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The management and communication of a food risk controversy: The Swedish Campylobacter case

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1. Introduction

Infection with campylobacter, meaning curved bacteria, is a disease that humans can contract from eating food contaminated with campylobacter species. The bacterium is one of the most common causes of food poisoning whose main reservoir of infection is poultry. Following a number of explosive campylobacter and salmonella outbreaks over the past 40 years (for examples see Christenson et al 1983; Mentzing 1981) Swedish authorities have done much to reduce levels of these micro-organisms found in fresh poultry and other farm animals. For example, chickens in Sweden are today largely free from salmonella, and until recently most campylobacter cases were from foreign rather than domestic sources (e.g. Swedish National Board of Health and Welfare 2013). By 2015 the levels of campylobacter infection in Swedish conventionally reared broilers were reduced to 11.6 percent per year (compared to a European industry average of 80 percent) (EFSA 2010a and b; Svensk Fagel 2017). In the second half of 2016, however, the levels of campylobacter infections among conventionally reared broilers doubled to more than 20 percent (Swedish Veterinary Agency 2017). The increased levels of Swedish campylobacter infected broilers led in turn to a massive increase in Swedes getting sick from campylobacter food poisoning. In April 2017 the Swedish medical community reported that there were 5 times higher levels of Swedish campylobacter poisonings compared to a normal year and a vast majority of these were from domestic rather than foreign sources (Smittskyddslakarforening 2017b). This paper evaluates how the risks of campylobacter food poisoning were communicated by a number of different actors (most notably the Swedish Agricultural Board (SAB), the Swedish Food Agency (SFA) and the Swedish Public Health Agency (SPHA)) involved with the 2016-17 Swedish campylobacter chicken scare. The paper is based on a content analysis of 10 of Sweden's main newspapers in the period June 2017-September 2017, twelve elite interviews with individuals from the Swedish County Disease Doctors, SFA, SPHA, and the Finnish Government evaluation team that was brought in

by SPHA to look at how the Swedish government agencies had handled the controversy. In addition an academic literature review on campylobacter poisoning and food risk communication was carried out.

The paper proceeds as follows. Firstly, I provide a background to the Swedish campylobacter case. This is followed by a brief literature review. Section 4 discusses how the crisis evolved over time from early autumn 2016 through until late spring 2017. Section 5 provides an analysis followed by a discussion on what the Agencies and the industry should actually have done. In the final section of the paper I provide a number of recommendations of possible next steps going forward.

2. Background

In 1988, a large water borne campylobacter alarm affected 11,000 people, in Boden, northeast Sweden. Since then, the main producers of Swedish chicken have actively worked on reducing levels of bacteria found in fresh poultry. In 1991 Svensk Fagel (the commercial bird industry's association) established a collaboration with the Swedish Food Agency and the Swedish Agriculture Board to set up a surveillance programme to reduce the levels of campylobacter in chicken (Hansson et al 2004; 2005 and 2010; Palonen et al 2018a). This surveillance programme was further upgraded in 2001 when the producers received a large European Commission grant together with the Swedish Food Agency, Swedish Agricultural Board and the Swedish Chief Veterinary Office to conduct a series of studies on how to further reduce campylobacter infections on the farm level. Since 2005 the campylobacter surveillance programme has been carried out by Svensk Fagel but funded by the Swedish Agricultural Board (Swedish National Board of Health and Welfare 2013). Over time the results of the surveillance programme have been impressive. The levels of campylobacter positive broiler flocks have decreased from approximately 60 per cent in 1989 to approximately 11.6 per cent in 2015, with recent measurements varying between 0 per cent to 25 per cent per month. In so doing there was an opinion that in the period 2010-2015 that Swedish conventionally produced broilers had among the lowest levels of campylobacter infections in Europe (Lindblad 2017a; Swedish Social Agency 2013).

