

Annual Report 2005

French Institute for Public Health Surveillance

Monitor, alert, prevent



INSTITUT
DE VEILLE SANITAIRE

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French Institute for Public Health Surveillance

The executive director of the French Institute for Public Health Surveillance, Pr Gilles Brücker, discusses the changes underway and the major challenges of health surveillance and health alerts

“What’s new is not only that the alert is triggered as early as possible, but also that the consequences are anticipated by prospective analysis.”

What role do alerts play in today’s French health surveillance system?

Although it has assumed a particular form in recent years, alerting has always been part of InVS's mission. It is expressly mentioned in the 1998 and 2004 statutes. Moreover, alerts cannot be dissociated from the general surveillance with which InVS has been entrusted by the legislature. It is actually a *continuum*. The initial objective was to identify significant signals in the health information flow and use them to help the public authorities take appropriate measures.

In recent years, however, several health crises—most importantly the summer heat wave of 2003 and most recently chikungunya fever in Reunion and Mayotte—have shown the need for early decision-aid tools. What is new is not that the alert function is important, but rather that it is triggered as early as possible, as close as possible to the initial event, and also that we prospectively analyze the possible development of these risks and their consequences.

Concretely, how is that done?

To achieve this ambition, InVS has developed more responsive tools and made the organization for alert reporting clearer. This is shown in particular by the creation of the Alert Coordinating Unit (CCA), which works in association with the departments of infectious diseases (DMI), environmental health (DSE), and international and tropical diseases (DIT). This unit organizes the daily alert bulletin (BQA), transmitted every day to the Minister of Health and all relevant departments. The bulletin lists and updates 10 to 15 pending alerts. Another tangible sign of this increasing sensitivity to health alerts is that the directorate-general of health (DGS) has established a department of health emergencies, which facilitates coordination with InVS.

Can we conclude that the system is now final?

I wouldn't say that. The most recent developments show that we are arriving at a third phase. Now it is the task of InVS not only to issue alerts, but to foresee the development and consequences of the alert insofar as possible. In order to succeed, we will need diversified capacities that allow us to anticipate, analyze, and interpret many possible events but also to develop hypotheses based on risk models. We saw this, for example, with the beginning of the chikungunya epidemic in 2005. The first cases, in Comoros, were promptly identified. Similarly, the first cases in Reunion were reported quickly in

April 2005 and led simultaneously to the launch of an alert to physicians in the sentinel network and the initial activation of vector control teams. The epidemic developed slowly and then suddenly exploded—for reasons we still do not understand clearly—between December 2005 and February 2006. This unexpected explosion caused problems for Reunion's healthcare system and for its economy.

But how can this capacity for anticipation be developed?

That is precisely the question today! Alerting is important, but we need a prospective analysis in view of the emergence of new risks, such as chikungunya, severe acute respiratory syndrome (SARS), and bird flu. It immediately raises the question of how to model risks about which we know too little. This requires better coordination between health surveillance and research. The procedure is not new at InVS but we want to organize it further. The objective is to be able to rely on teams able to substantiate the risk analysis. For chikungunya, for example, it would have been useful to have had entomological expertise available from the beginning. While InVS could draw information from the analysis of other epidemics, it cannot by itself cover the entire field of skills necessary for prospective work. It must therefore develop the capacity for complementary analyses, in coordination with research, especially in disciplines such as virology, entomology, climatology, and biomathematics.

InVS is also moving closer to the social sciences...

The need for transparency is one part of the experience acquired by InVS in the areas of surveillance and alert. We seek to share our knowledge. But a continuous flow of information about health risks of every type can end up by confusing citizens and businesses and provoking sometimes excessive questions and fears. How can we inform French and foreign tourists of the risks of travel in Reunion without worrying them inordinately? This is not a theoretical question. It has been debated not only in France but also at a European level. The European Center for Disease Prevention and Control (ECDC) raised the question of whether recommendations related to the chikungunya epidemic were needed. It finally decided that they were not, that the epidemic was limited to a single Member State—France—and that it was therefore for France to decide upon the appropriate information measures. I could just as well cite another example of this increasing interaction between epidemiology, information and economics: avian influenza, or bird flu, and trends in poultry consumption.

But what are the answers?

The key idea behind this association with the social sciences is to improve our understanding of how behavior is likely to change, to include it in our work of anticipation and modeling. InVS devoted a workshop to this subject during its last health surveillance meetings. It became clear then that the question of the population's information, understanding, and participation in the implementation of measures for prevention and control is an essential issue. Understanding it necessarily requires better coordination between epidemiology and several social science disciplines: psychology, sociology, anthropology, and health economics.

What progress are we making in bringing these fields closer together?

This question was referred to the InVS scientific council. We began discussions with various social scientists and social science organizations and laboratories. These exchanges indicated that we should call upon outside experts to help determine some priority activities. Today we have reached the stage of defining projects together with an ad hoc committee of social scientists and can already easily imagine practical applications to, for example, cancer clusters, such as the childhood cancers at Vincennes, or questions about mobile telephony antennas at Saint-Cyr.

When expert response and epidemiologic studies do not take the population's expectations sufficiently into account, misunderstanding or doubt will persist about the validity of the method and the results. One example is the current situation in Corsica around the alleged Chernobyl fallout deposits.

The credibility of health agencies, essential to the principle of a democratic healthcare system that we defend, rests on two essential elements: the scientific quality of the expert advice and its independence vis-à-vis public health authorities and policy-makers. Scientific quality depends on the excellence of the professionals hired and their ability—especially the epidemiologists—to cover a wide field of disciplines and maintain permanent coordination with research teams. Transparency of the expert advice, especially in terms of communication, is necessary to ensure its scientific quality and especially citizens' confidence in its conclusions.

The gravity of the different health crises in recent years, which could easily have grown into political crises, requires that InVS, concerned as it is by all health risks, today as well as tomorrow, reaffirm these principles.

2005: Strategic Deployment in Five Parts

The context in which InVS intervenes has changed significantly in the past three years, especially through the reinforcement of its alert functions and the search for better anticipation of health events and their consequences. These changes are also manifested by the concern for a more comprehensive approach to understanding these events.

