

環境省エコチル調査国際シンポジウム  
**Japan Environment and Children's Study (JECS)**  
**International Symposium**

環境省環境リスク評価室  
**Environmental Risk Assessment Office**  
**Ministry of the Environment, Japan**

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環境大臣政務官  
樋高 剛

Takeshi HIDAKA

Parliamentary  
Secretary of the  
Environment

本日は、エコチル調査国際シンポジウムにご来場いただき、誠にありがとうございます。

近年、子どもの間で、先天奇形や小児喘息などの心身の異常が増加しており、環境中の化学物質の影響の可能性が指摘され、国内外で大きな関心が払われています。

環境省では、このような環境中の化学物質等が子どもの健康に与える影響を検証するため、平成22年度より10万組の親子を対象として、子どもが13歳に達するまで追跡する「子どもの健康と環境に関する全国調査（エコチル調査）」を開始しました。

この調査計画の策定に当たっては、平成19年より、子どもの健康と環境について専門家による検討を開始し、諸外国の先行調査の情報収集、小規模のパイロット調査の実施などにより、十分な検討を重ねてきました。

今年度は、エコチル調査の最初の年として全国の大学、医療機関等で実施体制を整備したところであり、本年1月末からは、参加者の募集・登録を始めています。

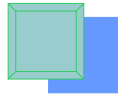
この調査によって得られた知見により、子どもの健康の確保と、安全・安心な子育て環境の実現を図ってまいりたいと考えています。

今後、エコチル調査を進めていくにあたっては、諸外国の調査や国際機関等と連携していくことにより、この調査をさらに充実し、成果を社会に広く還元していくことが期待されています。このシンポジウムが、子どもの健康と環境に関する国内外の取組について、理解を深める機会となることを祈念しております。

First of all, I would like to express my sincere welcome to lots of attendance.

In response to the concerns on increasing health disorders in children, the Ministry of the Environment started in 2010 the Japan Environment and Children's Study (JECS), a birth cohort study involving 100,000 children and 13 years of follow-up, focusing on the effects of environmental chemicals on children's health. This followed a preparatory work since 2007 such as a review of existing birth cohorts in the world and small-scale pilot studies. In 2011, we made organizational arrangements for JECS, involving universities and hospitals in study sites. The recruitment started in January 2011.

I believe that JECS should cooperate with similar research initiatives all over the world to contribute to the international efforts in children's environmental health. I hope that this international symposium will provide opportunities for further international cooperation and public understanding.



第一部  
Part I

2月4日  
Feb. 4

金  
Fri.

9:00 開場 受付  
Registration

9:30 開会宣言  
Opening

環境省あいさつ  
Welcome Address

樋高 剛 環境大臣政務官  
Takeshi HIDAKA

Parliamentary Secretary of the Environment

第一部：各国の出生コホート調査状況

Part 1: Birth Cohort Studies of the World

[司会：佐藤 洋、エドワード クラーク]

[Chair: Hiroshi SATOH, Edward B. CLARK]

9:40 1-1: 「子どもの健康と環境に関する全国調査（エコチル調査）」  
の概要  
Outline of Japan Environment and Children's Study  
Focusing on the Effects of Environmental Chemicals  
佐藤 洋/Hiroshi SATOH

9:50 1-2: デンマーク/Denmark  
Mads MELBYE

10:00 1-3: 韓国/Korea: The MOCHE Study  
Eunhee HA

10:10 1-4: 米国NCS/National Children's Study  
Jessica E. GRABER

10:20 パネルディスカッション/Panel Discussion

第二部  
Part 2

2月4日  
Feb. 4

金  
Fri.

第二部：小児環境保健のための国際連携  
Part 2: International Liaison  
for the Children's Environmental Health  
[司会：戸田英作、ジェームズ クワッケンボス]  
[Chair: Eisaku TODA, James Quackenboss]

- 11:20 2-1: WHOの事業/WHO Operations  
小児の環境保健のための長期コホート調査の調整と  
ハーモナイゼーション  
Coordinating and Harmonizing Long Term Cohort  
Studies of Children's Environmental Health  
Ruth ETZEL
- 11:30 2-2 UNEPの事業/UNEP Operations  
途上国の子どものための環境リスク及びリスク管理施策の評価  
An Evaluation of Environmental Health Risks and  
Risk Management Strategies among Children in  
Developing Countries  
Desiree Montecillo-NARVAEZ
- 11:40 2-3 小児がんへの国際的なとりくみ  
International Cooperation against Children's Cancer  
Terry DWYER
- 11:50 2-4 エコチル調査における国際連携  
International Linkage in JECSS  
戸田英作/Eisaku TODA
- 12:00 パネルディスカッション/Panel Discussion
- 12:25 閉会の辞/Closing Remarks

ポスター展示  
Posters

12:30~13:30

## 1-1 「子どもの健康と環境に関する全国調査（エコチル調査）の概要」

佐藤 洋

コアセンター長・東北大学大学院医学研究科教授

エコチル調査は、環境省の主宰する出生コホート調査である。その目的は、環境要因が子どもの健康に与える影響、特に胎児期から小児期にわたる化学物質ばく露や生活環境が子どもの健康にどのような影響を与えているのか明らかにすることである。本調査は環境省の企画・立案の下で、国立環境研究所におかれたコアセンターが研究実施機関となり、地域の調査を担当するユニットセンターやメディカルサポートセンターの国立成育医療研究センターと協働して実施する。全国で15のユニットセンターは、各地域の大学・研究機関等が中心になって構成し、参加者のリクルートやフォローアップを実施する。各ユニットセンターは、対象者（妊婦）の募集を行う市町村や保健センターの管轄区域など行政単位に基づいた調査地区を定める。2011年1月末から3年間（予定）の登録期間に、全国で子ども約10万人を目標に募集して、子どもが13歳に達するまで継続調査する。主な観察指標は、性比の偏り、妊娠異常、出生時体重低下、成長発育状況等、先天異常、精神神経発達障害、免疫系の異常、代謝・内分泌系の異常、肥満、生殖器への影響、性器形成障害、脳の性分化等である。環境要因の候補は、重金属、無機物質、塩素系POPs、臭素系POPs、農薬、有機フッ素化合物、フタル酸エステル、香料、フェノール、PAHs、タバコ煙、大気汚染物質、室内空気汚染物質等である。これらの化学物質等へのばく露は、母体血、臍帯血、母乳、尿などの生体試料中の濃度測定等により評価される。その他、対象者の基本属性、食事、職業、妊娠歴、合併症、既往歴、社会経済状態、居住環境等についても適切な時期に把握する。遺伝要因については、将来的に検討が可能となるよう試料の保存が計画されている。本調査の成果として、妊娠、出産、子どもの成長発達に関わる多くの知見が得られることが期待され、疾病予防や福祉の向上に寄与するものと考えられる。さらには、本調査を研究プラットフォームとして、独創的なアイデアに基づく追加的な調査研究によって、ライフサイエンスの様々な領域の進展に寄与すると期待される。