This all changed in the autumn of 2016. Following the summer barbeque season as well as the increase in flock prevalence during the same months ((June-August) which usually sees a campylobacter infection spike, levels of campylobacter infections among Swedes remained much higher than usual seasonal averages. The levels in the August 2016-January 2017 time period showed that more than 20 percent of the broilers remained infected (Swedish Veterinary Agency 2017):

August	27 percent
September	27 percent

October	25 percent
November	21 percent
December	20 percent
January	13 percent

To complicate matters further there has been an increase in the consumption of fresh chicken in Sweden over time, and Swedish producers have struggled to keep up with the demand (Palonen et al 2018b). Over the past 5 years, for example, the consumption of fresh chicken has increased by 10 per cent per year. At the Valla slaughtering house in Sormland, the largest abattoir in Sweden, Kronfagel was slaughtering 135,000 chickens per day in 2012 but by 2017 this number had increased to 195,000.

The increase in campylobacter contaminations has several explanations. A number of years ago there would be a “rest” period of 9 days between a flock of broilers being sent to the slaughter house before a new young flock enters the chicken farm. Today, because of increased consumer demand, the farms do not stay empty for more than six days or so and it has proven difficult to get the farms properly cleaned and sanitized in that time period. This is less than the minimum requirement of 7 days rest period in Finland (Palonen et al 2018a).

Furthermore, in 2013 so called split slaughter techniques were introduced on chicken farms in Sweden against the advice of Swedish governmental agencies (eg see Swedish National Board of Health and Welfare 2013). This meant that chicken farmers were able to partially slaughter a certain number of chickens leaving the remainder to grow even further. This was introduced as a way for the Swedish chicken farmers to both meet the increased consumer demands for fresh chicken as well as to meet the country’s strict animal welfare standards. With split slaughter the farmers can continue feeding the remaining chickens without going above the 36kg chicken per square meter rule that exists in Sweden. To operate a split slaughtering technique, however, requires “opening the doors” of the hygienically sealed conventional chicken farms in order to remove a certain number of broilers in order to fatten up the remaining ones. By breaking the hygiene barriers campylobacter can easily enter the chickens which remain (Allen et al 2008; Cogan et al 2007; EFSA 2010b; Hald et al 2001). In addition, the thinning process stresses the birds themselves as the birds must be fasted for a minimum of 24 hours before they are slaughtered so the broilers that are to be slaughtered in the second batch will have to fast twice (Palonen et al 2018b). In comparison, Finland, has opted not to adopt such an open door practice, as it does not need to do so as the animal welfare standards in Finland are not so strict as in Sweden (Palonen et al 2018a).

The first severe Swedish winter campylobacter outbreaks took place in 2014 and 2015 and this was most likely caused by contaminated transportation crates (for an interesting historical discussion see Hansson et al 2005) and the use of split slaughter method. To help address this issue the largest Swedish producer of chicken, Kronfagel, installed a new crate washing system in June 2016 to better clean the contaminated transportation crates at its Valla abattoir. In January 2017, six months later, Kronfagel noticed that the washing system had been put together in the wrong way ensuring that all the “washed” transportation crates were not cleaned at all but rather further contaminated. They quickly fixed the washing installation and as a safety precaution they both increased the number of campylobacter tests on their broilers as well as lengthened the time that the broiler farms remain empty between the time that chicken flocks are taken to slaughter to new chickens being introduced to the farms. Some of these measures, however, were not implemented in practice until March 2017 as Kronfagel did not want to kill any of its chicks prematurely nor introduce market disturbances (Palonen et al 2018b). At this time there was a belief held by industry that the campylobacter outbreak was under control but in March 2017 the Swedish Food Agency found that more than 60 percent of Kronfagel’s fresh chicken remained contaminated with campylobacter (Swedish Food Agency 2017). One of the main reasons for Kronfagel’s false belief had to do with its multiple faulty testing system at the time:

- the campylobacter samples were not always taken correctly;
- the samples were in many cases sent without a so called “transportation medium” which in turn led to any campylobacter bacterium present being killed in the transport process;
- the samples themselves were analyzed at a commercial laboratory that appeared incompetent (for an in-depth discussion see Palonen et al 2018b).

