH-level epidemiologist dedicated to the investigation and reporting of foodborne disease outbreaks and/or the development of new tools to enhance the timeliness and efficiency of outbreak investigations.

Proposals should range from approximately \$30,000 to \$55,000.

B. Electronic Foodborne Outbreak Reporting System (EFORS)

Since 1973, CDC has collected information on foodborne disease outbreaks from all causes through the Foodborne Disease Outbreak Surveillance System (FBOSS). The only national database of foodborne outbreaks, FBOSS is an important source of information for all agencies involved with food safety.

With input from several states, CDC has developed an internet-based reporting system known as the Electronic Foodborne Outbreak Reporting System (EFORS). This system provides an alternative to paper-based reporting and greatly enhances the consistence of data through the use of pull down pick lists. Personnel in over 40 states have received training on the use of EFORS and over 200 outbreaks have been reported though the system. EFORS is not limited to reporting from states to CDC; it may also be used to send reports from counties and local health departments to the state.

Funds are available to support supplies and computer equipment necessary for additional sites to convert at the state and/or local level from paper-based or other reporting systems to electronic reporting through EFORS.

Proposals should range between approximately \$2,000 to \$7,000.

C. Collection and Transport of Specimens

A large proportion (~65%) of foodborne disease outbreaks are of unknown etiology. Identifying an infectious or toxic cause requires rapid collection and transport of appropriate clinical specimens during an outbreak.

Funds are expected to be available to support the development of a mail-out/mail-in specimen collection kit to assist in obtaining specimens from patients; to explore the possibility of using a courier delivery system to transport clinical specimens from patients to the local health department and from the local health department; and to educate staff regarding the appropriate collection of specimens, and to provide specimen collection material.

Proposals should range between approximately \$3,000 to \$5,000.

2. Improve laboratory-based surveillance for emerging foodborne pathogens

A. PulseNet

The PulseNet network has revolutionized foodborne disease surveillance by allowing near real-time DNA “fingerprinting” of foodborne pathogenic bacteria by state and local public health laboratories using rapid (one-day) and highly standardized PFGE protocols and by enabling the rapid comparison of these DNA “fingerprints” to a national database of “fingerprint” patterns for each foodborne bacterial pathogen. PulseNet makes rapid detection of clusters of foodborne illnesses possible and provides an early warning for public health investigation and intervention. For the system to function optimally, all laboratories on the network must perform PFGE typing of bacteria under surveillance (6 pathogens included in FY2001) in a standardized and timely manner, analyze results, and transmit the results to the national database without delay.

Funds are available for participants to continue to participate in PulseNet and perform real-time PFGE typing of foodborne pathogenic bacteria (e.g., supplies, additional equipment required to perform additional testing, and personnel needed to perform the laboratory tests in a timely manner). Where appropriate, proposals should include personnel to analyze PFGE data and follow-up on any clusters that are identified.

Proposals should range between approximately \$20,000 to \$30,000.

PulseNet Area Laboratories

Ongoing support is available for State public health laboratories in Massachusetts, Michigan, Washington, Texas, Utah, and Virginia which have been previously funded as PulseNet Area Laboratories. Funds are available to support these laboratories to conduct the following activities (in addition to general PulseNet activities above):

- Provide laboratory bench training, technical guidance and scientific expertise to PulseNet participating states within their designated area.
- Serve as a resource for surge capacity testing and reference capabilities in response to large foodborne outbreaks or potential threats of bioterrorism that may occur locally or nationally.
- Perform enhanced surveillance and subtyping of foodborne pathogens and/or rare pathogens (i.e. *Vibrio* spp., non-Typhimurium *Salmonella* serotypes, *Campylobacter* spp.).
- Provide a core unit of experienced scientists to participate in the evaluation of procedures and testing initiatives in collaboration with CDC scientific staff (i.e. Evaluations of Universal Standard Strains, procedural changes and/or improvements, software programs).
- Actively participate in research and development projects for bacterial identification and subtyping (i.e. Ribotyping, DNA sequencing).
- Provide recommendations and guidance with respect to laboratory testing or program issues (i.e. Non-culture based methods).
- Collaborate with CDC to develop a PulseNet “state perspective” and making recommendations in order to strengthen PulseNet for all participants.
- Serve as host sites for annual PulseNet update meetings and training conferences.

Proposals should be for up to \$60,000. These additional funds may be used for partial or full support of additional laboratory personnel, laboratory supplies and consumables needed to conduct Area Laboratory activities; additional equipment needed for PulseNet operations; and travel within their designated area to provide technical and troubleshooting assistance.

