Finland's Health Paradox:

Did a National Vaccination Campaign Compromise Health?

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Finland is a small and ethnically homogeneous country with a population between 5 and 6 million since 1991. In 2001, foreigners were fewer than 100,000. A national vaccination campaign in Finland effectively eliminated measles, mumps and rubella from the country. A striking increase in several chronic debilitating syndromes has been reported nationwide following the campaign. A causal association has been denied so far, but not convincingly for many.

In the early 1970's, more than 15 000 cases of measles were reported annually in Finland, a mean incidence of 366/100 000. A single-dose measles vaccination program started in 1975 was deemed unsuccessful in eliminating measles because the uptake never exceeded 70%,

In 1982, the health authorities and KTL, the National Public Health Institute, implemented a nationwide measles, mumps and rubella (MMR) vaccination program. The triple vaccine was administered to children at 14-18 months and again at 6 years of age. The children between these ages were vaccinated in a catch up campaign between 1983 and 1986; Adolescents, military recruits, student nurses and mothers, who were still seronegative for rubella in the postpartum period, were also vaccinated.

In Finland, childhood vaccinations are administered free of charge and are not compulsory.

There have been no indigenous cases of measles in Finland since 1996 and in 1997 Finland was the first country documented to be free of mumps and rubella (1,2,3,4).

This unparalleled achievement clearly proved the efficacy of the national MMR vaccination campaign.

The infant and child mortality from measles, the most serious of the three illnesses, has been very low in the industrialized countries for years before the introduction of either the single or the triple vaccine. It remains substantial in Third World countries because of malnutrition and lack of hygiene.

In February 1998, Andrew Wakefield published in The Lancet (5) results of his now well-known research on the unusual intestinal findings identified in 12 children with regressive autism. He reported that according to some parents, the regression had followed MMR vaccination and suggested that more research be undertaken.

Professor Heikki Peltola, of the Pediatric Department at Helsinki University and the Hospital for Children and Adolescents, Helsinki, Finland promptly came to the defense of the MMR vaccine.

In May 1998, Peltola and associates published, also in The Lancet, **"No evidence for measles, mumps, and rubella vaccine-associated inflammatory bowel disease or autism in a 14-year prospective study"** (6). They concluded that: *"Over a decade's effort to detect all severe adverse events associated with MMR vaccine could find no data supporting the hypothesis that it would cause pervasive developmental disorder or inflammatory bowel disease"*

Patja. Peltola and others later published "**Serious adverse events after measles-mumps-rubella vaccination during a fourteen-year prospective follow-up"** in the December 2000 issue of the Pediatric Infectious Disease Journal. (7) They also stated that no cases of Autism and Inflammatory Bowel Disease (IBD) were reported in Finland following the National MMR vaccination campaign.

The two studies, and several others by the same group, were based on a review of passively reported adverse events associated with the administration of some 3 million doses of MMR vaccine to about 1.8 million individuals in Finland between 1982 and 1996. Adverse events **within 3 weeks of vaccination** were followed for 14 years, some **200 in all**. There was no longitudinal follow-up on the rest of the 1.8 million vaccine recipients in the Country.

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Both autism and inflammatory bowel disease are chronic syndromes, which develop over months or years and are not identified within 3 weeks of vaccination. Neither Wakefield nor anyone else has ever claimed that those children, who develop diarrhea shortly after vaccination, go on to develop IBD as young adults.

Despite the incontestable fact, that prior to the 1998 Wakefield publication, no one in Finland or elsewhere in the world ever looked at IBD and autism as possible complications of MMR vaccination, the vaccine authorities in Europe and the Americas have consistently quoted "The Large Study from Finland where millions were vaccinated and followed for 14 years."

Interestingly those supporters never mention:

- That Merck and Co, the makers of the MMR vaccine, funded and supported these and all related studies by the Peltola Group
- That in an interview on BBC Radio-4 on January 13, 2001, Peltola stated that *the main study was not designed to look at the two complications of IBD and autism.*

- That Autism and IBD have indeed increased in Finland since the MMR campaign
- And that the incidence of some other possibly related disease entities has also recently sharply risen.

