

# Salmonella-infected Food: A Global Concern

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## Introduction

Food borne illnesses affect people globally, with great health and economic impact.

Salmonella, a bacteria transmitted most often through poultry and egg consumption, accounts for more than half of these illnesses.

Tracking via the CDC nationally and the WHO internationally has shown no decrease in the incidence of Salmonella despite aggressive recommendations for food handling from the level of breeders to food handlers to home meat and egg consumption practices.

It is estimated that for every documented case of salmonella 29 more infections have occurred.

## Preventative Care

Preventative care at the level of poultry production via vaccination can prevent salmonella in the two major aspects of transmission: poultry meat and eggs.

If the chicken is vaccinated by the breeder salmonella populations will be decreased greatly within the birds, at the level of production and ultimately in the meat for consumption.

Secondly, if the egg-laying hen is vaccinated there will be a resultant decrease in salmonella shedding and decreased egg contamination.



## Global Solution

On a recent trip to Israel Dr. Phillips toured an active vaccination production plant.

The plant, located in Beit Shemesh, Israel, exports the vaccine to South Africa, Russia and Eastern Europe.

The vaccine for chickens covers the 2 most common strains of Salmonella, Enteritidis and Typhimurium.

The plant laboratory actively collect data on emerging strains and are working to produce a vaccine with full cross reactivity among strains.

## Salmonella and Pregnancy

Ob/Gyn residents may be the first clinicians who take care of pregnant women with salmonella infection.

This infection may be more aggressive in pregnancy as pregnant women are immunocompromised.

Residents review adverse infection consequences:

- dehydration, which can lead to preterm labor.
- transplacental infection in neonates, diagnosed at birth or as the cause of second trimester loss.
- fecal-oral passage to the neonate during vaginal delivery or after birth.

Antibiotic treatment of pregnant women should be considered, even in mild cases, to prevent serious disease, decrease maternal shedding, and minimize risk of transplacental, intra, or postpartum neonatal infection.



Dr. Phillips at the vaccine production factory in Israel



Completed vaccines ready for use

US Cost of Salmonella	Global Cost of Salmonella
\$200 Million Medical cost per year	Billions of dollars
8200 illnesses	10's of millions of illnesses
2300 Hospitalizations/29 Deaths	Greater than 100,000 deaths

## Clinical Presentation of Salmonella

Symptoms of Salmonellosis:

- Fever
- Abdominal pain
- Nausea vomiting
- Diarrhea/Dehydration

Although illness is usually mild, dehydration may occur. Within the US prompt medical care is readily available, whereas this may not be true globally. In many cases anti microbial resistance is present.



## Conclusions

Increases global distribution of these vaccines for chickens will lead to decreased illness, death and economic consequences of salmonella.

Until universal use of the vaccine is achieved, Salmonella infections will continue to occur on a global basis.

Ob/Gyn resident awareness of Salmonella as a potential cause of diarrhea, for patients who live both here and abroad, is a key component in early diagnosis and treatment.