## **1-1 Outline of Japan Environment and Children's Study Focusing on the Effects of Environmental Chemicals**

Hiroshi SATOH

The National Core Center at the National Institute for Environmental Studies  
Tohoku University Graduate School of Medicine

The Japan Environment and Children's Study is a birth cohort study to identify environmental factors affecting children's health. In particular, to elucidate the effects of chemical exposure during fetal and neonatal periods is the main object. The Study has been planned and is financed by the Ministry of the Environment of Japan. The National Institute for Environmental Studies will act as the National Core Center. Together with 15 Regional Unit Centers established through open recruitment and the National Center for Child Health and Development acting as the Medical Support Center, the National Core Center is executing the Study. Regional Unit Centers consisting of universities and research institutions in localities over the country will set up study areas determined by administrative districts such as municipalities or health center jurisdictions for population based recruitment of expectant mothers. Participants of the Study will be 100,000 newborns, and their mothers and fathers. Recruitment of pregnant mothers will span a 3-year period commencing in January 2011, while follow-up programs will be implemented until the participant child reaches the age of 13. The targeted outcomes are congenital anomalies, physical development, psycho-neurodevelopment impairments, immunologic impairments and metabolic/ endocrinologic impairments. Environmental chemicals analyzed will include heavy metals, POPs, pesticides, phthalates, PAHs and so on. Samples for future genetic analyses will be preserved. It is expected that the Study will result in a great improvement of the children's welfare in addition to important scientific information on children's health and environment, especially environmental chemicals.

第一部：各国の出生  
コホート調査状況  
Part 1: Birth  
Cohort Studies of  
the World

1-2 デンマーク：デンマーク：デンマーク国家出生コホート  
－生涯にわたり影響を及ぼす9ヵ月間についての調査

Mads MELBYE

デンマーク国家出生コホート (The Danish National Birth Cohort)

国立血清研究所

受胎から小児期初期までの時期が、その後の健康状態に大きな意味を持つことはよく知られている。最近の研究はこの見方を裏付けており、心疾患、癌、精神病、喘息、アレルギーはすべてこの時期に起きたことが原因の一つになっている可能性がある。この時期の曝露は胎児の成長、細胞分裂、臓器の機能に多大な影響を与え、それが健康および疾患感受性に長期的影響を及ぼしかねない。このように人の一生をすべて視野に入れて病気の原因を探っていくには、命のはじまりの時点からのデータが必要になる。

デンマーク国家出生コホートは、受胎から小児期早期にかけての曝露が健康に及ぼす短期的および長期的な影響を調べることを意図して行われた。一般開業医（家庭医）において妊婦の初回診察時に調査協力を依頼する方法をとり、1996年から2002年までの間に10万1,000人の参加を得た。曝露情報を得るため、妊娠期間中に2回と、子どもが6ヵ月および18ヵ月になった時にそれぞれ1回ずつ、コンピュータを使った電話インタビューを行ったほか、妊娠中に自己記入方式の食物摂取頻度調査票への記入を要請した。さらに、妊娠中2回および出産時に血液を採取し、バイオバンクを設立した。本コホート調査は、最初のデータ収集から7年間の追跡調査を行ったものである。この追跡調査は2010年8月に終了したが、私たちは現在、11年間の追跡調査を計画している。



## **1-2 DENMARK: The Danish National Birth Cohort - a study on the nine months that last a life time**

Mads MELBYE

The Danish National Birth Cohort

Statens Serum Institut, Copenhagen, Denmark

It is well known that the time from conception to early childhood has implications for health conditions that reach into later stages of life. Recent research supports this view, and diseases such as cardiovascular disease, cancer, mental illnesses, asthma, and allergy may all have component causes that act early in life. Exposures in this period, which influence fetal growth, cell divisions, and organ functioning, may have long-lasting impact on health and disease susceptibility. Thus, to study disease causation in a lifelong perspective calls for data from the beginning of life.

The Danish National Birth Cohort was established to study the short- and long-term health consequences of exposures during conception and early childhood. From 1996 to 2002, a total of 101,000 pregnant women were recruited by general practitioners (family doctor) at their first pregnancy consultation. Exposure information was collected by computer-assisted telephone interviews with the women twice during pregnancy and when their children were 6 and 18 months old. Participants were also asked to fill in a self-administered food frequency questionnaire in mid-pregnancy. A biobank has been set up with blood taken from the mother twice during pregnancy, and at time of delivery. The cohort has expanded its initial data collection with a 7-year follow-up, which was completed in August 2010. We are presently planning the 11-year follow up.

### 1-3 韓国：The MOCEH Study

Eunhee HA

梨花女子大学校医学専門大学院予防医学科

MOCEH調査は、妊娠期と小児期の環境曝露（化学的、生物学的、栄養的、身体的、社会心理的）に関する情報を収集し、環境汚染物質への曝露が成長、発達、疾病に与える影響を調べることを意図した前向きのコホート調査であり、病院と地域コミュニティを中心に実施される。

MOCEHネットワークは、調整センター1カ所、妊婦の登録を行う地域センター4カ所、評価センター4カ所（栄養センター、バイオレポジトリセンター、神経認知発達センター、環境評価センター）で構成される。地域センターでは、訓練を受けた看護婦が面接を行い、登録者の人口動態的および社会経済的特徴、妊娠期間中の合併症、保健行動、環境因子などの情報を収集する。また、血液、胎盤、尿、母乳のサンプルを採取し、環境衛生士が登録者の産前・産後における屋内・屋外汚染物質の曝露レベルを測定する。

MOCEH調査が追跡するのは、出産までと、子どもが5歳になるまでの期間である。2006年から2010年までの間に妊婦1,500人を募り、子どもの追跡調査を実施する。私たちはこの調査を通じ、妊娠中の環境が子どもの成年期の発症に影響するという仮説を裏付ける証拠が得られるものと考えている。この調査をきっかけに、有害環境汚染物質への曝露後の潜伏と年齢ごとの感受性の評価、環境的・遺伝的リスク要因に注目した発育遅延の評価、ターゲットとする環境関連の小児疾患の選定、環境保健指標の設定、妊婦と子どもの健康増進のための全国的施策の確立などが進むことが期待される。

### **1-3 KOREA: The MOCEH Study**

Eunhee HA

Department of Preventive Medicine, School of Medicine,  
Ewha Womans University

The MOCEH study is a prospective hospital and community-based cohort study designed to collect information related to environmental exposures (chemical, biological, nutritional, physical, and psychosocial) during pregnancy and childhood and to examine how exposure to environmental pollutants affects growth, development, and disease.