Autism

The National Research and Development Centre for Welfare and Health in Finland (STAKES) could not provide official statistics on the incidence of prevalence of autism and Asperger's Syndrome in Finland.

In a study published in 2000 in the Journal of European Child & Adolescent Psychiatry (8) M. Kielinen et al described a significant rise in autism in the northern provinces of Oulu and Lapland, which represent 1/8 of the total population of Finland. The Kielinen study included all children born in the two provinces, between 1979 and 1994. Every single one of those children was eligible and in all likelihood received the MMR vaccine. The authors personally reviewed all records of children with autism to determine that they fulfilled the criteria of ICD-10 and DSM-IV. The cumulative incidence of autism was 12.2/10,000, a significant increase when compared to the previously reported incidence of 4.75/10,000 by Vinni and Timonen. The increase in the younger children, all born in the second half of the MMR campaign, was even more striking. In the 5 to 7 age group, the cumulative incidence was 20.7/10,000 or more than 1 in 500. There is no reason to believe that the incidence of autistic disorders is significantly different in other provinces.

Autismiliitto.fi, a large parents group could not provide national figures but, in a personal communication on November 11, 2002, a spokesperson stated "*we are estimated to have 10,000 autistic people in Finland and about 40,000 people with Asperger's syndrome*".

If the actual number of affected individuals were actually HALF of the above estimates, it would and should still constitute a national emergency in a country with slightly over five million inhabitants. The thought that in Finland 1 in every 200 individuals may have an autistic spectrum disorder is frightening. Because autism affects young males much more frequently than other groups, the potential impact on that promising sector of the Finnish society would be substantial.

The high ratio of Asperger's Syndrome (AS) is also relevant to this discussion. Kielinen pointed out, in the above mentioned study, that in the Northern Provinces, there were more affected children with IQs above 70 recently than had been reported in earlier studies. Other investigators have reported a similar trend worldwide. Children affected since birth and in early infancy, are usually more profoundly brain damaged than those who develop normally until their first birthday and then sink into autism and regress in the second year of life, some after receiving the MMR vaccine.

Inflammatory Bowel Disease

Inflammatory bowel disease (IBD) may involve the ileum (small bowel) or the colon (large bowel) or both and may be acute or chronic. For the purpose of this discussion, only the two major forms of IBD, Crohn's disease (CD) and ulcerative colitis (UC), will be discussed.

To date, the etiology of both diseases is unknown and both are still considered "idiopathic". Genetic research is pursued in many centers but environmental factors are also suspected in others. Information on the number of individuals with CD and UC who are entitled for special refunds is available in Finland.

Pathologic findings are suggestive but not always specific.

Crohn's disease can affect any part of the digestive tract, but it usually causes inflammation in the small intestine, and particularly its lower part, the ileum. Symptoms include abdominal pain and discomfort, diarrhea, foul-smelling stools, intestinal bleeding, tenesmus (the constant feeling of the need to empty the bowel), increased bowel sounds (borborygmus), decreased appetite, weight loss and fever.

Patients with Crohn's disease may also complain of constipation, incontinence, joint pain and swollen gums.

Ulcerative Colitis is a chronic and often episodic inflammatory disease of the large bowel and rectum. Symptoms are somewhat similar to those of Crohn's disease.

Halme and associates (9) describing the incidence of Crohn's disease in the Helsinki metropolitan area during 1975-1985 stated:
"The hospital incidence of Crohn's disease in the Helsinki metropolitan area during 1975-1985 was studied retrospectively…. The age-specific incidence was highest in the age groups 15-24 with no sex difference. After the initial rapid increase the incidence of Crohn's disease in the Helsinki metropolitan area has stabilized on the level ***3/100,000.*** *These figures are similar to those reported from other Scandinavian and Western countries.*