3. Risk and science communication: microbiological hazards and the Swedish information environment

Microbiological outbreaks in food are perceived by the public as both natural and familiar risks (Breakwell 2007; Fife-Schaw and Rowe 1996; Slovic 1987 and 2000). Food poisoning is caused by a bacterium understood to be natural and people occasionally get food poisoning without there being any catastrophic consequences. A number of studies indicate that food experts are much more concerned about microbiological hazards in food than the public, with the public being more concerned about possible pesticides or food additives found in their food (see for example De Boer et al 2005; Flynn et al 1993; Kletz 1996; Lechowich 1992). This is also supported by other findings which indicate that the public are more concerned about contaminants and chemicals in their food rather than microbiological hazards (Frewer et al 2003; Wandel 1994). Other

studies indicate that individuals with higher education are more aware of food hygiene measures than those with lower levels (Riordan et al 2002).

The news media communication environment also plays an important role with regard to food. Some food risks are more amplified than others. Food alarms associated with a chemical, contaminant or a certain GMO will get significantly more mainstream coverage than ones focusing on microbiological hazards (De Boer et al 2005; Frewer et al 1997 and 1998; Harrabin et al 2003; Kasperson et al 1988; Pidgeon et al 2003). It is therefore not surprising that the public as a whole do not seem so concerned about campylobacter in food. Indeed, with regard to the current study, the consumption of chicken did not initially decrease in Sweden during the 10 months of the campylobacter outbreak, even if at times levels of food poisonings caused by Swedish contaminated broilers were six times higher than normal. The total amount of slaughtered fowl in Sweden was 156,800 tonnes in 2017 which is similar to the levels in 2016. That said in the month of December 2017 Sweden slaughtered 11,100 tonnes of fowl which is a 19 per cent reduction compared to December 2016 (Swedish Statistical Bureau 2018). Officials at the Swedish Food Agency therefore believe that at the campylobacter scare did eventually halt the trend of the Swedes eating ever more chicken (Lindblad 2018).

That said, there is also a “severeness” issue. Microbial food alarms can become amplified by the media if a microbial outbreak is so potent that it leads to severe illnesses or even deaths. For example the infamous so called “Jack-in-the-Box” 1993 outbreak in the United States in which hamburger meat became contaminated with *E.coli* 0157:H leading to the deaths of four children and 700 critically sick individuals was amplified by media there (Powell et al 1997). In the Swedish campylobacter outbreak, on the other hand, there were no reported deaths and for the most part moderate levels of stomach illness, although a past Swedish study indicated that domestic campylobacter infections was associated with a 2.9 per cent standardized mortality ratio within one month after campylobacteriosis (Ternhag et al 2005).

Finally, there is also the role of trust. In Scandinavia levels of trust in food is high while levels of trust in food in southern European countries such as Italy or Portugal is considerably lower (Kjaernes 2004 and 2006). This is important as studies indicate that there are correlations between the public’s distrust of food itself and or a food regulatory agency and an increase in the media reporting on food scares (Firth 1998). In Sweden the Food Agency is highly trusted (TNS SIFO 2014), and maybe therefore the media did not amplify the campylobacter scare in the way it should have done otherwise.

4. How did risk communication evolve during the campylobacter controversy?

There were a number of distinct communication episodes during the campylobacter outbreak that lasted from August 2016 to June 2017. These have been grouped in chronological order.

4.1 Phase 1. Worrying trends

The first media mention regarding the increasing Campylobacter epidemic took place on the 4th October 2016 when Britta Bjorkholm, the head of unit at the Swedish Public Health Agency noted:

“This year there have been more (campo) cases than ever. It is a worrying trend.” (J.Nilsson 2016).

In the period 1st June-30 September 2016 there were 3500 confirmed cases of campylobacter. This is 1000 more cases than the same period in 2015 and Ms. Bjorkholm was responding to this spike. Overall this announcement received little media attention and when it was eventually picked up by a couple of nationals and tabloids it was buried on the back pages (eg *Kvallsposten* put the announcement on page 22).

