

Notiziario

dell'Istituto Superiore di Sanità

Direttore dell'Istituto Superiore di Sanità e Responsabile scientifico: Giuseppe Benagiano
 Direttore responsabile: Vilma Alberani; Redazione: Gabriella Bucossi, Paola De Castro Pietrangeli, Franco Timitilli
 Composizione, Stampa e Distribuzione: Patrizia Mochi, Massimo Corbo
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 Redazione, Amministrazione e Stampa: Istituto Superiore di Sanità, Servizio per le attività editoriali, Viale Regina Elena, 299 - 00161 Roma
 Tel. (06) 49901 - Telex 610071 ISTSAN I - Teleg. ISTSAN - 00161 Roma - Telefax (06) 49387118
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From The Scientific Program Committee of VTEC '97: VTEC '97 Symposium

The highly successful multidisciplinary "3rd International Symposium and Workshop on Shiga Toxin (Verocytotoxin) - Producing *Escherichia coli* Infections" (VTEC '97) was held from June 22 to 26, 1997 in Baltimore, Maryland, at the Renaissance Harborplace Hotel along the waterfront in the Inner Harbor. There were 472 attendees from 32 different countries (Table 1).

The scientific program was organized into 8 sessions with topics including human and animal epidemiology, food safety, pathogenesis, diagnosis, treatment, and vaccines. For the oral plenary sessions, 31 speakers gave

keynote addresses and 11 speakers were chosen from the submitted abstracts to present short oral talks. A clinical round table on treatment was also held after the formal oral presentations on this topic. Among the highlights were presentations on recent outbreaks in Japan and Scotland, the results of clinical trials with Synsorb PK, and a lively discussion on the use of antibiotics to treat pre-HUS stages of STEC infections. In the areas of epidemiology and food safety, much evidence was presented to document the widening spectrum of vehicles implicated in infections, including several outbreaks involving uncooked vegetables and juices. The initial clinical trials with Synsorb PK in Canada did not

VTEC '97 Symposium

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WHO Meeting on STEC

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STEC O157 outbreak in Finland

3

reveal dramatic breakthrough treatment results but did offer encouragement for further clinical studies with this compound. Data were presented from the massive 1996 Japanese outbreak indicating that early treatment with the antibiotic fosphamycin could reduce the risk of HUS. Both of these clinical trials demonstrated the great difficulties encountered in designing and conducting treatment trials for a disease which occurs in either low numbers in sporadic infections or large numbers in unpredictable outbreaks. In addition to these clinical highlights, several advances were reported in more basic aspects of this disease including the development of a potential canine model, the further elucidation of cytokine and antibody responses, the discovery of a potential new intestinal adherence factor and the humanization of monoclonal

Table 1. - Countries represented at VTEC '97

Argentina	Finland	Norway
Australia	France	Poland
Austria	Germany	Romania
Bangladesh	Hungary	Russia
Belgium	India	South Africa
Brazil	Ireland	Spain
Canada	Italy	Sweden
Chile	Japan	Switzerland
China	Korea	United Kingdom
Czech Republic	Mexico	United States
Denmark	The Netherlands	

antibodies against Stx1 and Stx2 toxins. The poster sessions included 238 posters distributed among 8 topics as shown in Table 2. The abstracts are being scanned for posting on the World Wide Web to allow wide access. The abstracts will initially be posted on the University of Birmingham *E. coli* web site (<http://sun1.bham.ac.uk/bcm4ght6/res.html>) and later, it is anticipated, on a web site devoted to information on VTEC conferences under the auspices of the Istituto Superiore di Sanità, Rome. There will not be a formal proceedings publication resulting from the meeting but a book entitled "*Escherichia coli* O157:H7 and Other Shiga Toxin-Producing *E. coli*" is being published by the American Society for Microbiology (ASM) Press in conjunction with the meeting. This volume, projected to be available in May 1998, is edited by James Kaper and Alison O'Brien and will include review chapters written by most of the keynote speakers at VTEC '97 and extended abstracts by several of the investigators who presented short talks at the

meeting. The meeting ended with a session devoted to compiling questions that need to be addressed in future research. It is planned they will be presented again at the outset of VTEC 2000 in a manner that will provide continuity between the meetings and will serve as a measure of progress or lack of progress that has been made in the field.