The MOCEH network includes one coordinating center, four local centers responsible for recruiting pregnant women, and four evaluation centers (a nutrition center, biorepository center, neurocognitive development center, and environment assessment center). At the local centers, trained nurses interview the participants to gather information regarding their demographic and socioeconomic characteristics, complications related to the current gestation period, health behaviors and environmental factors. These centers also collect samples of blood, placenta, urine, and breast milk. Environmental hygienists measure each participant's level of exposure to indoor and outdoor pollutants during the pre- and postnatal periods.

The participants are followed up through delivery and until the child is 5 years of age. The MOCEH study plans to recruit 1,500 pregnant women between 2006 and 2010 and to perform follow-up studies on their children. We expect this study to provide evidence to support the hypothesis that the gestational environment has an effect on the development of diseases during adulthood. We also expect the study results to enable evaluation of latency and age-specific susceptibility to exposure to hazardous environmental pollutants, evaluation of growth retardation focused on environmental and genetic risk factors, selection of target environmental diseases in children, development of an environmental health index, and establishment of a national policy for improving the health of pregnant women and their children.

#### 1-4 米国： National Children's Study

Jessica E. GRABER

ユニス・ケネディ・シュライバー国立小児保健発達研究所

全米子ども調査 (National Children's Study : NCS) は、米国で最も包括的な研究の一つである。また、子どもの保健と発達に関する調査としては過去最大の規模を持ち、最も詳細まで踏み込んだものとなっている。全米の子どもを対象とし、受胎から21歳までの追跡調査を行うことで、環境と遺伝が子どもの成長、発達、健康に与える影響を調べていく。ここでの「環境」は広く定義されており、空気、水、食事、音、世帯動態、コミュニティ、文化的影響が含まれる。調査の目的は、子どもの保健と福祉を改善し、健康や病気に影響を与えるさまざまな因子の役割を解明することである。

全米子ども調査には関連する2つのフェーズがあり、一つはヴァンガード調査、もう一つはメイン調査と呼ばれる。ヴァンガード調査は、3種類の登録方法の実現可能性、受容性、費用のほか、メイン調査で使われる調査手順と成果を評価するものである。メイン調査は、データを重視するエビデンスベースの手法を使い、曝露とアウトカムの関係性に焦点を当てる。

メイン調査から得られたデータは、さまざま疾患の研究にとって有益な情報となる可能性がある。疾患の例としては、先天性欠損と妊娠関連の問題、損傷、喘息、肥満、糖尿病、および行動障害、学習障害、精神障害などが挙げられるが、この限りではない。研究者はそれぞれの環境因子の相互作用と、それが小児の健康、ひいては成人の健康に与える有益または有害な影響を分析する。さらに、NCSからデータアクセス委員会を通じて研究者へ提供されるデータを分析し、医療へのアクセス、罹患状況、そのほか健康上のアウトカムの差異につながる可能性のある要因を検証していく予定である。

## **1-4 USA: The National Children's Study**

Jessica E. GRABER

Eunice Kennedy Shriver National Institute of Child Health and Human Development

第一部：各国の出生  
コホート調査状況  
Part 1: Birth  
Cohort Studies of  
the World

The National Children's Study is designed to be one of the most comprehensive research efforts, and the largest and most detailed study in history focused on children's health and development in the United States. It will examine the effects of the environment, as broadly defined to include factors such as air, water, diet, sound, family dynamics, community and cultural influences, and genetics on the growth, development, and health of children across the United States, following them from before birth until age 21 years. The goal of the Study is to improve the health and well-being of children and contribute to understanding the role various factors have on health and disease.

There are two related phases of the National Children's Study: the Vanguard Study and the Main Study. The Vanguard Study will evaluate the feasibility, acceptability, and cost of three different recruitment strategies, as well as Study procedures and outcome assessments that are to be used in the Main Study. The Main Study will focus on exposure outcome relationships with a data driven, evidence-based approach.

Data from the Main Study may inform research into many conditions such as, but not limited to, birth defects and pregnancy-related problems; injuries; asthma; obesity; diabetes; and behavior, learning, and mental health disorders. Researchers will analyze how environmental factors interact with each other and what helpful and/or harmful effects they might have on the health of children and ultimately adults. Additionally, the Study analysis will examine health care access, disease occurrence, and other potential factors that may lead to disparities in health outcome, with data from the NCS available to scholars through a Data Access Committee.

## 2-1 世界保健機関 (WHO)の事業：小児の環境保健のための長期コーホート調査の調整とハーモナイゼーション

Ruth A. ETZEL

世界保健機関 (WHO)

多くの国が、小児の健康と福祉に関連する幅広い環境要因（阻害要因と促進要因の両方を含む）を調べる手段として、環境が小児の健康と発達に与える影響についての長期コーホート調査を実施中または計画中である。こうした調査は、小児期の健康および疾病における環境要因の役割をより深く理解することを主眼としている。世界保健機関 (WHO) は、世界各地の低・中所得国で環境と小児の健康に関する長期的コーホート調査を進める長期的な取り組みを行い、これをテーマとする国際会議を何度も開催している。

第1回目の会議はスイス、モントルーのグリオンで開催された（2003年10月13～15日）。さらに第2回（2004年8月23～25日）はワシントンDCで、第3回（2004年11月20～24日）はメキシコ保健省の主催によりクアルバカで、第4回はタイのバンコクで2005年8月に実施されている。2009年にはWHOとジーン・ゴールドディング (Jean Golding) 教授が『出生コーホート調査実施ガイド：その目的、危険性、実用性 (A Guide to Undertaking a Birth Cohort Study : Purposes, Pitfalls and Practicalities)』を出版した。このガイドは、2009年6月に韓国の釜山で開催されたWHOの第3回「小児の環境保健に関する国際会議 (International Conference on Children's Environmental Health)」で発表されている。この会議の出席者は、長期的コーホート調査に携わる先進国および途上国の専門家が会合を持ち、ハーモナイズされたデータ収集手段を開発するよう提言を行った。データ収集がハーモナイズされれば、複数調査からのデータの突き合わせが容易になるため、まれな小児疾患や症状の研究が前進する。

「子どもの健康と環境に関する全国調査 (The Japan Environment and Children's Study)」などの出生コーホート調査は、長期コーホート調査の実施を検討している国にとって絶好のモデルである。データ収集手段の国際的な調整とハーモナイゼーションを行えば、複数調査から得たデータの効率的分析が可能になる。これにより、調査結果を活用して、子どもの健康を増進し、有害な環境曝露を防ぐ方法を解明していくことができる。

## 2-1 WHO Operations: Coordinating and Harmonizing Long Term Cohort Studies of Children's Environmental Health

Ruth A. ETZEL

World Health Organization

Long term cohort studies of environmental influences on children's health and development are currently under way or being planned in many countries as a means to explore a broad range of environmental factors, both helpful and harmful, that influence the health and well-being of children. The main objective of these studies is to better understand the role of environmental factors on paediatric health and disease. The World Health Organization (WHO) has a longstanding effort to promote long term cohort studies of the environment and the health of children in low- and middle income countries in different regions of the world and has organized a number of international consultations on this topic.