4.2 Phase 2. Showing deep concern

The number of individuals becoming ill from campylobacter food poisoning refused to go down. As a result just before Christmas 2016 (22nd December) the Swedish Public Health Agency put out a press release where Britta Bjorholm was again quoted:

“In a normal year we have approximately 100 cases in the month of December, but this year we had already 300 cases by mid-December. We find the situation very serious. You don’t need that many bacteria to cause an outbreak of the disease.” (Fridh 2016).

In other words, in December 2016 campylobacter food poisonings were more than 3 times higher than the seasonal average. Still the various Swedish Government Agencies were trying to have a dialogue with the chicken producers rather than publically criticize them. The press release was picked up by local and national newspapers but the story was again relegated to the back pages (eg *Kvallsposten* summarized the press release on page 50) and there were virtually no signs that the high levels of campylobacter food poisonings were being amplified by the media.

4.3 Phase 3. The amplification of campylobacter poisonings in Sweden

In February 2017 the situation changed rather dramatically. On the 10th Sweden’s largest tabloid, *Aftonbladet*, ran a 2 page spread entitled “Infection site” (Smitto-harden) which was primarily an interview with a whistleblower that had worked at the large Kronfagel abattoir at Valla. The articles focused on everything from how badly the broilers had been treated, to the heightened

campylobacter levels discovered in the autumn (when 30 per cent of the broilers carried the disease) to basic industrial greed (Habul 2017). That article in *Aftonbladet* immediately led to a press release containing a question-answer session with the CEO of Kronfagel Magnus Lagergren where he admitted that Kronfagel had high levels of campylobacter in their broilers through the entire autumn. The company had initially suspected that the outbreak was caused by the mild fall weather and that it was not until January 2017 that they identified the problem with the faulty cleaning system. Lagergren was quoted saying:

“We corrected the (cleaning) mistake immediately and levels (campylobacter) have according to our own measurements returned to low levels since then.” (Kronfagel 2017a and b)

The repercussions of the article in *Aftonbladet* continued. The following day the newspaper contacted the Swedish Countryside Minister, Sven-Erik Bucht (S) and asked him what he thought was happening at the Valla abattoir. He noted:

“The industry must be responsible for this. Shall it be under the strong trademark of the Swedish flag it can’t be like this....The Agencies have a continued control and in addition to that the industry must have its own control and this control should take place every day, every hour. It is important. We shall increase Swedish food production and that needs the consumer to have trust that this is all done in the correct way. Period.” (K. Nilsson 2017)

The Swedish Agricultural Board was also asked by reporters at *Aftonbladet* about what was happening with Kronfagel and spokesperson Lena Hult said:

“It is important that the producers, the abattoirs, and the transporters follow the methods recommended and take the worsening situation seriously.” (K. Nilsson 2017)

Just as journalists at *Aftonbladet* were helping to expose Kronfagel’s abattoir as the source of the Swedish campylobacter outbreak the Swedish Public Health Agency, the Swedish Food Agency, the Swedish Veterinary Institute and the Swedish Agricultural Board put out a joint press release on the 10th February 2017 highlighting that in January 2017 there were 629 cases of campylobacter compared to a normal January of 100 (so a six fold increase). The press release also went on to say that these agencies were doing something to help solve the problem. Following on from the *Aftonbladet* expose the campylobacter scandal started to be amplified by the press and it was reported in a number of papers with the main Swedish news agency TT following it closely guaranteeing even further media coverage. In one key interview the TT journalist was critical of the stance that the Food Agency was taking toward Kronfagel as so little was happening. On the 11th February the Agency spokesperson Mats Lindblad was interviewed by TT noting:

“It is industry that has to sort this out”....(but you are the responsible inspection Agency?) “We have a dialogue with the industry and we will follow up with different recommendations. The largest producer, Kronfagel, have admitted that they have found a problem with regard to the cleaning of the transport crates, but that was recently so lets see if this will affect the levels of campylobacter.” “But will the SFA do anything else?) “No, not at the present time. We will follow up and have a dialogue.” (TT 2017)

Rather than putting regulatory pressure on Kronfagel to sort out their campylobacter outbreak the Food Agency put forward recommendations on how the Swedish consumers can reduce getting campylobacter in the first place by good hygiene and cooking the chicken to certain temperatures (Swedish Food Agency 2017a; TT 2017).