There was an extensive social program designed to foster interactions outside the formal sessions. On Sunday evening, June 23, 1997, there was an opening reception at the National Aquarium where attendees could view the marine life while enjoying cocktails and hors d'oeuvres. The George Peabody Library, renowned as one of the most beautiful rooms in North America, was the site of Monday evening's event where attendees enjoyed dinner and drinks while the music progressed from brass quintet to string quartet to cello solo to jazz trio. On Tuesday evening, optional social events were offered including a dinner cruise through the Baltimore harbor or a traditional Maryland

dinner of steamed crabs. The closing banquet was given on Wednesday evening at the Renaissance Harborplace Hotel and numerous attendees stayed until well after midnight for music, dancing, and socializing.

The enthusiastic response to VTEC '97 and to VTEC '94 held in Bergamo led to the formation of the International Steering Committee to guide future meetings in this series. The membership of this committee includes Antonio Goglio, Carlton Gyles, James Kaper, Bernard Kaplan, Helge Karch, Mohamed Karmali, Gerald Keusch, Leo Monnens, Alison O'Brien, Henry Smith, Yoshi Takeda, Phil Tarr, and Mark Taylor. Karmali and Kaper were elected as Chair and Secretary, respectively, for this committee which first met in Baltimore during VTEC '97. The committee discussed proposals to hold the next VTEC meeting in either Würzburg, Birmingham, and Kyoto, and supported holding VTEC 2000 in Kyoto under the leadership of Yoshifumi Takeda. Future meetings will likely include a meeting in Europe in 2002.

Table 2. - Number of posters/abstracts by session

Sessions	Abstracts/posters (No.)	
I	Epidemiology in humans	52
II	STEC in the food chain	36
III	Adherence and toxins	45
IV	Animal models and host response	26
V	Pathogenesis of HUS	26
VI	Detection and diagnosis	37
VII	Treatment	11
VIII	Vaccines	5

The Steering Committee endorsed a proposal by Alberto Tozzi and Alfredo Caprioli to possibly establish an official World Wide Web site, devoted to issues relating to the VTEC conference series, in conjunction with the EVC Newsletter, under the auspices of the Istituto Superiore di Sanità, Rome. Information on VTEC 2000 and future VTEC meetings is expected to be transmitted through this web site.

Reported by:

J.B. Kaper, Center for Vaccine Development, University of Maryland, School of Medicine, 685 West Baltimore Street, HSF room 380, Baltimore, Maryland, 21201 USA.

Fax: 410-7066205;

E-mail:

jkaper@umabnet.ab.umd.edu

From WHO:

WHO Meeting on STEC Research and Control Held in Baltimore

The World Health Organization (WHO) organized a Scientific Working Group Meeting on "Priorities in Research and Control of STEC Infection and Outbreaks" in Baltimore, Maryland, USA, on June 27 and 28, 1997. The meeting was held immediately after the VTEC '97 Symposium.

About 25 scientists from around the world participated in the WHO meeting, sharing their personal expertise and discussing the control of STEC infections. Priorities for research and control of STEC were identified within three categories: detection and isolation; pathogenesis; and clinical management and prevention. Three working groups were also established to continue international coordination and cooperation amongst scientists working on STEC-related issues. The working groups will focus on reference laboratory development and international surveillance, pre-HUS intervention strategies and pre-illness prevention strategies including vaccine development. Since the detection, pathogenesis and prevention of STEC infection have similarities to those of other diarrhoeal diseases, it was agreed that the working groups should coordinate their efforts with other diarrhoeal disease initiatives already established within the WHO. As an example, *Shigella dysenteriae* type 1 (Sd1) has been responsible for epidemics of dysentery throughout the world. Since 1979, large Sd1 epidemics have been regularly affecting more than 20

countries in southern and central Africa. Through the WHO Global Task Force on Cholera Control, sub-regional projects have been set-up seeking to improve countries' preparedness and response to epidemic diarrhoeal diseases. These initiatives include, among others, developing more adequate epidemiological surveillance, strengthening laboratory capacities, rapid epidemic response training and case management improvement at the country level. Four sub-regional projects covering 27 countries are operating in Africa at the present time.