The first consultation was organized by WHO in Glion, Montreux Switzerland (13-15 October 2003), the second was held in Washington, DC, (23-25 August 2004), the third was hosted by the Ministry of Health, Mexico in Cuernavaca (20-24 November 2004), and the fourth consultation took place in August 2005 in Bangkok, Thailand. In 2009 WHO and Professor Jean Golding published a "A Guide to Undertaking a Birth Cohort Study: Purposes, Pitfalls and Practicalities". This guide was presented at the WHO 3rd International Conference on Children's Environmental Health (June 2009) in Busan, Republic of Korea and participants at this event recommended convening a meeting with experts in industrialized and developing countries involved in longitudinal cohort studies and developing harmonized data collection instruments. If data collection were harmonized, it would be easier to combine data from different studies to study uncommon childhood diseases and conditions.

The Japan Environment and Children's Study and other birth cohort studies offer an excellent model for countries who wish to develop long term cohort studies. International coordination and harmonization of data collection instruments will enable the efficient analysis of data from multiple studies. The results can be used to better understand how to maximize child health and prevent harmful environmental exposures.

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## 2-2 国連環境計画 (UNEP) の事業：途上国の子供のための環境リスク及びリスク管理政策の評価

### Desiree Montecillo- NARVAEZ

#### 国連環境計画 (UNEP)

UNEPは国連の環境活動を担当する機関である。「開発のための環境」を使命とし、気候変動、災害と紛争、生態系の管理、環境統治、資源効率—持続可能な消費と生産、有害物質と有害廃棄物の6分野にわたって活動している。

「有害物質と有害廃棄物 (HSHW)」サブプログラムの全体目標は、有害物質と有害廃棄物が環境と健康に与える影響を最小限に抑えることである。そのためには、

a) 国レベルでHSHWが確実に管理できるような環境を支援する。主な内容は1) 保健と環境の連携を含む確実な化学物質管理の「主流化」、2) 国レベルと地域レベルの情報ネットワークの創出、3) 農薬と産業用化学物質の環境を損なわない生産・使用のための技術ツール、方法論、戦略的枠組みの開発、および4) 確実なHSHW管理のためのパートナーシップの創出である。

b) 「国際的な化学物質管理のための戦略的アプローチ (SAICM)」を強化する一貫した方針と技術的助言を提供し、確実なHSHW管理を実行する。主な内容は、1) SAICMに対する事務局サポート、2) 化学物質の国際的展望、3) 国際的な廃棄物パートナーシップ、および4) 研究能力開発と研究室間の国際的な相互キャリブレーションである。

c) 化学物質、廃棄物、および関連MEAの発展と進化をサポートする。主な内容は、1) 水銀、2) 鉛およびカドミウム、3) ストックホルム会議のためのツールと方法論、および4) 違法取引との戦いに関するプログラムである。

化学物質は、UNEPのHSHWへの取り組みのなかでも重要な要素となっている。化学業界の傾向と現状は、次の20年はGDPの成長を反映した成長が続くことを示している。途上国が産業用化学物質の生産と消費を牽引し、2020年までに31%の成長が見込まれる。世界銀行は、アジアの都市が化学物質と環境の管理を誤った場合、その保健コストは歳入の15%~18%に及ぶと試算している。

子どもの環境保健 (CEH) への取り組みは、HSHWの環境保健分野のなかで優先的な位置づけを与えられている。欧州、南北米、アジアにおいて環境保健関連の省庁を巻き込んだ地域的な対話と行動のプロセスが実施され、CEHのサポートを前進させている。2009年4月のG8環境大臣会合は、あらためてCEHへの呼びかけを行い、この問題への取り組みを再燃および拡大させる役割を果たした。

「CEHのための釜山行動計画2009 (2009 Busan Plan of Action on CEH)」に従い、さらに (エコチル調査の国際協力/支援部門の一部として) 日本環境省の支援を得て活動するUNEPは、WHO、日本環境省、米国環境保護庁と相談しつつ、途上国の子どもたちの環境保健リスクおよびリスク管理を調査するプロジェクトを進める。プロジェクトの内容は以下の通りである。

a) すべての地域政府が少なくともこの10年間に発表した、地域の化学物質環境リスクおよびリスク管理施策に関する文献および論文の包括的レビュー、b) 途上国の参加基準の設定と参加国の選定、地域のCEHに関する主要な国際パートナーおよび専門家の特定、c) 研究や特定した専門家との調査を通じて化学物質の環境保健リスクとリスク管理施策 (途上国の子どもに対する効果が実証された施策を含む) を見直し、優先順位を設定、d) 特定したCEH専門家によるワークショップを2011年第2四半期に開催、e) 途上国の子どもたちの環境・保健リスクおよびリスク管理施策調査の結果報告と分析を行い、勧告を作成。調査結果に基づき、G8およびおそらくG20へ、特に重要なリスクを軽減するための次の具体的なステップを提案する。



## 2-2 UNEP Operation: An evaluation of environmental health risks and risk management strategies among children in developing countries

Desiree Montecillo- NARVAEZ

United Nations Environment Programme

UNEP is the United Nations' voice for the environment. With its mission of “environment for development” UNEP's work cuts across 6 thematic areas namely: **Climate change, Disasters and conflict, Ecosystems management, Environmental governance, Resource efficiency –sustainable consumption and production, Harmful substances and hazardous waste.**

The overall goal of the Harmful Substances and Hazardous Waste (HSHW) subprogramme is **to minimize the impact of harmful substances and hazardous waste on the environment and human health** by

a) **Supporting enabling environments for the sound management of HSHW at national level.** Key features are 1) 'mainstreaming' sound chemicals management including health and environment linkage 2) Creation of national and regional information networks 3) Development of technical tools, methodologies and strategic frameworks for environmentally sound production and use of pesticides and industrial chemicals and 4) creation of partnerships for sound management of HSHW

b) **Providing coherent policy and technical advice boosting SAICM and the implementation of sound management of HSHW.** Key features are 1) Secretariat support to the Strategic Approach to International Chemicals Management 2) Global chemicals outlook 3) Global waste partnership and 4) Laboratory capacity building and global laboratory intercalibration

c) **Supporting the development and evolution of chemicals, waste and related MEAs.** Key features are programmes on 1) Mercury 2) Lead and cadmium 3) tools and methodologies for the Stockholm Convention and 4) combating illegal trafficking

**Chemicals are a major component of UNEP's work on HSHW. Chemical trends and facts** point to continued growth in the chemical industry sector in the next 2 decades that will mirror GDP growth. Developing nations are expected to lead in the production and consumption of high volume industrial chemicals; 31% by 2020. The World Bank estimates health costs in Asian cities associated with mismanagement of chemicals and the environment represent 15 to 18 % of urban income.