In **" Incidence and Prevalence of Crohn's Disease in Finland From 1988 to 1991,** [Gastroenterology, Vol. 112,No. 4], Hannu Nuutinan, Antii Reunanen and Kari Seppata stated: " *We have reported previously that the prevalence of ulcerative colitis has been increasing in Finland (AGA 94). The incidence and prevalence of Crohn's disease was investigated during the period of 1986 to 1991 among the 5 million population of Finland. Because all the inflammatory bowel disease patients have been recorded by the Social Insurance Institution from 1986, we were able or to get reliable information about the epidemiology of Crohn's disease in Finland. During this period both the incidence and prevalence of Crohn's disease increased gradually both in men and in women. This is in good accordance with some other reports from Scandinavia, although the prevalence and incidence figures are slightly higher than in the earlier reports. The male*

to female ratio remained the same during the whole study period. According to these results, the number of patients with Crohn's disease has been increasing at least during the last years in Finland. The reason for this gradual and constant increase however, remains unknown and means further investigations"

In an attached graph entitled "Prevalence of Crohn's disease", the authors clearly demonstrate that the prevalence of that specific form of IBD in Finland **tripled** between 1986 and 1991, from 10/100 000 in 1986 to 30/100 000 in 1991.

Cases of IBD continued to increase after 1991**.** According to the Statistical Branch of the Social Insurance Institution of Finland, the number of patients entitled for special refunds because of Crohn's disease and Ulcerative Colitis **doubled** between 1992 and 2001, from 9 737 to 20 807, while the population of Finland increased by just 3%. (Table I)

Year	Patients with IBD Entitled to Special Refunds	Prevalence per 1000	Population (1000s)
1992	**9737**	**1.9**	**5056**
1993	**10958**	**2.2**	**5079**
1994	**12035**	**2.4**	**5092**
1995	**13176**	**2.6**	**5118**
1996	**14311**	**2.8**	**5134**
1997	**15605**	**3.0**	**5150**
1998	**16868**	**3.3**	**5162**
1999	**18195**	**3.5**	**5174**
2000	**19493**	**3.8**	**5185**
2001	**20807**	**4.0**	**5199**

Table I
Increase in the number of patients entitled to special refunds
For Crohn's Disease and Ulcerative Colitis in Finland
Source: Statistical Branch of the Social Insurance Institution.

As evident in the table above not only did the number of cases of CD and UC increase yearly between 1991 and 2001, but also the rate of increase has been accelerating; with statistically significantly higher incidence rate of patients registered in the last five

years compared to the previous five years. The incidence rate ratio (IRR) from 1996 - 2001 to 1992 - 1996 is 1.5 (95% C.I., 1.48 to 1.50) based on a cumulative incidence rate of 3.53 per 1000 during 1996-2001 relative to 2.37 per 1000 during 1992-1997. Figures from the Social Insurance Institution are carefully gathered and believed to be reliable.

Inflammatory Bowel Disease is most often diagnosed between the ages of 15 and 35. **The army recruits, nursing students, mothers, and adolescents who received the MMR vaccine in Finland starting in 1982, reached that vulnerable age in the nineties and are in all likelihood, among those unfortunate citizens receiving special refunds for IBD.**

Because of the limitations of his surveillance program, Dr. Peltola did not identify and could not have identified the reported increases in IBD in Finland since 1982. He therefore owes the good people of Finland and the world an explanation. If he still believes that the national MMR vaccination campaign has nothing to do with the increase in IBD among the young adults of his nation, then he should suggest alternate causes. Sudden changes in the genetic make-up of a closed society such as that of Finland is unlikely and if such a theory is proposed, then its reasons need to be explained.

In all likelihood, more and more young adults will develop IBD symptoms, will be diagnosed and will become entitled for special refunds. Tragically, the situation can only get worse when the hundreds of thousands who were vaccinated at 15 months of age become young adults.

There were also striking increases in several other disease entities and health problems in Finland in recent years. Many are known to have immune or autoimmune causes and / or have been suspected by serious researchers, of having some association with the recent increased number of vaccinations. As in regressive autism, such an association has not been deemed causative by the health authorities and has been adamantly denied by the vaccine manufacturers.

Connective tissue diseases, rheumatoid arthritis and comparable diseases

The following table only lists the number of individuals who are entitled to nearly free medicines for connective tissue diseases, rheumatoid arthritis and comparable diseases at year-end 1992-2001 and the prevalence per 1000 population. The right column shows the number of individuals per 1000 population who are receiving benefits for those diseases. All affected individuals are not necessarily included.