In this framework, and in close liaison with the Ministry of Health, InVS has begun a strategy of deployment based on five pillars:

- reinforcement of the responsiveness of health information collection, as close to the source as possible
- development of regionalization, which satisfies the same concern for responsiveness and proximity
- development of a capacity for expert knowledge complementary to InVS's in-house expertise
- rapprochement between surveillance and research
- reinforcement of European cooperation.

DEVELOPMENTS IN INFORMATION COLLECTION

Information is the basis of surveillance and alert. For the past two years, information collection at InVS has grown in two directions: on the one hand, the fields from which information must be collected have expanded continuously; on the other hand, the methods of collection have been transformed, moving ever closer to the event. The traditional system of information collection—based on retrospective reports—is coupled with a system of information collection in real time at the source.

Surveillance of antibiotic resistance in diseases generally treated by private practitioners (otitis, sinusitis, urinary infections) provides a good example. Progressive hook-up and networking now allows the automated collection of information directly from some private laboratories.

Another example is the OSCOUR network (coordinated organization of emergency department surveillance), which began in July 2004. It ensures direct real-time reporting of information from a sample of hospital emergency departments. Some 50 facilities participate in this network today; its objective is to analyze use of emergency services, both quantitatively (number of patients) and qualitatively (age, sex, reason, severity score, diagnosis, short-term outcome, etc.). This real-time measure of health impact may make it possible to trigger an alert early—in case, for example, of a rerun of the August 2003 heat wave.

These data come directly from each hospital's computer system and are transmitted daily to InVS, without intervention by hospital staff and therefore without increasing their workload. Today, this system covers approximately 4000 visits a day, which are immediately recorded and analyzed.

These changes led InVS to adopt a new master plan for information systems (SDSI) during the winter of 2005-2006. It will redeploy tools and reorganize its systems according to three principal themes:

- modernization of data entry and dematerialization insofar as possible before arrival at InVS
- setting up a "data store", that is, optimizing storage of the information collected
- creating a system to mine and analyze the database, to enhance its responsiveness and utility.

Beyond these technological considerations, InVS has insisted that the deployment of this new master plan be accompanied by a collaborative strategy aimed at our information suppliers. The design is thus planned to provide systematic feedback and facilitate collaboration. Its cost should be on the order of one million euros over three years.

Widening the field of workplace health

Occupational health remains one of the important components of the Institute's work. It is also an increasing concern of public authorities and public opinion.

A major priority in this area involves the development of new surveillance tools. This work, conducted for several years now, began to bear fruit in 2005, in particular the development of job-exposure matrices. These matrices, combined with occupational cohorts and exposure databases, are an important tool in occupational risk surveillance. They make it possible to cross exposure to particular risk factors, based on individual careers, with diseases developed later. The final objective is to determine the "attributable fraction" of the occupational factors of a disease (for example, asthma, allergies or cancer), in other words, the role that occupational exposure may have played in the onset or development of the disease in question.

REGIONALIZATION AND IMPROVEMENT OF "SENSITIVE" SURVEILLANCE

Regardless of the technological improvements in information collection, strengthening health surveillance and alerts presumes closer proximity to the event's source. This would speed up the implementation of field investigations. In view of the increased regionalization of health surveillance systems, the regional epidemiology teams (CIRE) are obviously essential participants. The conclusions of the report *Alerts in France*—drafted for the regional public health program—confirm this development, especially for the regional plans for alerts and management of emergency health situations.

One question today is thus whether some of the tasks performed by InVS, especially those involving investigation, should be delegated to the regional epidemiology teams. A system of automated information transmission, working as OSCOUR does (see above), could then rely on the regional epidemiology networks to help interpret events and alerts.

CIRE teams today have acquired important experience and skills, as shown, for example, by their recent work on legionellosis in Pas-de-Calais, environmental studies in Provence-Alpes-Côte d'Azur, and the work on pesticides in the West Indies-French Guyana. In view of the extension of the field and tasks of health surveillance, they must nonetheless reinforce their resources and their skills to acquire diversified high-level expertise. This point is included in the Memorandum of Understanding between InVS and the Ministry of Health.

At the same time, these developments also call for the modification of the very conception and approach to regionalization of health surveillance. Regionalization was initially designed to professionalize the decentralized government departments, that is, the DDASS (district health

and social service bureaus) and the DRASS (regional health and social service bureaus). Today's new issues and the additional requirements of responsiveness and reliability lead us to think that the regionalization of health surveillance must take place in a specific framework—the regional epidemiology teams—equipped with greater skills and expert capacity.

COORDINATION BETWEEN INVS AND ITS PARTNERS

The French system of health surveillance relies on the mobilization of a large number of different and important stakeholders. Moreover, complex health crises bring into play interactions between diverse factors: medical, scientific, economic, and sociological. Good coordination of these skills, expert capacity, and stakeholders is therefore important to the efficacy of the global health surveillance system and its response to emergency health situations. InVS has therefore undertaken to improve its coordination with its principal partners. Several concrete changes in this domain took place in 2005.

Relations with other health agencies

The health security system involves numerous working relations between agencies. InVS, with its relatively general bailiwick, is often involved in such collaborative work.

Sometimes the Institute participates in work coordinated by another agency: the department of environmental health (DSE) and the department of occupational health (DST) both contribute to AFSSET'S (French agency for environmental and occupational safety) science watch bulletin. Sometimes InVS is responsible for the coordination, as for toxicity monitoring; this requires meetings of a toxicity monitoring coordination committee, which includes several agencies (AFSSA—French food safety agency, AFSSAPS—French drug agency, AFSSET) as well as the DGS, to define a coordinated work program and ensure a joint response to requests for assessments according to the specific expertise of each.

RELATIONS WITH RESEARCH

The links between InVS and research have nothing to do with any theoretical debate. Strengthening them results, on the contrary, in concrete improvements. For example, the discovery of a urine test has substantially improved surveillance of legionellosis. While much work remains, several positive advances can already be reported in this domain.