Reported by:

K. Stohr and R. Crom, World Health Organization, CH-1211 Geneva, 27, Switzerland.

Tel.: (41 22) 791 46 87;

Fax: (41 22) 791 48 93;

E-mail:

[<stohrke@who.ch>](mailto:stohrke@who.ch)

[<cromr@who.ch>](mailto:cromr@who.ch)

From Finland:

Surveillance of STEC infections

Very little knowledge has been gathered about the incidence and the epidemiology of Shiga toxin-producing *E. coli* in Finland. In the past

years, the number of reported STEC infections has been very low: no more than one O157 case per year has been identified. HUS/TTP is not notifiable in Finland. Since 1994, all laboratories that detect STEC from clinical samples have been obliged to report the finding and send the isolate to the National Public Health Institute (KTL) in Helsinki, but in 1994 and 1995 no cases were reported. From February 1996 through January 1997, the Laboratory of Enteric Pathogens (LEP) of the KTL carried out a large scale investigation of the epidemiology of STEC in collaboration with 16 microbiological laboratories of all universities and other major hospitals in Finland. These laboratories submitted all primary sorbitol MacConkey (SMAC) or Cystine-Lactose-Electrolyte-Deficient (CLED) agar plates cultured from stool samples of patients with bloody diarrhoea by mail to LEP for detection of bacteria carrying genes encoding Stx1 or Stx2 by PCR. A total of 490 primary culture plates were studied during the 12-month period. Seven cultures were positive for Stx2 and one for Stx1 encoding genes. Of these, only three were of serotype O157:H7 and sorbitol negative, the remaining five isolates being sorbitol positive non-O157. Seven of the eight patients were hospitalized and two of them developed HUS. All patients recovered completely. Three patients potentially acquired the infection abroad since they were diagnosed after recent trips to Spain, Turkey and Singapore. Only one of these three isolates was a typical sorbitol negative O157:H7 serotype. This study showed a very low incidence rate (0.16/100,000/yr) for all STEC infections, and an even lower rate (0.04/100,000/yr) for those infections caused by domestic O157:H7 strains in Finland, which has a population of about 5 million inhabitants. After this enhanced surveillance period, during the following five months, three sporadic domestic *E. coli* O157:H7 infections were discovered. Later on, in the beginning of July 1997, STEC was found from the stools of

21-month-old boy and his three-year-old brother. Consequently, in the same district of western Finland (Pohjanmaa, rural municipality of Alavus), a total of 18 cases of microbiologically confirmed *E. coli* O157:H7 infections have been found. Of those, one patient developed HUS. Secondary cases were detected in four families. All STEC isolated from the stools of the patients carried Stx2 encoding genes and did not ferment sorbitol. This is the first STEC outbreak in Finland. Additionally, during the same period, in Eastern Finland (Cities of Kuopio and Joensuu) six STEC infections were found. According to the present knowledge, they are not linked to the cases in Alavus. Molecular subtyping of the isolates is in progress.

Reported by:

*M. Keskimäki and A. Siitonen, National Public Health Institute, Laboratory of Enteric Pathogens, Mannerheimintie 166, FIN-00300 Helsinki, Finland.
Tel.: +358.9.47441;
Fax.: +358.9.4744238*



European VTEC Club (EVC) is a meeting point to promote communication among the various groups throughout Europe that are studying VTEC infection. *EVC news* collects information on outbreaks, case-clusters, isolation of particularly interesting strains, updates on the trend of O157 isolation, requests for strains, etc. The newsletter is not a scientific journal, and thus contributions will not be kept or delayed if authors plan to publish them elsewhere. They will not undergo a review process but minor editorial changes may be made. To receive *EVC news* or submit communications please contact:

*Dr. Alberto E. Tozzi,
Laboratorio di Epidemiologia e Biostatistica,
Istituto Superiore di Sanità,
Viale Regina Elena 299, 00161 Rome, Italy
Tel. +39 6 49387215; Fax +39 6 49387292; E-mail: vtec@vm.iss.it*

*EVC news is also available on the WEB at the URL:
<http://www.iss.it/pubblicazioni/notiziar.htm>*