Year	Number of Patients	Per 1000 Population
1992	59091	11.7
1993	60246	11.9
1994	68535	13.5
1995	69247	13.5
1996	70043	13.6
1997	71299	13.8
1998	72365	14.0
1999	73558	14.2
2000	74848	14.4
2001	76552	14.7

Table II
Increase in the number of patients entitled to special refunds
For connective tissue diseases, rheumatoid arthritis and comparable diseases in Finland
Source: Statistical Branch of the Social Insurance Institution.

Incidence and classification of the different forms of joint and connective tissue disorders among those entitled to special refunds in Finland are not available. The cumulative (1992-1996) incidence rate is 12.8 per 1000 person-years compared to the cumulative (1997-2001) incidence rate of 14.7 per 1000 person-years. The incidence rate ratio of the later rate to the former rate of 1.111 (95% C.I., 1.106 to 1.117) indicates a statistically significant increase during the past 5 years

In the United States, the National Vaccine Injury Compensation Program and the US Court of Federal Claims have accepted a causal relationship between rubella vaccination and chronic arthropathy and musculoskeletal symptoms. Plaintiffs received compensation if it was established that their symptoms' onset was from 1 to 6 weeks following vaccine administration. (10)

The rubella vaccine in question is the same product that is incorporated in the MMR vaccine used in the United States and in Finland.

Asthma and other Pulmonary Diseases

Some reputable researchers have suggested that the recent increase in asthma may be, in certain cases, an autoimmune complication of specific vaccinations. Chronologically, the recent and alarming increase in asthma and allied disorders seems to parallel the increase in the number of mandated pediatric vaccinations.

To date, the vaccine authorities have denied such a connection.

In Finland, the number of patients entitled to special refunds for chronic asthma and similar chronic obstructive pulmonary diseases have increased steadily between 1992 and 2001. (Table III)

Year	Number of Patients	Per 1000 Population
1992	**124429**	**24.6**
1993	**135363**	**26.7**
1994	**143379**	**28.2**
1995	**150868**	**29.5**
1996	**159105**	**31.0**
1997	**169239**	**32.9**
1998	**177503**	**34.4**
1999	**185267**	**35.8**
2000	**191268**	**36.9**
2001	**197707**	**38.0**

Table III
Increase in the number of patients entitled to special refunds
For chronic asthma and similar chronic obstructive pulmonary diseases
Source: Statistical Branch of the Social Insurance Institution.

The 54% increase in asthma and allied conditions in Finland in just 10 years is impressive. The cumulative (1992-1996) incidence rate is 28.8 per 1000 person-years compared to the cumulative incidence rate of 36.9 per 1000 person-years in the last five years on record (1997-2001) .The incidence rate ratio (IRR) of the later rate to the former rate of 1.282 (95% C.I., 1.278 to 1.286) indicates a statistically significant increase during the past 5 years, in spite of an effective and widespread anti-smoking campaign.

Sabra and Associates, of the International Center for Interdisciplinary Studies of Immunology and the Department of Pediatrics at Georgetown University Medical Center investigated children with asthma and other allergic phenomena. They identified in their patients by colonoscopy similar gut findings as those described by Wakefield in children with regressive autism. In a letter to The Lancet (Volume 352, Number 9123, 18 July 1998) Sabra reported " *We have noted a striking appearance of ileal-lymphoid-nodular hyperplasia in patients with non-IgE-mediated food allergy who present with asthma, atopic dermatitis, and attention-deficit-hyperactivity disorder. We have also*

studied two patients with this hyperactive disorder who were allergic to various foods, and our findings obtained by colonoscopy of their terminal ileum, shown in the figure, match with those reported by Wakefield and co-workers… In our study, ileal-lymphoid-nodular hyperplasia is the hallmark lesion of the gastrointestinal tract, which allows entry of antigens across the inflamed mucosa of the bowel as a result of the reactive inflammatory response in the adjacent lymphoid tissue of Peyer's patches in patients with non-IgE-mediated food allergy. We propose that similar mechanism(s) may be involved in the pathogenesis of the CNS dysfunction in the patients described by Wakefield and co-workers"

A proposed relationship between the increase in asthma and vaccination has been proposed by many and denied by the vaccine authorities. Convincing alternative reasons for the dramatic increase in asthma in Finland and worldwide have not been offered.