**Work on Children's Environment Health (CEH) is high in the priority of activities identified in the health and environment component of the HSHW.** Regional processes of dialogues and actions involving Ministries of Environment and Health in Europe, the Americas and Asia have been conducted and have yielded positive results in support of CEH. The G8 Environment Ministers meeting in April 2009 made a renewed call on CEH and has served as an impetus to reinvigorate and expand efforts on the issue.

In line with the **2009 Busan Plan of Action on CEH and supported by the MOEJ** (as part of international collaboration/outreach component of the JECS), UNEP in consultation with WHO, MOEJ and USEPA will work on a project that will investigate environmental health risks and management among children in developing countries. The project entails:

a) Comprehensive review of the published literature and the documents put out by all regional governments on chemical environmental risks and risk management strategies in the region for at least the past 10 years; b) Setting of criteria and selection of participating developing countries and identification of key international partners and experts on CEH in the region c) Desk study and/or conduct of survey with identified experts to review and prioritize chemical environmental health risks and risk management strategies (including those that demonstrated effective approaches among children in developing countries d) Organization of a workshop to convene identified CEH experts that will take place second quarter of 2011 e) Drafting of report of findings, analysis and recommendations on environmental health risks and risk management strategies among children in developing countries. Based on the findings, a proposal for concrete next steps to which G8 and possibly G 20 nations to reduce the prioritized risks will be proposed.

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## 2-3 小児がんへの国際的とりくみ

Terry DWYER

国際小児がんコーホートコンソーシアム (I4C)  
マードック小児研究所

世界中で、喘息や発達遅滞など小児によく見られる病気の環境的および遺伝的決定要因を探る大規模な幼児／小児の前向き研究が始まっている。なかには対象者が10万人を超え、興味深い重要な調査結果の分析が可能な調査もあるが、いずれも、測定される暴露と小児がんのようなまれな病気との因果関係を分析できるほどの規模ではない。これまでのところ、特定の小児がんとの関連が判明した数少ないリスク要因のほとんどは、症例対照研究の中で見つかっている。しかし、小児がんとの関連性を疑われたリスク要因を調べる研究がこの5年間に数多くあったにもかかわらず、病因として確実に証明された例はほとんどない。

最近の総説には、出生前・出生後の殺虫剤への暴露、母体および乳児期初期の食事因子、妊娠に先立つ父親の職業的暴露と喫煙、一般感染症を司る母体または出生直後の免疫系の相互作用、過大児の決定因子その他の要因を含む多くの有望な仮説がまとめられている。コーホートまたはコーホート内症例対照研究の手法を使って妊娠中または出生時から小児期および青年期までの前向きコーホートのフォローアップを実施し、同時に前向きな生物学的サンプル収集を行うことで、病因についての知識を高める大きなチャンスが生まれる。これは、出生前・出生直後の暴露をより効果的に評価し、診断前の影響に関する生物学的サンプル測定を行い、暴露から結果に至る時間的關係を解明し、症例群の親と対照群の親におけるリコールの差を縮め、選択バイアスの決定因子の理解を進めるなどの取り組みの結果である。

国際小児がんコーホート協会 (I4C) は、発表されている国際的な出生コーホートを一か所にまとめることで、収集した情報を活用し、小児がんへの疑問に答えていくことを目的として設立された。

I4Cに参加しているのは以下の12プログラムである。エイボン長期親子調査 (Avon Longitudinal Study of Parents and Children: 英国)、ブラッドフォード・ベビーズ (Bradford Babies: 英国)、カナダ小児がん調査・対照プログラム (Canadian Childhood Cancer Surveillance and Control Program)、神経管欠損症予防のための米中共同プロジェクト (China-US Collaborative Project for Neural Tube Defect Prevention: 中国)、中国家族・子どもコーホート調査 (China Family and Children Cohort Study)、タスマニア幼児健康調査 (Tasmanian Infant Health Survey: オーストラリア)、デンマーク出生コーホート (Danish National Birth Cohort)、ノルウェー母子コーホート調査 (Norwegian Mother & Child Cohort Study)、全米子ども調査 (National Children's Study: 米国)、幼児期と環境

(Infancia y Medio Ambiente: スペイン)、フランス環境と子どもの健康調査 (French Study on Environment and Children's Health)、およびエルサレム周産期コーホート調査 (Jerusalem Perinatal Cohort Study: イスラエル)。

これ以外にもブラジル、日本、韓国、スペインの小児コーホートがI4Cへの参加に興味を示している。このようにI4Cは、前向きのデータを収集し、それによってCL (略語!) の原因に関する環境的および遺伝的仮説を検証するための新しいユニークなチャンスを提供している。

## 2-3 International Cooperation against Children's Cancer

Terry DWYER

The International Childhood Cancer Cohort Consortium (I4C)  
Murdoch Childrens Research Institute

Globally, a number of large infant/child prospective studies have been launched to examine environmental and genetic determinants of common conditions of children, such as asthma and developmental delay. While several of these studies are relatively very large—over 100 000 subjects—and are adequately powered to examine their principal outcomes of interest, none of the individual studies are of sufficient size to examine the relationship between exposures they are measuring and rare diseases such as childhood cancer. To date, the few established risk factors for specific forms of childhood cancer have largely been identified in case-control studies. Yet, despite many such investigations evaluating postulated risk factors for paediatric malignancies during the past five decades, few consistently established aetiologic factors are known.

Recent review papers have summarized many promising hypotheses, including pre-natal and post-natal exposure to pesticides, maternal and early infancy dietary factors, paternal pre-conception occupational exposures and smoking, the interplay of maternal or early postnatal immune system handling of common infections, determinants of high birth weight and other factors. Employment of prospective cohort follow-up of children and adolescents from pregnancy or birth using cohort or nested case-cohort designs, in conjunction with prospective biological sample collection, offers promising opportunities for advancing knowledge of aetiology. This is a result of improved assessment of parental and early life exposures, measurement of biological samples for pre-diagnostic effects, clarification of the temporal relationship between exposure and outcome, reduction of differential recall between parents of cases vs controls and the prospect of understanding the determinants of selection bias.