- **National reference centers (CNR):** the CNRs on which InVS relies for the monitoring of infectious diseases are usually part of research teams and accordingly not only expert in their fields but also able to develop innovative tools for the identification and biological characterization of this type of agent. They also participate in applied research on the control of these diseases. Since 2001, InVS has been involved in defining the needs for CNRs and monitoring their public health activities. In 2005, governmental appropriations for the CNRs were transferred to InVS to strengthen the link between scientific evaluation and the direction of their programs. The

call for bids to renew all of the CNRs strengthened this network, which now includes 77 laboratories for 45 infectious disease themes, three of them new—syphilis, cytomegalovirus, and toxoplasmosis.

- **National institute for health and medical research (INSERM):** like all the health agencies, InVS participates in INSERM's initiative for the creation of a virtual "institute of public health research". In this grouping, different participants share resources to fund public health research. Each year, members of this institute jointly decide on a common theme and launch a joint call for applications for funding of research related to it.

- **Interface contracts:** this procedure also links INSERM and InVS. The procedure allows the joint selection of researchers who will be seconded to InVS to conduct specific research projects there. This contract is used today, for example, to fund occupational health research at InVS.

- **Mixed units:** the aim is the same as for interface contracts but with an inverse approach. The first initiative of this type was the health and nutrition unit (USEN), implemented with the National conservatory of arts and sciences (CNAM) and now also with University of Paris XIII, where an INSERM surveillance unit has been inserted into a laboratory. This complementarity made it possible for USEN to launch a national nutritional health survey (ENNS) at the end of 2005. In view of the good results from this approach, InVS began another such experience in 2005 with University of Lyon III: the creation, in collaboration with the DST, of an industrial hygiene unit focused on workplace exposure to health risks.

REINFORCEMENT OF INTERNATIONAL COOPERATION

The European Center for Disease Prevention and Control (ECDC) began effective operations in 2005, after its director took office on March 1. The Member States are represented on the management board and it is the executive director of InVS who represents France. The creation of a strong European structure in the field of health surveillance—although it relies on earlier achievements and systems—significantly modifies the international environment of InVS activities. While ECDC today concentrates essentially on infectious diseases, its field of intervention is likely to expand in the years to come.

In this changed landscape, InVS collaborates very closely with ECDC. The head of DMI thus sits on ECDC's advisory forum and two InVS employees has been seconded to or recruited by this new center.

InVS intends in particular to participate fully in the upcoming enlargement of ECDC's field of competence, especially in the areas of environmental and workplace health. Inversely, three European programs coordinated until now by InVS—Euro HIV (AIDS), Euro TB (tuberculosis) and Eurosurveillance—should probably be taken over by ECDC, as is already the case for the European program for intervention epidemiology training. On the other hand, European programs that do not concern infectious diseases (those for example on injuries and environmental health) will continue to be coordinated by InVS for now.

WHAT CAN THE SOCIAL SCIENCES CONTRIBUTE TO HEALTH SURVEILLANCE?

For several years, health surveillance—and InVS in particular—has faced a four-fold challenge.

The first stems from the development of health crises that, while not necessarily more fearsome (new pandemics) or more complex (environmental health) than those of past decades, are at least more visible to the public. The second, a natural corollary of the first, results from the rapid rise in the public's demands and a concern about transparency echoed by the authorities. Regardless of the complexity of the situation—and therefore the need for sometimes detailed studies—information must be immediate, exhaustive, and regular. This is especially true for environmental health crises (for example, cancer clusters near industrial plants, mobile telephony antennas, and incinerators).

The third is related to the legitimate worry about activating health alerts very close to the event, almost in real time. While the usefulness of this early alert is evident for public health, the necessary responsiveness aggravates the methodological and communication difficulties.

The fourth challenge lies in the extreme sophistication of developed societies, with their systems and scenarios that are closely interdependent and therefore difficult to decipher or control.

NEW EXPECTATIONS FOR HEALTH SURVEILLANCE

These four phenomena have a very direct—and already largely perceptible—consequence on health monitoring and alerts. The public no longer simply expects that government agencies such as InVS can detect, identify, and retrospectively explain events likely to affect health. Now the population expects these agencies to anticipate these events, their course, and all of their consequences, and to do so with complete transparency, while not provoking unjustified worry, the consequences of which may be more harmful than the event itself.

The chikungunya epidemic in Reunion, first detected in April 2005, furnishes a good example of the increasing complexity of health crisis management. But we might also mention the threats of large pandemics, such as SARS or avian influenza, which mix complex health realities, onerous economic consequences, and the sometimes erratic movements of public opinion, which is subjected to a flow of information that is often difficult to decipher.

WIDENING THE FIELD OF INVESTIGATION

In such situations—likely to multiply in the years to come—InVS must continuously improve the quality of surveillance, responsiveness, and alert, as well as its forecast of health consequences.

The question today thus involves a double reconciliation:

- with medical research, to extend the possibilities of investigation, especially of phenomena that are new or for which inadequate information is available (HIV yesterday, chikungunya, SARS, and avian influenza today)
- with the social sciences, to develop models that integrate the complexity of economic and social interactions in the face of health phenomena, but also to better control how discourse affects the event itself.

Based on events of recent years, this second issue was the central topic at the last InVS scientific conference in November 2005. The discussion on this occasion resulted from detailed consideration of the subject by the InVS scientific council during its previous term. It led to the definition of priorities that will take concrete form rapidly.

LONG-ESTABLISHED CONVERGENCES

Epidemiology interacted with and used knowledge from the social sciences long before the threat of a bird flu pandemic or public concern about the risks of mobile telephony installations. In the 19th century, Villermé applied a medical-sanitary approach to his work that took into account the social and societal environment.

This dimension has always been present within InVS, as shown by the presence of several sociologists on its teams. Another example comes from the Coquelicot study, conducted with several partners (including INSERM, INED, and CNRS) to try to reduce risks in drug users. This project, with its two components—seroepidemiologic study and social anthropological research—testifies to this capacity to enlarge the traditional field and methods of investigation to improve our grasp of complex "subterranean" phenomena.

The same is true for the study of food aid recipients (ABENA) that, as part of the national nutrition-health program, aims to improve our knowledge of the social situation and eating habits of very poor populations. This study includes an important social-anthropology component intended to provide information about the associations between living conditions and nutritional problems. This approach has taken the form of semi-directive interviews with a sample of food aid recipients. The continuous exchanges—throughout the procedure—between specialists of these two disciplines have enriched the final scientific value of both study components, especially in terms of operational recommendations.