Because asthma is often insidious, its impact could not have been fully appreciated and/or related to MMR vaccination, because like autism and IBD, the onset of the disorder may not have occurred within three weeks of vaccination.

Diabetes Mellitus

Finland has the highest incidence of childhood Type 1 (insulin-dependent) diabetes mellitus in the world**.** (11) According to Tuomilehto: *"During 1987-1989, the overall incidence of Type 1 diabetes was about 35.2 per 100,000 per year. It was higher in boys (38.4) than in girls (32.2). There was no clear geographic variation in incidence among the 12 provinces of Finland. Of the 1,014 cases during these 3 years only six cases were diagnosed before their first birthday. The incidence was high already in the age group 1-4-years old: 33.2 in boys and 29.5 in girls."*

The sudden increase in the incidence of diabetes after age 1 during a national campaign (1982-1996), where a vaccine is administered at 15 months of age, should have been of concern. Overeating and lack of exercise can certainly be responsible for many cases of diabetes (see below) but to assume that they are the only contributing factors in Finnish toddlers is unreasonable.

A connection between MMR vaccination and Juvenile Diabetes has been suggested. In testimony before the Committee on Appropriations, Subcommittee on Labor, Health and Human Services, Education, and Related Agencies of the US House of Representatives, Harris Coulter, Ph.D.**,** President, Center for Empirical Medicine, stated that the mumps and rubella components of the MMR have been implicated in the causation of Type I Diabetes. (12) Several cases of diabetes following MMR vaccination have also been reported to the Vaccine Adverse Events Reporting System (VAERS) and the National Vaccine Information Center (NVIC).

Juvenile diabetes is clearly an ongoing serious problem in Finland. According to the Social Welfare and Health Report 2000 of the Ministry of Social Affairs and Health *"Finland has the highest incidence of juvenile onset or insulin-dependent diabetes in the world* ***and it is continuing to grow."***

On Thursday September 4, 2003, the Helsingin Sanomat (International Edition) published a well-researched and comprehensive article on the increase in diabetes in Finland. Most of the professionals who were interviewed attributed the sharp increase in diabetes to obesity and decreased physical exercise. This greatly differs from the picture most Americans or Europeans have of the Finns. Diabetes is reported to affect 4% of the Finnish population and accounts for 11% of the health care costs.

Type II diabetes could increase by 70% in the next decade. According to Dr. Timo Saaristo, head physician of the Tampere public health clinic and national coordinator of the diabetes prevention project *"A 70% increase in ten years means that ten years from now the number of diabetics in Tampere will have increased from today's 6,000 to 10,000. This is a social time bomb that the economy cannot tolerate".*

There is no denial that obesity and lack of physical exercise predispose to diabetes. The potato couch syndrome, with its snacks, fast foods, high calorie drinks and addiction to television has been and will be a major cause of diabetes in genetically susceptible individuals but to continue to believe that it is the only environmental factor is ludicrous. Finnish toddlers are not obese and do not watch television all day. Finnish adolescents are comparatively less overweight and physically more active than their American counterparts and yet they are more likely to develop diabetes.

It is a fact that diabetes is increasing globally. At an international diabetes conference in Paris in August 2003, the situation was described as a pandemic that could potentially afflict up to 300 million people worldwide, and rival AIDS in terms of medical expenditures. The cost to deal with the diabetes is estimated to rise from the current 141 billion euros a year to 363 billion euros by 2025.

Interestingly, it is projected that the greatest future increases in diabetes mellitus will be in Asia and Africa, where a 2.7- to 3.6-fold increase in prevalence is expected by the year 2010 as compared with 1994. (13) Suggesting that such increases are only due to obesity, snacks, lack of exercise and television watching and refusing, a priori, to consider the role of massive vaccination programs is concerning.