The International Childhood Cancer Cohort Consortium (I4C) has been established to bring together the available global birth cohort to enable the pooling of data to provide sufficient power to address questions relating to childhood cancer.

The twelve member cohorts of the I4C are: the Avon Longitudinal Study of Parents and Children (UK), Bradford Babies (UK), Canadian Childhood Cancer Surveillance and Control Program, the China-US Collaborative Project for Neural Tube Defect Prevention (China), the China Family and Children Cohort Study, the Tasmanian Infant Health Survey (Australia), the Danish National Birth Cohort, the Norwegian Mother & Child Cohort Study, the National Children's Study (US), Infancia y Medio Ambiente (Spain), the French Study on Environment and Children's Health and the Jerusalem Perinatal Cohort Study (Israel).

Additional childhood cohorts from Brazil, Japan, Korea and Spain have expressed interest in being involved in the I4C. Thus, the I4C presents a new and unique opportunity to obtain prospectively-collected data to test environmental and genetic hypotheses relating to the causes of CL (Abbreviation!).

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## 2-4 エコチル調査における国際連携

戸田英作  
環境省

1997年のG8環境大臣会合で合意された「小児環境保健に関するマイアミ宣言」に見られるように、環境の脅威から子どもの健康を守ることは重要な国際的課題と認識されてきた。2009年にイタリアのシラクサで開催されたG8環境大臣会合では、米国環境保護庁長官と我が国の環境大臣が、小児環境保健に関する基調講演を行い、出生コホート調査などの調査研究を各国が協力して行うことが合意された。エコチル調査は10万人規模の調査であるが、各国で実施されている類似の調査と連携することにより、より出現率の低い疾病への環境要因の影響や、子どもの健康をとりまく状況の各国比較が可能となる。さらに、こうした調査研究を踏まえ、途上国を含む各国における子どもの健康リスクを評価することにより、費用対効果の高い対策メニューを国際社会に提示することができる。このため、環境省、専門家よりなるエコチル調査国際連携委員会を設置し、各国の出生コホート調査との連携を深めるとともに、UNEP、WHO、米国EPA等と連携して、各国における小児環境保健対策の状況をレビューし、効果的な対策を提案するプロジェクトを進めている。

## 2-4 International linkage in JECS

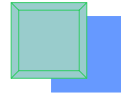
Eisaku TODA

Ministry of the Environment, Japan

Protecting children's health from environmental threats has been regarded as an important international challenge, as can be seen in the Miami Declaration on Children's Environmental Health agreed at the G8 Environment Ministers Meeting in 1997. At the same ministerial meeting in Syracuse, Italy in 2009, US EPA Administrator and Japanese Environment Minister gave keynote addresses on children's environmental health, and ministers agreed to cooperate in researches including birth cohort studies. JECS covers 100,000 children, but by linking with similar studies in other countries, we can address less frequent diseases and compare children's health situations in different countries. Moreover, the results from these studies can contribute to comprehensive assessment of environmental risk to children and planning of cost-effective risk management measures in international society including developing countries. Therefore, the Ministry of the Environment has established a JECS international linkage expert committee to promote linkage with birth cohort studies in other countries, and also promotes a cooperative project with UNEP, WHO, and US EPA to review the children's environmental health policies in various countries and to propose effective measures.

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日本産業衛生学会指導医（第151号）、日本医師会環境保健委員会委員、日本学術会議第19期会員（平成17年9月まで）、食品安全委員会専門委員、中央環境審議会委員、環境科学会理事、日本衛生学会理事長などを務める。

日本衛生学会賞、（社）環境科学会学術賞、（社）日本医師会優功賞、環境保全功労賞、厚生労働省労働基準局局長賞を受賞。

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- M.D., Tohoku University School of Medicine, Japan, 1974

Professional Experience

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- Hokkaido University School of Medicine, Department of Hygiene, Associate Professor, 1985-1989
- Fukushima Medical University, Department of Hygiene, Assistant Professor, 1981-1985
- The University of Rochester, NY, USA, Toxicology and Environmental Health, Research Fellow, 1979-1981
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- 1996 - Present Professor and Chairman, Pediatrics, University of Utah, Salt Lake City, Utah
- 1998 - Present Wilma T. Gibson Presidential Professor and Chair, Pediatrics, University of Utah, Salt Lake City, Utah
- 1998 - Present Adjunct Professor, Obstetrics/Gynecology, University of Utah,

セッション1  
Session 1

大規模な出生コホート調査の全体計画作成  
について

Planning Large Scale  
Birth Cohort Studies



Salt Lake City, Utah

- 1999 - Present Adjunct Professor, Bioengineering, University of Utah, Salt Lake City, Utah
- 2001 - Present Co-Director Addiction Research and Education Center, University of Utah, Salt Lake City, Utah

### Mads MELBYE

デンマーク出生コホート (Denmark National Birth Cohort) 国立血清研究所  
Denmark National Birth Cohort, Statens Serum Institute

Mads Melbye is Professor in Infectious Disease and Cancer Epidemiology and Director of Division of Epidemiology, Statens Serum Institut, Copenhagen. He is founder of the Nordic Summer School in Infectious Disease Epidemiology. Became MD in 1984 and DMSc in 1988 from the University of Aarhus, Denmark. He did his intern and residency at the University Hospital in Aarhus and the University Hospital in Copenhagen (Rigshospitalet). He has held research positions in epidemiology at the Institute of Cancer Research (Research Fellow) and the Danish Cancer Registry (Senior Investigator). He was State Epidemiologist 1991-92 until he became professor and Head of Dept of Epidemiology Research in 1992. Visiting scientist at Viral Epidemiology Branch, National Cancer Institute, Bethesda, USA 1985-86. Since 1998 also Foreign Adjunct Professor at Karolinska Institute, Stockholm, Sweden, as well as NorFA professor (until 2002). He has written more than 400 publications in infectious disease and cancer epidemiology, is associate editor of Journal of the National Cancer Institute, an editor of an international handbook on AIDS, and editorial board member of several scientific journals. From 2006-2010 vice-chairman of the Danish Medical Research Council. He acts as the Danish member of the Steering Committee regarding Nordic Research Centres of Excellence and on Danish advisory boards for the government on infectious disease and cancer-related issues. Member of the Novo Nordisk Prize Committee. Member of the Board of Scientific Councillors, International Agency for Research on Cancer (IARC). Member of the Danish Health Insurance Fond. Chairman of the Ministry of Science, Technology and Innovation's Coordinating Group regarding Registry Research (KOR) (since 2002). Received e.g. the Anders Jahre Prize, Oslo, Norway, 1992, the Thorvald Madsen Prize in 1998 and the Novo Nordisk Prize in 2005.