B. Surveillance for Shiga toxin-producing *E. coli*

Although *E. coli* O157:H7 is widely recognized as an important cause of foodborne illness in the United States, other serotypes of Shiga toxin-producing *E. coli* (non-O157 STEC) can also cause diarrhea, hemorrhagic colitis, hemolytic uremic syndrome (HUS), and death. Unlike *E. coli* O157:H7, these non-O157 STEC strains are not readily detected by simple culture methods. Consequently, little is known about their epidemiology or overall public health significance. The recent availability of commercial assays that can detect non-O157 STEC now makes efforts to monitor the prevalence of these organisms practical.

Funds are available for states not currently participating in the non-O157 surveillance system to develop capacity (supplies) to detect non-O157 STEC and

for evaluation of methods for isolation of non-O157 STEC including transport/handling practices that can affect the isolation of non-O157 STEC.

Proposals should range between approximately \$1,000 to \$5,000.

- C. Diagnosis of parasitic diseases through DPDx
DPDx uses Internet communication to improve and update the level of expertise for diagnosis of foodborne and other parasitic diseases in the US. It uses “telediagnosis” - exchanging images captured from diagnostic specimens among laboratories for diagnostic assistance. Through DPDx, laboratories can transmit images to CDC and obtain answers for their inquiries in minutes to hours. This will allow laboratories to more efficiently address difficult diagnostic cases in normal or outbreak situations, and to disseminate information more rapidly. DPDx also provides training to laboratorians on diagnostic approaches, including telediagnosis.

Funds are available to develop capacity for telediagnosis through DPDx and may be used for purchasing necessary or upgrading existing hardware and software (e.g., digital camera, microscope, and upgrades for imaging software) and for participating in CDC training.

Proposals should range between approximately \$5,000 to \$20,000.

- D. Capacity for molecular identification of foodborne parasites
Accurate identification of foodborne and other parasites permits routine surveillance as well as rapid identification of outbreaks. Implementation of molecular techniques in public health laboratories will provide more technological flexibility, prepare the public health laboratories for the imminent technological advancements in the area of diagnosis of parasitic diseases, and allow laboratories to accumulate molecular data on parasites.

Funds are available for equipment (DNA extractor, thermocycler), supplies, and CDC training to develop capacity for DNA extraction from biological samples and to perform PCR.

Proposals should range between \$20,000 to \$30,000.

- E. NARMS
The National Antimicrobial Resistance Monitoring System (NARMS) was established in 1996 within the framework of the ELC Program. NARMS is an active surveillance system in which the primary objective is to monitor antimicrobial resistance among human isolates of non-typhoidal *Salmonella*, *Salmonella* serotype Typhi, *Escherichia coli* O157, and *Shigella*. Because NARMS data have been collected systematically since 1996, the system is able to monitor emerging patterns of resistance.

Funds are available for laboratory supplies to ship every 10th *Salmonella* isolate, every 10th *Shigella* isolate, every fifth *E. coli* O157 isolate, and every *S. Typhi* isolate for antimicrobial susceptibility testing.

Proposals should range between approximately \$4,000 to \$7,500.

F. State-based interventions to mitigate antimicrobial resistance in *Salmonella* and other foodborne bacteria

Antimicrobial resistance in *Salmonella* and other foodborne bacteria is largely a consequence of the use of antimicrobial agents in food-producing animals. Efforts to mitigate such resistance include promotion of appropriate use of antimicrobial agents in food-producing animals. Laboratory-based surveillance data of antimicrobial resistance in *Salmonella* and other foodborne bacteria provide essential data to direct appropriate use interventions. Antimicrobial resistance data of human *Salmonella* isolates is available for state public health laboratories participating in the National Antimicrobial Resistance Monitoring System (NARMS); data of animal isolates is available in most veterinary diagnostic laboratories.

Funds are available for participants to establish collaboration between the state public health laboratory and state veterinary diagnostic laboratory to facilitate the exchange of antimicrobial resistance data of *Salmonella* (and perhaps other genera of bacteria) between the two institutes, and to develop state-based interventions to mitigate antimicrobial resistance in *Salmonella*.

Proposals should range between approximately \$40,000 to \$50,000.