Psychiatric Disorders

The following is a direct quote from the October 5, 2000 Helsingin Sanomat (International Edition): *"Psychological problems, as well as disturbances in behaviour and visualisation which make it more difficult for the child to adapt to a group, have increasingly been found to affect children's concentration, leading to various learning difficulties. Under Finnish school legislation, a disabled pupil, or a pupil who needs special support for other reasons, has the right to the services of an assistant free of charge. Some aggressive children need a personal guard to keep them from harming other pupils. The number of professional assistants at schools has more than doubled in five years: whereas there were just over 1800 of them in 1995, the figure had gone up to more than 4,000 in 1999".*
In the United States, "shadows", as they are commonly called, coach and control mostly children with autism and severe acting-out behaviors.

According to the Helsingin Sanomat of June 4, 2001, up to one in ten children in Finland need psychiatric care, cases of early childhood psychoses have doubled, the number of pediatric and teen admissions for mental and emotional disorders has increased fivefold over the past ten years, and depression and suicide attempts of children have proliferated. According to the doctors interviewed, the reason is not simply better diagnosis.
The report goes on to state that unfortunately only an estimated forty percent of seriously disturbed children receive any treatment.

From a more recent study discussed in the November 8, 2002 Helsingin Sanomat: One in four Finnish young adults aged 20 - 24 suffers from some mental disorder and young people were depressed just as frequently as adults, and twice as frequently as children. Only one in ten depressed young adults sought professional help and less than half of the affected individuals in that age group even considered seeking help. Patients were more likely to be seen if some other mental health disorder compounded their depression.

Mental health disorders and musculoskeletal diseases are the most common causes of long-term disability in Finland, followed by cardiovascular and cerebrovascular disease. The most common form of mental health disorder is schizophrenia. (14).

In the introduction of a comprehensive thesis entitled "Incidence and Risk Factors of Schizophrenia in Finland" (15), Jaana Suvisaari stated *" Schizophrenia appears to be more prevalent in Finland than in most other western countries (Torrey 1987, Lehtinen et al 1990, Hovatta et al 1997), and is a leading cause of disability retirement there, particularly among the population aged 16 to 44 years (KELA 1996).*

Later Suvisaari explains: *" The National Comorbidity Survey, which was based on interviews of 8098 individuals representing a random sample of the United States population, found a 0.7% lifetime prevalence of all nonaffective psychotic disorders and a 0.15% lifetime prevalence of schizophrenia (Kendler et al, 1996). The lifetime prevalence of schizophrenia in the Irish Roscommon study was 0.54% in men and 0.26% in women (Kendler & Walsh 1995). In the British Hampstead Schizophrenia Survey, the*

point prevalence of DSM-III-R schizophrenia varied, depending on the age correction method used, between 0.3 and 0.48% (Jeffreys et al 1997)… In Finland, the lifetime prevalence of schizophrenia seems to be somewhat higher than elsewhere: 1.3% in the Mini-Finland Health Survey, which used the Present State Examination interview (Lehtinen et al 1990), and 1.2% in a register-based study (Hovatta et al 1997). In the UKKI (Uusikaupunki - Kemijärvi) study, the lifetime prevalence of all nonaffective psychotic disorders as defined by the Present State Examination was 2.7% in the population aged 30-80 years (Lehtinen et al 1990a). However, these studies were based on diagnostic criteria that are broader than the DSM-III-R criteria"

The author states that the lifetime prevalence of schizophrenia in Finland is "somewhat higher" than in The United States and England. In fact, a lifetime prevalence of schizophrenia of 1.3% in Finland, according to the register, is **distinctly higher** than the 0.15% in the United States. .

In the past, childhood autism and childhood schezophrenia were often confused; Many patients suffering from either disease have a significant hyperpolypeptiduria and are often less symptomatic on strict gluten-free and casein-free diets.