The journalist at TT, Johan Nilsson, was not especially satisfied with the response he received from the Swedish Food Agency nor the other Swedish government bodies involved with this outbreak and began to contact the Swedish county infection doctors to get their views as well as to analyse the details of the joint press release from 10th February. Nilsson made some interesting observations. Firstly, in leaked emails between SAB, SFA and the Swedish Public Health Agency in advance of a 10th February coordinated press release SAB made clear that it did not want to announce that it was primarily Swedish chicken that was the cause of the huge increase in Swedes getting food poisoning caused by campylobacter. When SAB was asked why the quote noting the connection between Swedish chicken and campylobacter was removed from the final approved press release Ingrid Eilertz at SAB noted:

“I didn’t think that it added anything to the message and it could be miss interpreted—so as consumers don’t take the view that foreign chicken is free from infection. We don’t want people to be frightened and thereby stop eating Swedish chicken.” (Nilsson 2017b)

This is something that the Swedish Consumers Association found strange as Jan Bertorft noted:

“Of course it is important for the consumers to know what chickens carry the disease. What is wrong with telling the truth” (Nilsson 2017c)

At the same time Nilsson uncovered that the Swedish county disease doctors were becoming increasingly frustrated by the lack of urgency exhibited by the Swedish Food Agency and other bodies who continued to blame industry without pushing for any regulatory or legal measures against Kronfagel. Peter Iveroth, County Disease Doctor from Jonkopings County, for example was quoted:

“We don’t have any other contagious intestine diseases were we think it is ok to have 5000 people being infected in Sweden from a well-known source without doing something about it.” (Nilsson 2017b)

Ten days later because of the inaction by the various Swedish Government Agencies responsible for looking after the Swedish consumers, the Swedish County Disease Doctors did a joint press release to encourage Swedes from stop eating fresh chicken and start eating either fish or frozen chicken instead. As Signar Makitalo wrote:

“I encourage the public to avoid eating fresh chicken in order to reduce the risk of getting sick from a campylobacter infection. This warning will remain in place until national agencies let us know that the problems with increased levels of campylobacter bacteria in fresh chicken has been solved.” (Nilsson 2017d)

As another County Disease Doctor, Malin Begner from Jonkoping County in the south of Sweden noted:

“Nothing is happening. Had it been any other disease one would not have accepted that food spreading the disease in this way and in this amount. It is our responsibility as smittskydds doctors to react and inform the public so that they understand.” (Basen 2017)

Such individual press releases are highly unusual as the doctors prefer working with the agencies on the matter in questions rather than doing something solo. Dr.Makitalo felt it was necessary to call for this alarm as he and the other doctors had been informed on the 9th of March that the measures which were being introduced to halt the campylobacter outbreak would not be effective before April or even May (Makitalo 2017).

On the same day Mats Lindblad of the Swedish Food Agency was interviewed by Swedish television in which he was quoted saying:

“We have a complete understanding on how serious these doctors view the situation as there have been unusually many individuals who have been infected by campylobacter in recent times. Consumers, however, must themselves decide whether to eat fresh chicken or not and we have decided to note the importance of hygiene when one cooks with fresh chicken.” (Wicklen 2017)

Even the chicken industry admitted at this stage that it is taking longer than planned. As Maria Donis commented:

“We have increased measurement levels at the slaughterhouse in question and increased the drying out period at the affected broiler farms, but it is not a quick fix. We must probably wait until end of March or early April before we see any results.” (Nilsson 2017d)

Levels of campylobacter food poisonings were not reduced, however. At the end of March the number of Swedes being infected by campylobacter remained high with almost 2000 Swedes becoming ill since the beginning of the year. When asked if the industry has done enough the chief epidemiologist at the Swedish Public Health Agency was quoted:

“No as we still have these high levels (of campylobacter infections). It is not before the number of cases have been reduced to normal levels when we can say that we have had an effect. That is the bottom line.” (Nilsson 2017e).