ATTACHMENT 3 HEPATITIS PREVENTION AND CONTROL

Applicants may request funding under 1. and/or 2., below:

1. Hepatitis C Virus (HCV) Coordinators

Purpose

Assist in the development, coordination, and evaluation of a program to prevent and control hepatitis C virus (HCV) infection that is integrated into existing public health prevention services and programs. Because HCV is bloodborne, its prevention and control should be integrated into settings that provide programs for prevention and control of other bloodborne virus infections (e.g., HBV, HIV). These settings include clinics for sexually transmitted diseases, drug treatment programs, HIV/AIDS counseling and testing sites, programs for high risk youth and corrections facilities. However, other innovative approaches to coordinate integrated hepatitis C program activities may be considered.

Funding Guidance

Proposals should range between approximately \$55,000 to \$110,000.

Recipient Activities

Establish a focus in the health department responsible for the management, networking, and technical expertise required for successful integration of hepatitis C prevention and control activities into existing disease surveillance activities and programs for the prevention of bloodborne viral infections. Activities may include: 1) identifying public health and clinical activities in which HCV counseling and testing should be incorporated, 2) ensuring training of health care professionals in effective hepatitis C prevention activities, 3) developing the capacity to provide HCV testing through public health or private diagnostic laboratories, 4) identifying the resources for hepatitis A and hepatitis B vaccination of at-risk persons; 5) identifying sources for appropriate medical referral of HCV positive persons, 6) ensuring appropriate surveillance for HCV infection which links to evaluation program activities, and 7) evaluating the effectiveness of HCV prevention activities.

2. Surveillance for Chronic HBV and/or HCV Infections:

Purpose:

Assist grantees in the development, implementation, and evaluation of surveillance systems to identify persons with chronic hepatitis B virus (HBV) and hepatitis C virus (HCV) infection. Funded projects should serve as models for use by other states with the ultimate goal of broad implementation of surveillance for chronic HBV and HCV infection. Grantees may apply under only one of the following categories:

- A. Database Development: For applicants without a database or with a database established for less than two years. The purpose of these funds is to support development of surveillance databases for HBV and HCV infection to ascertain the proportion of the

estimated number of HBV and HCV infected persons that have been identified, risk factors for infection, and whether persons reported to the surveillance system have received appropriate prevention and medical services.

- B. Evaluation: For States with a fully functional surveillance database established for at least two years. The purpose of these funds is to evaluate the effectiveness and utility of the surveillance system to determine (1) what proportion of the estimated number of HBV and HCV infected persons have been identified, (2) whether persons with selected risk factors are not being identified, and (3) whether persons reported to the state surveillance system have received appropriate prevention and medical services.

Only applicants from states with laws for laboratory reporting of chronic HBV infection (i.e., hepatitis B surface antigen [HBsAg] positive test results) and/or HCV infection (i.e., anti-HCV positive test results) are eligible to apply.

Funding Guidance

Funds are available only for continuation awards to grantees that received funding under this category in FY2001. No new proposals are expected to be funded. Proposals should be within the range of \$50,000 to \$150,000.

Recipient Activities:

A. Applicants for Database Development:

1. Evaluate the effectiveness of current laboratory-based reporting systems for identifying chronic HBV and HCV infection
2. Establish mechanisms (e.g., direct reporting, sampling) to obtain demographic information, ascertain risk factors for infection, and determine type of prevention and medical services received by persons reported to the surveillance system.
3. Assess the feasibility of collecting information on the cost and effectiveness of the implemented surveillance system.

B. Applicants for Evaluation:

1. In addition to ensuring the activities 1, 2, and 3, above, evaluate the ability of the computerized databases to identify persons with HBV and HCV infection. The evaluation should include determining what proportion of the estimated number of HBV and HCV infected persons have been identified, and whether persons with selected risk factors are not being identified.
2. Evaluate the effectiveness of notification, counseling and referral for medical management of persons chronically infected with HBV and HCV.

ATTACHMENT 4 INFLUENZA SURVEILLANCE AND RESPONSE

Purpose

Applicants may submit proposals addressing any or all of the following areas:

- A. Improve the capacity of state laboratories to obtain appropriately collected respiratory samples, culture specimens for influenza viruses, and type and subtype influenza isolates. This will improve influenza surveillance and the nation's ability to respond to both annual epidemics and possible pandemics.
- B. Expand and improve the U.S. Influenza Sentinel Physician Surveillance System in each state. The national goal for expanding the Sentinel Physician Surveillance System is to enroll at least 1,000 sentinel physicians (approximately one physician for every 250,000 population) who consistently provide reports during the influenza season.
- C. Year round influenza surveillance pilot projects. Grantees that have an established active sentinel physician network and perform virologic isolation and typing and subtyping of influenza viruses at the state laboratory may submit proposals to pilot year round surveillance with reporting of both sentinel physician and isolate testing results.