InVS also solicits outside expertise when necessary. In the study of the health impact of the Albertville municipal solid waste incinerator in Gilly-sur-Isère (Savoie), intervention in a crisis situation justified recourse to an outside sociologist.

His task involved, in particular:

- analysis of the background so that he could fully understand the needs of the local population, which had long been worried about the incinerator's proximity
- study of the creation of a structure to foster discussion between the regional epidemiology bureaus and a defiant population, to develop direct relations, provide information about the progress of the work, but also to share the difficulties and limitations of the study in real time
- establishment of more global collaborations between epidemiologists and social scientists, based on what was learned from the particular situation of Gilly-sur-Isère.

The objective of this third component was to improve the capacity of both InVS and the regional epidemiology teams to take population demands about environmental health into account and to provide aid in deciding the appropriate studies to be conducted.

NECESSARY CONDITIONS

While some exploration has already taken place, the complexity of the issues and the high expectations of both public opinion and public authorities require a more thorough analysis and organization of the relation between InVS and the social sciences. The relevance and effectiveness of this reconciliation, so to speak, presume that several conditions be met:

- **that interpretative analysis and decision support be clearly distinguished in the intervention of social sciences:** unlike interventional epidemiology, the purpose of the social sciences is not to provide direct assistance to health decision-making;
- **that each participant from each discipline retain the capacity to express thoughts in the language of the discipline, without restriction or thinking about the errors that nonspecialists can commit in the field:** the concept of "reciprocal familiarity" describes this type of closeness, with neither fusion nor substitution;

- **that the intervention of social sciences not be mythicized:** they cannot provide answers to all the questions involved in epidemiologic investigations. Expectations of the social sciences must be formulated with precision;
- **that interaction with epidemiology teams be preferred to the provision of distinct complementary studies:** building bridges between different fields before a survey is designed or an alert is launched is preferable to outside expertise, insofar as only the former can guarantee dialogue and the necessary synthesis between the different disciplines. This interaction is difficult to set up after the epidemiologists have already reached their conclusions; it would be more effective if it took place closer to the event.

WHAT ARE THE PRIORITY FIELDS?

If these conditions could be met, a close relation between health surveillance and the social sciences could prove enriching. Such a relation, moreover, fits into the undeniable convergence with the population approach (focusing for example on the elderly, the poor, or drug users) that InVS is developing. Beyond the definition of concrete procedures for this relation, we must identify the various fields for which the relation would be most valuable. This work is underway at InVS.

Conversations at our most recent scientific conferences have nonetheless helped identify several possible research tracks. Among them we note in particular the consideration of what the population concerned by a health crisis has to say. This requires synchronic analysis, which identifies the positions (often conflictual) of different protagonists and the diverse arguments on which these positions rest. Another possible trail involves diachronic analysis to look for—for example—one or more events, more or less distant, that may underlie attitudes manifested only most recently by the crisis under examination.

From this point of view, disciplines such as sociology, political science, anthropology, and history may prove useful to the work of epidemiologists.

Focus: a Highlight of 2005

Textbook Case: *Escherichia coli* in the Southwest of France

On the occasion of a cluster of cases of foodborne infections due to a particular strain of *E. coli* bacteria, InVS conducted a major investigation to identify the cases, determine the precise origin of the contamination, and initiate control activities to limit new cases. It carried out this assignment in collaboration with numerous partners.

On 24 October 2005, two pediatricians from hospitals in Pau and Bordeaux (in the districts of Landes and Pyrénées-Atlantiques) reported five cases of hemolytic uremic syndrome (HUS) to InVS. This syndrome, which combines hemolytic anemia and acute renal failure, is particularly serious in children. Its danger is real, for it is the principal cause of acute kidney failure in those aged younger than three years: approximately 1-2% of children with this disease die and more than one third have long-term renal lesions that require regular medical follow-up. The most common cause of this syndrome is a bacterial species belonging to the *E. coli* family, specifically some very virulent strains that produce toxins called "Shiga toxins". The disease first manifests by diarrhea, often with blood in the stool, abdominal pain, and sometimes vomiting. It then develops into HUS, with patients presenting signs of great fatigue, pallor, a diminution of the volume and a darkening of the color of urine, and sometimes convulsions. The bacteria responsible for this disease can be found in the intestines of numerous animals (including cows, calves, goats, and sheep). They are eliminated by stool that can in turn contaminate the environment—water, soil, and manure. In humans, contamination occurs through ingestion of contaminated food that is eaten raw or very rare, such as beef (especially ground beef), unpasteurized milk or dairy products, apple juice, or raw vegetables. It also occurs when soiled hands touch the mouth, for example, after touching animals carrying the bacteria or their contaminated environment, and finally by contact with sick people who excrete the bacteria in their stool. These bacteria are resistant to cold but are destroyed by cooking.

AVOID PROPAGATION

During the episode in the Southwest, the temporal and geographic closeness of patients with this rare condition—fewer than 100 cases are reported annually by the national HUS surveillance network—suggested a common source. As soon as it was alerted, InVS launched an investigation in collaboration with the district health and social service bureaus, the hospitals concerned, the Aquitaine CIRE, and the *E. coli* CNR and its laboratory. The investigation was then extended to the Languedoc-Roussillon and Midi-Pyrénées regions, and their CIRE and health bureaus were mobilized in turn. Other partners participated: the DGS, the directorate-general of food, the district veterinary bureaus, and the district offices of the directorate-general of consumer protection, competition, and fraud prevention.

The food survey of patients hospitalized with acute gastroenteritis and HUS rapidly showed an association between the onset of symptoms and consumption of Chantegril® brand frozen hamburgers, distributed by the Leclerc® supermarket chain. Testing by the veterinary department in several Leclerc® centers in the region, in the hamburger factory, and in the slaughterhouse in Maine-et-Loire confirmed the presence of a species of *E. coli*. French traceability measures made it possible to identify the ranch from which the cows came. By October 29,

the relevant lots were pulled from all supermarket shelves. The next day, a recall of several lots began, via the press and store displays. The distributors telephoned possible purchasers of the lots already sold, identified either through their store "loyalty cards" or because they paid by check or charge card. This procedure made it possible to identify the site of the contamination—the hamburger factory—and to control the epidemic quickly by preventing subsequent consumption of hamburgers. During this episode, which lasted into November 2005, 69 persons in 56 families throughout the Southwest were contaminated by the same bacterial strain: 17 had HUS. The other patients had bloody (33 cases) or non-bloody (19 cases) diarrhea.