By April 2017 the actors involved wanted to see results from industry. The Swedish County Disease Doctor Association continued to maintain pressure on the responsible agencies by writing a further letter to SFA and SAB where they noted that the cases of campylobacter food poisonings were simply not decreasing. The April 2017 levels remained 5 times higher than a normal April and therefore the County Disease Doctors asked again what SAB and SFA proposed to do further in order to ensure that fresh Swedish chicken will be safe to eat (Smittskyddslakarforening 2017b). Even the Swedish Food Agency, itself, appeared to be getting fed up by Kronfagel’s inability to sort out the campylobacter problems in its broilers. In a press release on the 11th May the Agency’s Head of Food Control, Pertti Nordman noted:

“We are worried over the number of individuals getting sick from campylobacter not going down. It is not acceptable that so many consumers are at risk of becoming infected from chicken. Industry must now intensify measures to get a grip of the problem.” He went on noting “We cannot simply resign our work against infections and put all the responsibility on the consumer. If we do not see effective measures from industry soon to ensure that less individuals become sick, we as an Agency must decide what else is needed going forward.” (SFA 2017b).

Later that same month the Agency began publishing results from its campylobacter measurements. Test after test from the March chicken samples showed that Kronfagel had the highest level of campylobacter in their fresh chicken. By the 23th May the President of Kronfagel, Magnus Lagregren, had enough and accused SFA for deceiving the consumer regarding these measurements and was quoted:

“With regard to SFA’s testing (of chicken) in grocery stores it is impossible for the Agency to make the conclusion that they do about our products. The method is not statistically significant or weighted according to market shares of the various actors, and in addition none of the published information discusses the levels of campylobacter bacteria in the tests themselves. It is if (the measurements) are made for the SFA and the County Disease doctors to confuse the consumers.” (Soderlund 2017).

The May campylobacter measurements also showed that Kronfagel chickens continued to have high levels of campylobacter. Sixty-nine per cent of Kronfagel's broilers were infected compared to Guldafagel (its biggest competitor) where no birds in the test batch had campylobacter (Johansson 2017; SFA 2017c). The President of Kronfagel was now fed up with the Food Agency publishing the results of their campylobacter tests on its website and threatened to take legal action against the Agency (Soderlund 2017). Before that happened, however, the campylobacter outbreak ended. By week 25 (mid June 2017) the levels of campylobacter food poisonings in Sweden had gone back to normal and it remained so for rest of the year (Swedish Public Health Agency 2017). The campylobacter alarm was over.

5. Analysis

There are two ways in which one can analyze this interesting food controversy. One from a risk management angle (consensual vis-à-vis adversarial) and one from a risk communication perspective. Both are discussed in this section

5.1 Risk Management: The effects of consensual style regulation on regulators and industry

Risk management around campylobacter outbreak in Swedish broilers started consensual and ended up increasingly adversarial. This should not be considered surprising. Sweden is known for its long tradition of consensual style regulation. Consensual style regulation had the following features (eg see Ashby and Anderson 1981; Bardach and Kagan 2006; Brickman et al 1985; Kelman 1981; Lofstedt 2004 and 2005; Lundqvist 1980; Vogel 1986):

- Policy makers and industry met behind closed doors and made regulatory decisions;
- It was elitist in nature, with regulatory decisions made in consultation with a number of elite groups including heads of industry, senior regulators, and representatives from trade unions. These groups were seen to represent society at large;
- The model was inherently flexible. Regulators made a point of working out possible problems with regulatees and frequently engaged in dialogue.