Funding Guidance

Amount requested by each applicant will vary depending on the range and scope of activities addressed. Nonetheless, proposals should not exceed \$100,000.

Recipient Activities:

- A. Expanding laboratory capacity
Proposals to expand or maintain state laboratory capacity to perform virus isolation, typing and sub-typing of influenza viruses will be considered. Proposals should include performing testing of respiratory specimens submitted from your state's sentinel physician free of charge.
- B. Expansion of Sentinel Physician Surveillance System
Applicants should identify an influenza surveillance coordinator who will be responsible for recruiting and retaining sentinel physicians who will report each week (from October to May) on the number of cases of influenza-like illness and the total number of patients seen, coordinating submission of respiratory specimens for influenza culture, and interacting with CDC. A system of routine reporting of virologic isolates that can differentiate results of specimens submitted by sentinel physicians from other specimens is encouraged.

Proposals are encouraged that include mailing of respiratory specimens and testing of viral specimens at no charge to the physician. Physicians should be encouraged to use the Internet to transmit surveillance data to CDC. In states in which virus isolation capacity and a sentinel physician system are well established, there is interest in

proposals that develop innovative and efficient approaches to influenza surveillance, including use of data from managed care organizations.

C. Year-Round Influenza Surveillance Activities

Proposals should incorporate sentinel physicians into the year round surveillance plan, describe criteria for testing specimens, and describe the mechanism for reporting to CDC.

ATTACHMENT 5 WEST NILE VIRUS

Purpose

Assist state and local health departments to develop and implement effective surveillance, prevention, and control of West Nile (WN) and other arboviruses that occur in the U.S.

The WN fever outbreak expanded from the northeastern U.S., to the eastern half of the U.S. in the summer and fall of 2001. This expansion insures that WN virus will maintain itself in the U.S. for the foreseeable future. As of October 2, 25 verified human cases, including two deaths, have been associated with WN virus infection in 2001; with cases occurring in Connecticut, Florida, Georgia, and Maryland for the first time. The low number of reported human WN cases through a wider geographic area could be due to a number of factors, including the aggressive mosquito control programs implemented by the affected jurisdictions during the spring and summer months. Since 1999, epizootic transmission of WN virus has been detected in Alabama, Connecticut, Delaware, Georgia, Florida, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, Tennessee, Vermont, Virginia, Wisconsin, Washington, D.C., and Canada. In addition, epidemic transmission of St. Louis encephalitis virus to humans in Louisiana (66 cases) and Powassan virus in Maine (4 cases) were also identified, largely because of the enhanced surveillance efforts for WN virus activity.

The natural transmission cycle of WN virus and other domestic arboviruses involves mosquitoes becoming infected by feeding on virus-infected birds. Through 2001, 26 different species of mosquitoes have been shown to be infected with WN virus. Twelve of these species are known mammal-biting mosquitoes, and one species feeds on amphibians and reptiles. This expanded epizootic, which again was most likely associated with bird migration, underscores the risk to the western states and emphasizes the need for continued vigilance for the spread of the virus. Additional information may be found in 12 MMWR articles (listed below), and a special issue of Emerging Infectious Diseases Vol. 7, 2001 (<http://www.cdc.gov/ncidod/EID/index.htm>).

Funding Guidance

Grantees will be contacted individually regarding funding availability.

Recipient Activities

1. Develop or enhance bird, mosquito, human and equine encephalitis surveillance activities, focusing on WN virus, but including other medically important arboviruses. Activities should be consistent with published CDC guidelines entitled Epidemic/Epizootic West Nile Virus in the United States: Revised Guidelines for Surveillance, Prevention and Control, April 2001 - available via the CDC Web site at: <http://www.cdc.gov/ncidod/dvbid/westnile/resources/wnv-guidelines-apr-2001.pdf>
2. Conduct data analysis and interpret and disseminate results.
3. Establish or enhance capabilities to capture, identify and test mosquito vectors of WN virus.
4. Establish or enhance capabilities for avian and vertebrate capture, identification, and testing for exposure to WN virus.