ORGANIZATION OF SURVEILLANCE

In France, epidemiologic surveillance of infections by *E. coli* is based on the strains received by the CNR and by detection of HUS.

Hospital departments admitting children younger than 15 years diagnosed with HUS inform InVS at admission and send stool and blood samples to the *E. coli* CNR. When two cases of HUS occur at the same time and in the same geographic area, InVS conducts a survey to determine whether these infections have a common source. At the same time, the investigation asks laboratories and physicians to report other cases. Launched in 1996, this monitoring is based on a network of 31 volunteer pediatrics and pediatric nephrology departments throughout the country and has been coordinated by InVS since 1998. HUS cases are reported to InVS on case report forms that list social and demographic (sex, age, etc.), clinical and laboratory (hematology, biochemistry, coproculture, and serology) information as well as epidemiologic factors including the existence of other cases of diarrhea or HUS in the family and exposure to known risk factors (consumption of unpasteurized milk or cheese or of rare ground beef, contact with farm animals, etc.).

“InVS knew how to organize the pressure, but without putting us under stress”

Michel-Édouard Leclerc was at the center of the health alert that mobilized his company in October and November 2005. He remembers these events and what he learned from them.

Why did you become so closely involved in this issue?

There are priorities in life. Mine concern my family, before the company. My reaction therefore was to think about the risks to families. I didn't ask myself any questions and didn't have to make any decisions about what to do. I must say, the company already had a system for handling health alerts, delegated to clearly identified managers and supervisors. This delegation was one of the strengths of our system. As soon as InVS contacted us to tell us its suspicions, the managers concerned acted immediately, according to predefined procedures and without asking themselves any questions.

How were your relations with InVS?

Without any flattery, I have to say that we were very satisfied with the availability and mutual collaboration between InVS and Leclerc®. We have experienced other health crises, especially listeria in the delicatessen department some 15 years ago. At the time, InVS did not exist as such and we had to deal with three different agencies and bureaucracies. I don't think I need to say how much we appreciated having a single contact in 2005! Moreover InVS knew how to organize the pressure, but without

putting us under stress. It thus gained the confidence of the company, which had already decided to cooperate fully and meet all of InVS's demands. This relation, based on mutual respect and total transparency on both sides, facilitated mobilization and responsiveness. Here is one example of this reciprocal confidence: InVS let us write the press releases to alert consumers, but on our own initiative we submitted them for comments before distribution.

Looking back, what advice would you give to companies likely to be faced with a health crisis?

I would offer three pieces of advice. The first: act as soon as there is a presumption of a problem, without awaiting confirmation. Companies affected by a health alert must organize themselves immediately. In other words, a responsible company must be permanently in a "pre-crisis" situation, with clearly identified procedures and managers. Second: contrary to general opinion, management of a health crisis should not report directly to the president or the Board of Directors. Rather, the managers assigned to these issues must have great autonomy and act according to the procedures defined in advance. The third piece of advice comes directly from this episode in 2005. The work with InVS confirmed my belief that a health crisis can never be managed alone. In such a situation, the government can be an essential partner.

InVS clearly fulfilled its role as the inspector and guarantor of public health, but it also treated the company—which was by the way not directly involved—with respect, as a real co-manager of the crisis.

Highlights from Different Departments

DEPARTMENT OF INFECTIOUS DISEASES

In 2005, the department of infectious diseases (DMI) played a very active role and was deeply involved in many aspects of the influenza pandemic plan. It worked intensively on both alert and case cluster investigations. It produced new and complete data on the epidemiology of HIV infection, AIDS, hepatitis B and C, and sexually transmitted diseases, data that helped to guide public health plans and prevention campaigns. DMI also contributed substantially to the creation of the ECDC in 2005.

Mobilization against an influenza pandemic

Because of its role in the influenza pandemic plan, DMI was often called upon both for monitoring and to provide expertise in control measures, especially during the pre-pandemic phase. In compliance with the national plan, surveillance was established to allow expert assessment of all suspected cases of avian influenza in France, 24 hours a day, 7 days a week. It involves all DMI units.

In close collaboration with the department of international and tropical diseases (DIT), DMI monitors the international situation attentively, so that it can modify the case definition of H5N1 virus infection in response to its development in the affected areas.

DMI provided its expertise to various committees and working groups, essentially within the influenza committee at the Ministry of Health and in AFSSA (food safety agency) groups.

Finally, a weekly influenza surveillance bulletin covering all available data (morbidity, cases in emergency departments, mortality, virology, European situation, avian influenza, and influenza pandemic risk) is distributed to all concerned participants and posted on the InVS internet site.

Alert activity and case cluster investigations

2005 saw intense activity in dealing both with alerts and investigations of case clusters in most of the usual areas. In the domain of foodborne intestinal diseases, the detection and investigation of three episodes of salmonella infection (*S. Agona*, *S. Worthington* and *S. Stourbridge*) identified the products at the origin of these contaminations (cheeses and powdered milk) and led to the adoption of control measures (recalls, modification of conditions of use). Two HUS epidemics, one large, were also detected early. The foods involved—hamburgers and raw-milk camembert cheese—were removed rapidly from store shelves.

In the field of nosocomial infections, case clusters of *Enterobacter sakazakii* infections were detected in newborns by the second case, which made it possible to recall the powdered milk formulas responsible. Three epidemics of glycoprotein-resistant *Enterococcus faecium* occurred in three

university hospital centers (UHC) and required prolonged coaching of and attention to the facilities. They led the advisory committee on nosocomial and treatment-related infections to draft recommendations, disseminated to all healthcare facilities, about the prevention and control of these infections.