Regulators and policy makers prefer working with industry rather than against it such as through seeking judicial intervention or impose fines as was seen with the country's regulation of vinyl chloride in the 1970s (Badaracco 1985) and this is still prevalent today. Both SAB and SFA preferred to have a dialogue with the chicken processing industry rather than have a confrontation even when Swedish chicken consumers started to become worried following the February expose in *Aftonbladet* (SFA 2017). The Agencies view only changed

when progress to reduce campylobacter levels were not being made quickly enough by the largest chicken processor, Kronfagel. The producer appeared not to be as forthcoming as it could have been.

SFA and the other agencies slowly lost patience with Kronfagel. Levels of campylobacter were not going down even if industry as early as February 2017 said they were back to more or less normal (Lagergren 2017), in part caused by the faulty measurement systems discussed earlier. As a result the Agency slowly ramped up the language toward the chicken processing industry to do something. By May the SFA had enough and demanded swifter action. It increased pressure on Kronfagel by making public the campylobacter measurements that they were carrying out on chicken sold in Swedish supermarkets by brand. They were hoping that by “going brand” that the chicken processors would react more quickly as their share value and reputation would be effected (Larkin 2003). The reaction from industry came quickly enough. When the March tests were released in May which showed that Kronfagel’s broilers were still highly contaminated President of Kronfagel admitted that they had problems with campylobacter in March but this was no longer the case. When the May tests were published which showed that Kronfagel’s birds were still heavily contaminated Mr.Lagergren accused the Swedish Food Agency of not telling the consumers the truth and threatening legal action (Soderlund 2017). So what had started as a textbook example of consensual style of regulation slowly became an adversarial one.

5.2 Risk communication: media attenuation and amplification of the campylobacter outbreak

Neither the public nor the media initially appeared that concerned about the campylobacter outbreak—it was just another natural food borne disease that could easily be avoided (Breakwell 2007; Slovic 1987). Both the September and December 2016 press releases from the Swedish Public Health Agency did not receive much media attention. This was also backed up by a study by Ferreira et al (2006) on Swedish food safety regulation which showed that historically both the Food Agency as well as interest groups active in this sector were not especially concerned about campylobacter. These bodies noted that the pathogen could be easily destroyed through cooking and that good hygiene prevents infection from occurring in the first place (Ferriera et al 2006 p.364).

This all changed, however, following *Aftonbladet*’s expose in February 2017 amplifying the extent of the campylobacter crisis. Instead of ending up on the back pages of the various Swedish newspapers, in line with what could have predicted by the social amplification of risk framework, the campylobacter controversy was put on the front pages (Breakwell 2007; Kasperson et al 1988; Pidgeon 2002). Once the controversy received more media attention, journalists

such as Johan Nilsson from TT ensured that it remained there. Because the chicken-campylobacter story remained in the news for much of February and March 2017 this led to increase public and media pressure on the regulatory agencies to take a harder line and do something more concrete rather than just have a dialog with the chicken processing industry. This was seen, for example, by the Swedish Food Agency strongly worded press release in May 2017.

6. Discussion

What should the responsible agencies and industry have done?

Clearly SAB and the SFA trusted Kronfagel to sort out its campylobacter infestation. This was a mistake, possibly because the Agencies responsible were suffering so called “sunk cost” bias (Kahneman 2011). They had invested all this time to have a dialogue with Kronfagel and in so doing hoped to get the campylobacter issue handled in a consensual style and trusting fashion which did not occur. On a separate issue the agencies realized that they had to be careful in coming out too forceful in any communications strategy about Swedish chicken being contaminated with campylobacter. If the Swedes started eating less Swedish chicken and rather more imported chicken, campylobacter outbreaks among Swedes would actually increase rather than decrease as the foreign (non-Nordic chicken) is on the whole more infected with campylobacter than the Swedish ones (Swedish National Board of Health and Welfare 2013). As such it is a classic example of risk-risk tradeoffs when one risk is replaced by another one and in this case an inferior risk (Graham and Wiener 1995).