5. Participate in Arbonet, the computerized national surveillance system developed to track activity of WN and other arboviruses.
6. Enhance laboratory capacity to identify WN virus infections in humans and other animal species. Testing protocols include but are not limited to human IgM and IgG enzyme-linked immunosorbent assay (ELISA), equine and other animal IgM ELISA, reverse-transcriptase polymerase chain reaction (RT-PCR), real-time RT-PCR, NASBA, antigen-detection ELISA, virus isolation techniques and virus identification using virus-specific monoclonal antibodies (requires BSL3 level containment).
7. Provide education and public outreach to reduce human exposure to WN virus and other arboviruses.

MMWR Article List

1. Centers for Disease Control and Prevention. (1999). Outbreak of West Nile-like viral encephalitis - New York, 1999. MMWR Morb Mortal Wkly Rep. 48 (38): 845-849 (October 1, 1999) <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4838a1.htm>
2. Centers for Disease Control and Prevention. (1999). Update: West Nile-like viral encephalitis - New York, 1999. MMWR Morb Mortal Wkly Rep. 48 (39): 890-892. (October 8, 1999) <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4839a5.htm>
3. Centers for Disease Control and Prevention. (1999). Update: West Nile-like viral encephalitis - New York, 1999. MMWR Morb Mortal Wkly Rep. 48 (41): 944-946. (October 22, 1999) <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4841a3.htm>
4. Centers for Disease Control and Prevention. Guidelines for surveillance, prevention and control of West Nile virus infection - United States. MMWR Morb Mortal Wkly Rep. 49 (02): 25-28. (January 21, 2000) <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4902a1.htm>
5. Centers for Disease Control and Prevention. (2000). Update: Surveillance for West Nile virus in overwintering mosquitoes — New York, 2000. MMWR Morb Mortal Wkly Rep. 49 (09): 178-179. (March 10, 2000) <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4909a2.htm>
6. Centers for Disease Control and Prevention. (2000). Notice to readers: Update: West Nile virus isolated from mosquitoes — New York, 2000. MMWR Morb Mortal Wkly Rep. 49 (10): 211. (March 17, 2000) <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4910a4.htm>
7. Centers for Disease Control and Prevention. (2000). West Nile virus activity — New York and New Jersey, 2000. MMWR Morb Mortal Wkly Rep. 49 (28): 640-642. (July 21, 2000) <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4928a3.htm>
8. Centers for Disease Control and Prevention. (2000). Update: West Nile activity — Northeastern United States, January – August 7, 2000. MMWR Morb Mortal Wkly Rep. 49 (31): 714-717. (August 11, 2000) <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4931a3.htm>
9. Centers for Disease Control and Prevention. (2000). Update: West Nile activity — Northeastern United States, 2000. MMWR Morb Mortal Wkly Rep. 49 (36): 820-822. (September 15, 2000) <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4936a4.htm>
10. Centers for Disease Control and Prevention (2000). Update: West Nile Virus Activity—Eastern United States, 2000. MMWR Morb Mort Wkly Rep. 49(46):

1044-1047. (November 24, 2000)

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4946a2.htm>

11. Centers for Disease Control and Prevention. (2001). Human West Nile Virus Surveillance—Connecticut, New Jersey, and New York, 2000. MMWR Morb Mort Wkly Rep. 50(14):265-268. (April 13, 2001)
<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5014a3.htm>
12. Centers for Disease Control and Prevention. (2001). West Nile Virus Activity—Eastern United States, 2001. MMWR Morb Mort Wkly Rep. 50(29):617-619. (July 27, 2001)
<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5029a1.htm>

ATTACHMENT 6
NATIONAL ELECTRONIC DISEASE SURVEILLANCE SYSTEM (NEDSS)

Purpose

The purpose of these awards is to extend support for previously funded NEDSS activities **for the 6-month period of April 1 through September 29, 2002**. This includes continuation of currently supported activities, initially funded in either FY2000 or FY2001, for element development, Charter site, and NEDSS Base System.

Requests for support of new NEDSS activities should NOT be included in applications to this non-competing continuation solicitation. New activities include implementation of the NEDSS Base System if not previously funded, expanding the scope of element development activities, and becoming a new Charter site. A separate competitive program announcement will be issued later in FY2002 to all recipients and any requests for new NEDSS activities must be submitted separately via that announcement.

Availability of Funds

Approximately \$1,500,000 is available in Fiscal Year 2002 to fund 6-month continuations for element development, Charter site, and NEDSS Base System as appropriate. This amount includes both direct and indirect costs. Funding estimates may change.

Direct Assistance is not available for these continuation awards.

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