### Eunhee HA

梨花女子大学医学校予防医学部

Department of Preventive Medicine, School of Medicine, Ewha Womans University

Dr. Eunhee Ha is a Medical Doctor and Professor at the Ewha Womans University in Seoul, Korea, currently responsible for activities on Mothers and Children's Environment and Health (MOCEH): a multi-center longitudinal study in Korea. She trained as a specialist of Preventive Medicine at the School of Medicine, Ewha Womans University and also trained as a visiting scholar at the Harvard School of Public Health where her work with mothers and children's Health and environment started. The publications of Dr Ha are mainly in the the

areas of : The effect of air pollution on pregnant women's and children's health.

Jessica E. GRABER

Eunice Kennedy Shriver国立小児保健発育研究所

Eunice Kennedy Shriver National Institute of Child Health and Human Development  
Positions and Employment

2008- Senior Scientist, National Children's Study, Eunice Kennedy Shriver  
National Institute of Child Health and Human Development, Bethesda MD

2007-2008 Research Scientist, National Opinion Research Center, Chicago IL

2005-2007 Survey Director II, National Opinion Research Center, Chicago IL

2002-2005 Survey Director I, National Opinion Research Center, Chicago IL

2001-2002 Senior Analyst, Abt Associates, Inc., Chicago IL

Other Experience and Professional Memberships

2002- Member, American Association for Public Opinion Research

2008- Member, American Statistical Association

第二部：小児環境保健  
のための国際連携

Part 2: International  
Liaison for the  
Children's  
Environmental  
Health

戸田英作  
環境省

1987年環境庁入庁。2001年から2004年までOECD環境保健安全課。  
2007年から2009年まで環境省化学物質審査室長。この間、OECDテスト  
ガイドライン作業部会議長、国際化学物質管理会議副議長を務める。  
2010年8月より環境省環境リスク評価室長。子どもの健康と環境に関する  
全国調査（エコチル調査）を含め、化学物質の環境リスク評価を担当。

Eisaku TODA

Ministry of the Environment, Japan

Mr Eisaku Toda joined the Ministry of the Environment (then Environment Agency) in 1987. Worked in Environment, Health and Safety Division of OECD from 2001 to 2004. Director of the Chemicals Evaluation Office of the Ministry of the Environment from 2007 to 2009. During this period also served as Chairman of the OECD Test Guidelines Working Group, and Vice-President of the International Conference for Chemicals Management. Since August 2010, Director of the Risk Assessment Office, responsible for environmental and health risk of chemicals including the Japan Environment and Children's Study.

James J. QUACKENBOSS

米国環境保護庁/US EPA

Exposure Measurements and Analysis Branch

Human Exposure and Atmospheric Sciences Division

National Exposure Research Laboratory

EDUCATION/TRAINING

M.S. in Preventive Medicine-Epidemiology, 1984, University of Wisconsin,  
Madison

B.S. in Anthropology, 1980, University of Wisconsin, Madison



## PROFESSIONAL EXPERIENCE

- Research Environmental Scientist, US EPA, ORD, NERL, HEASD, Exposure Measurements and Analysis Branch, 2008 to Present
- Acting Associate Director for Human Exposure Research, US EPA, ORD, NERL, HEASD, 2006 to 2008
- Environmental Scientist, US EPA, ORD, NERL, HEASD, Exposure and Dose Research Branch, 1991 to 2006
- Research Specialist, Dept. of Internal Medicine, Respiratory Sciences Center, University of Arizona, 1985 to 1991
- Research Assistant, Dept. of Preventive Medicine, University of Wisconsin, 1981 to 1982
- Project Specialist, Dept. of Preventive Medicine and Institute for Environmental Studies, University of Wisconsin, 1982 to 1985

## NARRATIVE

James Quackenboss is a Research Scientist for the National Exposure Research Laboratory (NERL), Exposure Measurements and Analysis Branch, at the U.S. Environmental Protection Agency (EPA). He has served on the Interagency Coordinating Committee (ICC) for the U.S. National Children's Study (NCS) since 2002, and has worked with the NCS Program Office on exposure assessment and study designs. He chaired a joint committee to conduct a workshop on the sampling design for the NCS, and led the development of design options and background documents for consideration by the workshop panel and the NCS Advisory Committee. At EPA, he contributed to the development of the National Human Exposure Assessment Survey (NHEXAS), was the principal EPA collaborator for a NHEXAS pilot study, and coordinated the development of the Minnesota Children's Pesticide Exposure Study. Prior to coming to the EPA in 1991, he was involved in the application of exposure assessment techniques to epidemiological studies at the University of Arizona, and conducted personal exposure and indoor air quality studies at the University of Wisconsin. Mr. Quackenboss received his MS in Preventative Medicine-Epidemiology from the University of Wisconsin-Madison.

## Ruth A ETZEL

世界保健機関 (WHO)

World Health Organization

Professor Etzel is Senior Officer for Environmental Health Research in the Department of Public Health and Environment at the World Health Organization in Geneva, Switzerland. She completed medical school at the University of Wisconsin and residencies in Pediatrics and Preventive Medicine in Chapel Hill, North Carolina, USA. After completing a pediatric residency, she was a Robert Wood Johnson Clinical Scholar in Chapel Hill, and received her PhD in Epidemiology from the University of North Carolina School of Public Health in 1985. While there, she became very interested in studying the health effects of exposure to secondhand smoke among infants. With Professor Robert Greenberg, she co-authored the first study to use cotinine as a biological marker of exposure to tobacco smoke in children. In the 25 years since that study was published in the New England Journal of Medicine, she has been influential in working to make cotinine a standard method

for assessing tobacco exposure in epidemiological studies. She has also been a strong leader in national and international efforts to reduce children's exposure to tobacco smoke.

As a Commissioned Officer in the United States Public Health Service, she served in numerous public-sector leadership positions including: Centers for Disease Control and Prevention (Founding Chief of the Air Pollution and Respiratory Health Branch), Department of Agriculture (Director of the Division of Epidemiology and Risk Assessment) and Indian Health Service (Research Director at the Alaska Native Medical Center). Professor Etzel is a courageous leader in bringing environmental risks to children to public attention and working collaboratively towards solutions. In 1989, after a single case of acrodynia was identified in a US child who was exposed to mercury vapor inside a newly-painted house, she coordinated a study to assess the extent of the mercury exposure and then made a compelling case to the US Environmental Protection Agency (EPA) for the removal of mercury from latex paints. In response, the EPA quickly reached an agreement with the US paint companies to stop the addition of mercury compounds to interior latex paints.