6.1 SFA and SAB made three errors in their communication strategy.

Firstly, they should kept the clause from the February press release that the cause of the campylobacter alarm was Swedish sourced fresh chicken as this was indeed the case. Through being transparent on this issue it would have increased consumer trust in SAB (Black 1997; Heald 2006; Hood 2001; Lofstedt and Boudier 2014). That said, the press release should have in some detail explained that this did not mean that the Agencies encouraged Swedish consumers to start eating non Nordic chicken. By SAB removing that key clause from the press release the Board was immediately accused of hiding the truth from the public and being too close to industry.

Secondly, the Agencies should have agreed to do a joint press release with the County Disease doctors to show a united front. It was increasingly clear that after SAB’s meddling with the February press release became public that these County Disease Doctors were losing patience with the Agencies. The doctors had already written a letter to SAB and SFA asking them to do something more constructive (Swedish County Disease Doctors 2017). With that warning letter the Agencies had a chance to work with these doctors and come forward with a

proactive press release that showed concern for the Swedish consumer. By not doing so the Agencies handed the communications initiative to the County Disease Doctors. They were seen by the consumers and media commentators as the ones who cared about the Swedish consumers while the SFA and SAB were seen to prioritize dialogues with industry. It is always dangerous for an Agency to de-facto lose the communication initiative as this leads to reactive communications and possibly “firefighting” type initiatives all leading to greater distrust (Lofstedt 2005; Lofstedt and Renn 1997) something that the SFA belatedly realized as well.

Thirdly, the Agencies should not have trusted Kronfagel as much as they did. The Agencies should have started sharpening their language against the chicken processor in early January (if not even earlier) when it was clear that whatever the producer was doing the levels of campylobacter were not going down.

7. Conclusions and recommendations

The 2016-17 Swedish campylobacter outbreak was a rather eventful one. On the back of it there are a number of recommendations that SAB and SFA may want to implement going forward:

- a) Set up an external risk communication advisory board. It is clear that both agencies would have benefitted from some external advice on how to best handle the campylobacter communication strategy. They should not have been caught off guard by the County Disease Doctors and they should have shown more concern to the group that they are primarily working for, namely the Swedish consumer. An external risk communication advisory board could have helped them with this. As Sweden is a rather small country such an advisory board could have been “shared” between three agencies SAB, SFA and maybe the Swedish Medical Products Agency.
- b) Become a tougher partner when working with industry. Consensual style regulation works when everyone is trying to work with the other partners “glued” together by mutual trust. With the campylobacter outbreak this was not the case. Industry more or less “used” SFA. In Kronfagel’s press releases from March 2017 it noted that it was working with SFA to help solve the problem and that SFA said that hygiene was an important factor to reduce campylobacter infestation (Kronfagel 2017). This was wrong. It was Kronfagel’s problem to solve the cause of their infected broilers and not SFA. Clearly Kronfagel swiftly changed their tone from working with SFA to threatening to sue the Agency when it continued to publish their campylobacter test results on its website.
- c) (related to b) the Swedes need to change their legal system with regard to prosecuting companies who are in the wrong. In this case the Swedish Food Agency was legally unable to take tougher actions against

Kronfagel. Had the Agency been able to do so (such as fining the company 5 million crowns a day until the situation resolved itself) it is unlikely that the campylobacter outbreak would have dragged on until June 2017 for a total of almost 10 months.

- d) The Agencies need to find more trusted third party actors to work with them. In this campylobacter case the Agencies did not appear to do this. They did not reach out to any so called “critical friends” to provide quotes for their press releases or write opinion editorials defending them. This was an opportunity missed. Many neutral third parties (such as academics at leading universities) would have been happy to lend a helping hand to any evidence based regulatory agency at a time of need.
- e) Finally, SFA, maybe in collaboration with the Swedish Public Health Agency, needs to set up an evidence based communication programme in how Swedes should go about cooking their fresh chickens. It appears that after so many years of low campylobacter levels in their poultry the Swedes have become complacent with their cooking hygiene. Such a communication programme should start with doing in-depth surveys to uncover how Swedes presently cook their chicken and based on that develop an information pamphlet on how Swedes can become more hygienic cooks.

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