Finally, in the field of vaccine-preventable diseases, the extremely endemic status of invasive meningococcal infections in Seine-Maritime, linked to the local implantation of a highly virulent strain, required attentive follow-up. The situation for the district as a whole and the area of Dieppe, struck hardest, was analyzed in detail, and these reports were posted on the InVS internet site. They provided material to guide the decision support committee for meningococcal infections, whose findings led the Vaccination Advisory Committee and the High Council for Public Hygiene (CSHPF) to recommend a vaccination policy, with a vaccine developed in Norway against a similar strain.

HIV infection, AIDS, hepatitis B and C, and sexually transmitted diseases: New data

DMI made available to the public authorities new and especially comprehensive data about the epidemiology of HIV infection, AIDS, hepatitis B and C, and sexually transmitted diseases (STDs).

Surveillance of HIV infection and AIDS by mandatory reporting, combined with virologic surveillance and a system for monitoring laboratory HIV screening activities, allowed us to estimate the number of new diagnoses of HIV infection in 2004 at 7000. These data show that the populations hit hardest by the epidemic in France are male homosexuals (nearly half of whose new diagnoses are infections acquired within the previous six months) and populations from sub-Saharan Africa. The results of the 2004 gay press survey confirmed the slackening of preventive sexual behaviors among men having sex with men. Virologic surveillance also showed the entanglement in France of the French and African epidemics and the transmission of HIV within the African community living in France. Moreover, early results of the Coquelicot study, conducted among intravenous drug users, confirm the impact of risk reduction policies on HIV transmission, with a lesser effect on HCV transmission. That is, the prevalence of HIV in this population is 9% overall and 0.3% in those younger than 30 years, while the prevalence of HCV, 58.5% overall, is already 33% in the population younger than 30 years. This suggests HCV contamination occurs from the very beginning of intravenous drug use.

In 2003-2004, DMI, together with the national health insurance fund for salaried workers (CNAM-TS) and the health examination centers associated with it, conducted a survey of HCV-HBV prevalence among 14 416 CNAM-TS beneficiaries. It showed that hepatitis C remains a public health problem, with a prevalence of anti-HCV antibodies estimated at approximately 0.9%. The results indicate that hepatitis C affects most especially the poor and others in socially precarious situations. They also showed an increase in the proportion of persons aware of their

HCV status (from 24% in 1994 to 56% in 2004), which nonetheless remains below the goals set by the national program against hepatitis C. Finally, this survey provides the first estimate of the prevalence of hepatitis B surface (HBs) antigen carriage in metropolitan France: approximately 0.6%, with only half aware of their status. This shows the need to strengthen screening for the HBs antigen so that carriers may be offered appropriate management.

These data, taken together, helped the national institute for prevention and health education (INPES) to design public health plans and prevention campaigns to increase safer sexual behavior, directed especially at exposed populations such as drug users, men having sex with men, and the economically or socially vulnerable or marginal.

Creation of the European Center for Disease Prevention and Control (ECDC)

The department contributed substantially to the creation of the ECDC, based in Stockholm—especially through the participation of the DMI head on its scientific committee (Advisory Forum), which met four times in 2005. InVS also chairs the working group for monitoring and is involved in the survey of ministries, agencies, and CNRs about ECDC's role.

The unit for intestinal and other food-related diseases and zoonoses participated in defining ECDC's training priorities.

Finally, in the current context of a threatened influenza pandemic, the unit on vaccine-preventable diseases participated in a European meeting on improving collaboration on human and animal health.

Renewal of the national reference centers (CNRs)

The call for candidacies to renew the CNRs for 2006-2009 took place in 2005. It involved 45 topics, three of which had not been covered by a CNR in 2002-2005: cytomegalovirus, syphilis, and toxoplasmosis. The CNR committee directed the assessment of the 54 applications, mobilizing some 60 experts in microbiology and epidemiology in the process.

CNRs and their associated laboratories were named at the end of 2005 for 44 of the 45 CNR topics.

DEPARTMENT OF INTERNATIONAL AND TROPICAL DISEASES (DIT)

Government bureaus and agencies, strongly mobilized this year to face the risk of an avian influenza pandemic, were able to rely on InVS's international watch system and the creation of a weekly international bulletin (BHI), sent to all partners in the public health network. The chikungunya epidemic in the Indian Ocean was also monitored daily with DIT's epidemiologic surveillance system.

International watch, including avian influenza

In today's world, where the circulation of people and goods is

constantly accelerating, epidemic risk is also globalized. To fulfill its public health duties, InVS must not only continuously monitor the health status of the French population, but also be able to identify, before events occur, emerging health risks throughout the world that may affect France. The SARS epidemic in 2003 and avian influenza since 2004 simultaneously illustrate the nature and the possible extent of these new threats.

DIT has set up a unit responsible for finding, treating, and processing information about health crises abroad that may affect our country. The international monitoring system is one of the key elements of the alert system InVS reinforced in 2003. International alerts are now included in the CCA circulation list and disseminated in the BQA.

The status of avian influenza developed rapidly throughout 2005. For the first time, the epizootic left its historic home in Southeast Asia and moved towards the West *via* Russia. With its arrival at Europe's gates, awareness of the epizootic and governmental mobilization against the pandemic risk increased strongly. In this context, the need for information about the international situation, ever more complex, has become crucial.

DIT monitors the human epidemic via its international watch system in close association with the World Health Organization (WHO). Accordingly, it followed and reported the new outbreaks in Indonesia, China, and, at the end of the year, Turkey. To assess the threat, DIT also documented the advance of epizootic outbreaks and their progressive extension towards the Middle East and Europe. Beyond avian influenza, numerous alerts were issued in 2005, most leading to close monitoring of health crises abroad. Among them, we note the epidemics of Marburg fever in Angola, cholera in Senegal, and whooping cough in Brazil, in a border state adjoining French Guyana.

The creation of the BHI in 2005 helped organize the distribution of international watch information. It is now sent each Wednesday to all partners in the public health network. Other methods of information dissemination include alert messages and ad hoc briefing notes.

Surveillance of tropical diseases and the chikungunya epidemic

This field covers potentially imported diseases (such as malaria in continental France), endemic diseases in some overseas districts (such as dengue), and specific epidemics that may affect these zones (beriberi in Mayotte in 2004). In the field of communicable diseases, these health crises often have cross-border or regional dimensions and are thus related to the international component of DIT's work.