The incidence of suicide has always been significant in Finland and suicides are listed separately (16) among the causes of death. Table IV

Cause of death	Deaths total	Males	Females
Cardiovascular diseases	21 133	9 670	11 463
Tumours	10 522	5 470	5 052
Respiratory diseases	3 865	2 081	1 784
Gastrointestinal diseases	2 036	1 103	933
Other diseases	7 756	2 873	4 883
Accidents and violence	4 077	2 788	1 289
- Suicides	1 095	824	271
Total	**49 389**	**23 985**	**25 404**

Table IV
Finland: Causes of death, 2002
Source: Statistics Finland, StatFin

The population of Finland in 2002 was 5,206,295 (about 2,545 thousand men and 2681 thousand women): 17.8% of the population was under the age of 14, 66.9% were between the ages of 14 and 65 and 15.3% were above 65. (17)

Finland had the highest suicide rate among the 15 European Union Countries in 1997, according to a EUROSAVE (European Review of Suicide and Violence Epidemiology) study. (18) The study's conclusion was that "Although suicide rates in most countries seem to be decreasing, the validity of the data is uncertain".

The fact that in spite of the declining suicide rate, 2.2% of the Finns who died in 2002 took their own life is alarming. Much has been written to explain the increased incidence of suicide in Finland. The role of the seasonal changes, the serious alcohol problem, the economical situation and the austere make-up of the Finnish personality have been mentioned in recent research. The high prevalence of Asperger's syndrome and autistic spectrum disorders (see above) has not, to the best knowledge of this reviewer ever been considered, even remotely, among the causes for desperation and suicide attempts or completion.

In her landmark manuscript, Asperger syndrome: a clinical account, Dr. Lorna Wing, of the MRC Social Psychiatry Unit, Institute of Psychiatry, London, states:

"The prognosis is also affected by the occurrence of superimposed psychiatric illnesses. Clinically diagnosable anxiety and varying degrees of depression may be found, especially in late adolescence or early adult life, which seem to be related to a painful awareness of handicap and difference from other people (Nos. 2 and 3). Wolff & Chick (1980), in a follow-up study of 22 people with Asperger syndrome, reported one who appeared to have a typical schizophrenic illness and another in whom this diagnosis was made, but less convincingly. Five of the 22 had attempted suicide by the time of early adult life.

The present author's series included 18 who were aged 16 and over at the time they were seen. Of these, four had an affective illness; four had become increasingly odd and withdrawn, probably with underlying depression; 1 had a psychosis with delusion and hallucinations that could not be classified; I had had an episode of catatonic stupor; one had bizarre behaviour and an unconfirmed diagnosis of schizophrenia; and two had bizarre behaviour, but no diagnosable psychiatric illness. Two of the foregoing had attempted suicide and one had talked of doing so. These two were referred because of their problems in coping with the demands of adult life" (19)

The fact that 23% of the patients with Asperger's Syndrome in the Wolff and Chick group had attempted suicide and that 17% of the young people in Dr. Wing's groups had either attempted or contemplated it, should be seriously reviewed by the Health authorities in Finland. Parents of adolescents and young adults who are so depressed that they actually take their lives, deserve to know whether there is a connection between their demise and a certain national vaccination campaign.

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Acknowledgement of Limitations

A comparison of MMR-vaccinated to non MMR-vaccinated individuals was neither possible nor undertaken It appears likely from the available data, that the non-MMR-vaccinated group was very small.
The introduction of the Haemophilus *Influenzae* B (HIB) and its possible impact on the increase in Diabetes Mellitus were not considered.

Conclusions

Finland has successfully eliminated measles, mumps and rubella by a national well-undertaken MMR vaccination campaign.

The system of passive reporting of adverse events following MMR vaccination that was used in Finland, was limited in scope.

It has been widely advertised that the vaccination campaign was not followed by an increase in autistic spectrum disorders and inflammatory bowel disease. This is effectively contradicted in this study.

The role of the MMR campaign in Finland in the recent increased incidence of certain other syndromes with significant morbidity or mortality must be considered even if other factors are also involved. The good people of Finland deserve to know the price they paid for preventing three childhood diseases and their potential complications.

The impact of massive vaccination programs in other countries in the Western World and the causes of the increasing incidence of asthma, diabetes, immune disorders, autism and behavioral problems should be investigated.

The risk-benefit of any vaccine should be seriously evaluated. It is imperative that over time, the resulting problems are not more significant than the disease that the vaccine is supposed to prevent.

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