Professor Etzel is the founding editor of the AAP book Pediatric Environmental Health (a 3rd edition will be published in 2011). This influential book has helped to train hundreds of doctors who care for children about how to recognize, diagnose, treat and prevent illness in children from hazards in the environment. She serves on the adjunct faculty at the George Washington University School of Public Health and Health Services. In addition to being board-certified in Pediatrics, Professor Etzel is also board-certified in Preventive Medicine and served for 9 years on the American Board of Preventive Medicine. Professor Etzel has received numerous awards, including the 2007 Children's Environmental Health Champion Award from US EPA, the Distinguished Service Award from the US Public Health Service, the Don C. Mackel Memorial Award from CDC, the Arthur S. Flemming Award, and the Clinical Society Award from the US Public Health Service Commissioned Officers Association for her discovery of the association between infant pulmonary hemorrhage and exposure to *Stachybotrys chartarum* and other toxigenic molds in the indoor environment. Her epidemiologic research interests include identifying the environmental precipitants of asthma attacks and studying the health effects of exposure to indoor and outdoor air pollutants.

#### Desiree Montecillo- NARVAEZ

#### 国連環境計画 (UNEP)

#### United Nations Environment Programme

Dr. Desiree Montecillo- Narvaez is currently Programme Officer of UNEP Chemicals DTIE based in Geneva. She is focal person for UNEP's work on Children's Environmental Health at the UNEP Chemicals Branch.

She is also responsible for UNEP Mercury Programme's partnership's work on intentional uses of mercury. Work deals with reducing mercury pollution ranging from mercury supply, trade, products, storage, waste and disposal as a form of intervention to reduce the risks posed by mercury to health and the environment. Her work also entails assisting countries to reduce mercury pollution through implementation and monitoring of projects.

Prior to joining UNEP 5 years ago, Dr. Narvaez was active with work on international chemicals management through the development of international chemicals policy. She also worked on health and environmental linkage projects at the regional level with WHO WPRO and UNEP ROAP. She was short-term consultant in various capacities at WHO Geneva.

She has had 20 years of public health experience in building capacities for local governments and providing technical assistance to partners at both national and regional levels especially in developing countries. She was Regional Director and focal point for chemical safety and sustainable development for the Philippine Ministry of Health.

Dr. Narvaez served as resource person in various international fora on health and environment and has been author/co-author of several publications.

She holds a Medical Degree and a Masters Degree in Public Health from the University of the Philippines, and a Certificate in Chronic Disease Epidemiology at the Stanford University in the USA. One of her relevant trainings is on international chemicals management with the Japan International Cooperation Agency.

#### Terry DWYER

マードック小児研究所

The International Childhood Cancer Cohort Consortium (I4C)

Murdoch Childrens Research Institute

##### Academic Qualifications:

MB BS	University of New South Wales	1971
MPH	Yale University	1977
MD	University of New South Wales	1985
FAFPHM	Australia	1990

##### Professional Qualifications:

Fellow Australian Faculty of Public Health Medicine	1992
Adjunct Professor Monash University	1997
Fellow Australian Institute of Company Directors	2004

##### Awards:

AM (Member of the Order of Australia)	1998
Officer of the Order of Australia AO	2005

Professor Terry Dwyer is Director of the Murdoch Childrens Research Institute, an organisation with over 1100 staff and 120 postgraduate students. It is based at the Royal Children's Hospital in Melbourne and covers the spectrum of laboratory, clinical and population health research. Professor Dwyer was previously Director of the Menzies Research Institute, University of Tasmania, coordinating research projects including those on cancer, heart disease, multiple sclerosis, childhood asthma, and diabetes.

Professor Dwyer has had a major involvement in SIDS research and in addition has maintained an interest in research on the effect of lifestyle on health and, in particular, on the role of physical activity in relation to coronary heart disease. His current work focuses on the joint effects of genes and environment in diseases as diverse as cancer, cardiovascular disease, diabetes and multiple sclerosis.

Professionally he was a member of the National Health & Medical Research Council's Research Advisory Committee, the National Chair of the Gulf War

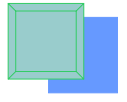
Veterans Study Scientific Advisory Committee, the Chair of the World Health Organisations Western Pacific Region Advisory Committee on Health Research and a member of the World Health Organisations Global Advisory Committee on Health Research.

Professor Dwyer is currently involved with the I4C (International Childhood Cancer Cohort Consortium), the UK Biobank International Scientific Advisory Board and the Australian Institute of Health and Welfare (AIHW).

In addition, his community roles have included Chairman of the Premier of Tasmania's Physical Activity Council and President of the Royal Automobile Club of Tasmania. He is also a Rotary Club Paul Harris Fellow.

In 1994 Professor Dwyer was a fellow of Green College Oxford. In 2000 he received a Global Health Leadership Fellowship from the World Health Organization, and in 2003 was the Australian Society for Medical Research medallist. In 1997 Professor Dwyer became Adjunct Professor at Monash University. He spent six months in 2004 at the National Institutes of Health in the USA advising on the design of the National Children's Study, which involved follow up of a cohort of 100,000 babies.





ポスター  
Posters

2月4日  
Feb. 4

12:30

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13:30

海外/Overseas

- a. デンマーク国家出生コーホート  
Danish National Birth Cohort  
Mads MELBYE
- b. 母と子の環境健康 (MOCEH) 調査  
MOthers and Children's Environmental Health (MOCEH)  
Study  
Eunhee HA
- c. 全米子ども調査  
The National Children's Study  
Jessica E. GRABER
- d. 世界保健機関, 子供の健康と環境  
World Health Organization, Children's Health and the  
Environment  
Ruth ETZEL

IECSユニットセンター/Centers of IECS Units

- ① 千葉ユニットセンター  
Chiba Unit Center
- ② 神奈川ユニットセンター  
Kanagawa Unit Center
- ③ 甲信ユニットセンター  
The Center of Kohshin Unit of the IECS
- ④ 大阪ユニットセンター  
Osaka Unit Center
- ⑤ 高知ユニットセンター  
Kochi Unit Center
- ⑥ 産業医科大学サブユニットセンター (福岡ユニットセンター)  
University of Occupational and Environmental Health  
Sub-Unit Center (Fukuoka Unit Center)
- ⑦ 南九州・沖縄ユニットセンター  
Southern Kyusyu Okinawa Unit Center



エコチル調査ユニットセンター  
**JECS Unit Centers**