The chikungunya epidemic in the Indian Ocean emerged in 2005. By March, a month before the first imported case, the situation in Comoros led DIT to identify the risk of its spread to Reunion and Mayotte. The epidemiologic surveillance system established made it possible to follow the epidemic trends and provided a procedure that collected nearly all the symptomatic cases between May and December 2005. After this date, the epidemic process increased exponentially, overwhelming the investigation system based on vector control teams and thus leading to underreporting of cases.

The epidemiologic surveillance method was therefore immediately modified to rely on the sentinel physician network coordinated by the Reunion health observatory. This change made it possible to continue to follow the epidemic process precisely and to estimate the number of incident cases each week.

At the end of September, several cases of maternal-fetal transmissions of the virus as well as several cases of meningoencephalitis in adults were reported by physicians at Saint-Pierre Hospital. This information changed the perception of the disease, which until then had been considered relatively benign in the scientific literature. The CIRE established an observatory of the serious and emerging forms of chikungunya, documenting cases with help from the CNR.

The difficulty in information circulation was real. The explosive epidemic situation did not facilitate communication between the various participants involved, especially in view of the work overload on all levels.

DEPARTMENT OF CHRONIC DISEASES AND INJURIES (DMCT)

In 2005, the DMCT pursued the development of its cancer program, working with the national cancer institute. It also prepared implementation of the national nutritional health survey (ENNS) and helped to increase knowledge in the fields of diabetes, home and leisure accidents, and fetal alcohol syndrome. The absence of additional funding has unfortunately limited the deployment of an epidemiologic surveillance program of rare diseases. Finally, DMCT participated in pediatric-related working groups organized by DGS around topics such as sudden infant death and well-child visits (prevention consultations) for children aged 12-13 years. This participation opened new perspectives for the collection of epidemiologic data in 2006.

DMCT duties focus on five priority programs, all included in its mandate: cancer, diabetes, cardiovascular diseases, nutrition, and home and leisure accidents and injuries. The department's role involves especially the compilation and provision of information about the indicators listed in the Public Health Policy Act in the domains of chronic diseases, accidents, and nutrition. It also collects and analyzes data from the epidemiologic components of the plans called for by the law (cancer, rare diseases, quality of life of patients with chronic diseases) and other plans developed by the Ministry of Health (PNNS, diabetes plan, and cardiovascular disease plan).

Development of the cancer program

The first training session on techniques for monitoring and recording cancer, intended for cancer registry staff in French-speaking countries, took place 14-25 November 2005, in Torcy (Seine-et-Marne). The result of a partnership between the federation of cancer registries (FRANCIM) and InVS, this training aimed at improving and standardizing practices for recording cancers, based on international and national rules. For the French registries, the training was part of the reinforcement of surveillance recommended in the governmental cancer plan for 2003-2007. The 28 participants (16 epidemiologists and

physicians, 12 technicians) and trainers all assessed this training very positively and it will be repeated in 2006.

Moreover, the department conducted the first evaluation of the 22 pilot programs for colorectal cancer screening. It covered screening tests conducted from 2002 through 2004, relying on aggregate data transmitted by the 22 screening management agencies and interviews with their directors. It not only provided early results about the program, but also allowed the department to improve its definition of indicators and to prepare the subsequent evaluation, which will cover individual data. The ultimate aim is to expand the program. The evaluation also showed that indicators of screening quality were on average within the expected range. Participation remains somewhat low in some districts, but many have been operational for less than two years.

Development of the nutritional health survey

The nutritional surveillance unit developed all of the logistic and regulatory aspects of the ENNS. It will enable InVS to document the nutritional status and dietary intake of the general population (4000 adults and 2000 children), based on a survey that included a clinical examination and laboratory testing of samples.

The study began at the end of January 2006. It is an important step forward for InVS since this general population study of the entire country is totally administered by the institute. It may prefigure future general population surveys that will include health examinations.

Moreover, in 2005 the USEN team completed data collection and analyses of the study of food aid recipients (ABENA survey), the results of which were reported in early 2006.

Finally, a synthesis of dietary intake in France between 1997 and 2003 was published.

Better knowledge about diabetes patients

The year was marked by the communication of the results of the ENTRED survey of a national representative sample of people with diabetes. It studied their characteristics, level of complications, and risk factors, as well as the quality of their management.

These results were made available to public authorities, the population, and healthcare professionals by a presentation at a French conference on diabetes (ALFÉDIAM) in a specific symposium on ENTRED, a special issue of the Weekly Epidemiologic Bulletin (BEH), and a commented slide show on InVS's internet site.

The department also made public estimated projections of the prevalence of diabetes through 2016, based on expected demographic changes and different scenarios of obesity trends in the general population.

Dynamic activity by the "Injuries" unit

The "Injuries" unit published for the first time national estimates of the number of home and leisure accidents in

France, based on data from a network of hospitals participating in EPAC (permanent survey of home and leisure accidents). In cooperation with specialists in traffic accidents (and their prevention), it worked to define strategic development themes for the epidemiologic surveillance of traffic accidents at InVS. These themes are intended to involve InVS more deeply in this area, in particular, the traffic accident registry of the Rhône.

The injury unit also conducted the first exhaustive survey in Île-de-France of children's accidental falls out of windows. Information about the circumstances of the falls and their consequences were recorded for the 67 children who fell from high floors between May and September 2005. This study will be renewed in 2006 and extended to two other regions.

New advances in chronic diseases

In collaboration with the public health school of Nancy, the DMCT studied the quality of life of people on dialysis, to obtain the indicators required by the 2004 Public Health Policy Act. The results will be available in 2006. This partnership should be continued as part of the plan to improve the quality of life of people with chronic diseases.

Study of fetal alcohol syndrome

In compliance with the Minister of Health's request for a surveillance system for fetal alcohol syndrome, a scientific committee designed a feasibility study for the identification of serious forms of this syndrome at birth in seven districts with congenital malformation or handicap registries. This committee brought together pediatricians specializing in FAS, an obstetrician, and directors of congenital malformation and handicap registries. The study will take place in 2006.

DEPARTMENT OF ENVIRONMENTAL HEALTH (DSE)

The DSE was very active in 2005. It conducted two large surveys of the health risks associated with incinerators, increased its capacity to receive and investigate alerts, reinforced its expertise and national and international partnerships, developed new capacities in biosurveillance, set up and led a national network for toxicity monitoring (for which InVS is now responsible), and continued the implementation of numerous surveillance programs. Moreover, the results of the assessment of childhood lead poisoning screening in France and of several studies on exposure to ionizing radiation for medical purposes were published in 2005. In addition, the carbon monoxide (CO) poisoning surveillance system was extended nationwide. Finally, the organization of a very ambitious partnership between seven national institutions to construct a large birth cohort study enhances French capacities for both public health surveillance and research.

Childhood lead poisoning: results of long-term surveillance to guide and assess prevention policies

InVS has coordinated a national surveillance system for childhood lead poisoning since 1995. Its objective is to record cases of lead poisoning and describe their characteristics, to assess screening strategies and to monitor follow-up of the medical and environmental management of children with elevated blood lead levels at a first screening. It is based on a network of poison centers and laboratories that analyze blood lead levels.

In 2005, InVS published a detailed assessment of the screening activities for childhood lead poisoning in metropolitan France from 1995 through 2002. This assessment was based on surveillance results and on a survey of district health bureaus and laboratories.

In all 36 151 children had at least one blood lead level test between 1995 and 2002. Screening activity was globally modest, since the probability of testing for a child younger than 7 years averaged 0.6% during this period (and 95% of screening tests were performed on children younger than 7).

Screening activity varied widely in terms of time and location. Tests in the Île-de-France region accounted for 61% of all tests performed in metropolitan France and were concentrated essentially in the districts of Paris and Seine-Saint-Denis (greater Paris area). Outside the Île-de-France and Rhône-Alpes regions, screening was often limited to *ad hoc* campaigns.

The number of children tested for the first time increased regularly each year, but the proportion of those with an initial blood lead level greater than or equal to the cutoff point of 100 µg/L (defining cases of lead poisoning) decreased substantially: from 24.5% in 1995 to 8.5% in 2002. This decrease is undoubtedly related to a probable diminution in the prevalence of lead poisoning during this period, particularly in areas where significant screening took place.

The "housing" risk factor was mentioned as present at the first screening for 71% of the children in the surveillance system. The factors most predictive of an initial elevated blood lead level were "dilapidated housing", "pica" and "other children with lead poisoning". Overall, the monitoring program identified 5974 cases of lead poisoning. These children lived mainly in Île-de-France (65.9%), Rhône-Alpes (20%), and Nord-Pas-de-Calais (7%).

The complete report is available on the InVS internet site, accessible from the link to the topic of lead poisoning.

Carbon monoxide poisoning: a new monitoring system to improve our knowledge of its characteristics and consequences

Carbon monoxide (CO) continues to cause several thousand cases of acute poisoning each year in France and over 300 deaths. Preventing CO poisoning was therefore one of the objectives of L. 2004-806, the Public Health Policy Act. Recent studies have striven to increase our knowledge of its risk determinants and to develop prevention activities.

In response to the High Council of Public Hygiene decision of 12 December 2002, the DGS decided to set up a national system to monitor CO poisoning. It assigned the organization and follow-up of this system to InVS. In 2004, this monitoring system was one of the three action themes adopted as priorities by the national environmental health plan (PNSE). The aim is to reduce mortality from CO poisoning by 30% by 2008, as required by the Public Health Policy Act.

A pilot program in 2004 in the regions of Aquitaine and Pays-de-la-Loire was extended in 2005 to the entire country (excluding overseas territories). Nearly 350 direct partners (regional and district health and welfare bureaus, poison and toxicity monitoring centers, municipal hygiene and health offices, police laboratories, and regional epidemiology teams) joined this monitoring network in 2005, to fight against CO poisoning in their areas with renewed vigor, in collaboration with fire and rescue departments, emergency medical services, hospital departments, and others involved in health, social, housing, and environmental services.

All cases of CO poisoning are collected in a standardized format by the DDASS and the poisoning and toxicity reporting centers (CAP-TV) and centralized at InVS. This makes it possible to quantify the extent of the problem in France, describe the populations concerned and factors involved, and assess the severity of the effects on health and the means of treatment.

During the first year of operation almost 1300 events of CO poisoning (65% residential, 5% in public facilities) were collected for epidemiologic and treatment purposes. The circumstances of exposure, severity of poisoning, and medical consequences of these events were described in over 2500 patients. The detailed data of CO poisoning nationwide during 2005 will be reported in 2006 and should be particularly helpful in guiding the upcoming national campaign for information and prevention of CO poisoning, which will be conducted by INPES.

Among the situations identified by this monitoring system that require new preventive measures by public authorities are the cases in which CO poisoning affects groups present on the premises of religious organizations. In 2005, 10 cases occurred in similar circumstances in churches in nine different districts; all involved the prolonged use for religious services or concerts of gas-fired radiant heating panels in buildings with inadequate ventilation.

Although the individual effects recorded in 2005 were generally mild, these events of CO poisoning in places of worship are especially notable because of the number of people affected (15-500 people present). An interministerial circular (from the Ministries of Health and of the Interior) is under preparation to prevent this type of accident.

Ionizing radiation for medical purposes: the need for better knowledge and monitoring of patient exposure

As part of the action plan for monitoring patients' exposure to ionizing radiation (PASEPRI, 2003), the directorate-general for nuclear safety and radioprotection, InVS, and the Institute of radioprotection and nuclear safety (IRSN) have united their

efforts to inventory the available data and evaluate the exposure of the French population to ionizing radiation for medical purposes.

The comparison of different data sources provided two hypotheses for calculating high and low numbers of procedures. According to these hypotheses, there were 61-74 million procedures (including dental radiology) in France in 2002. Conventional radiology procedures appear to account for 90% of the examinations, computed tomography (CT) scans for 7-8%, and examinations in interventional radiology and nuclear medicine for approximately 2%.

The trends observed in this study compared with earlier surveys (1982, 1988, 1994) are as follows:

- a marked reduction in some conventional radiology examinations, such as chest and skull radiograms, which were reduced by half in 15 years
- a strong reduction in the number of examinations with contrast solutions, one tenth as common as in 1982
- a constant number of radiograms of the abdomen and spine, as well as a significant development of CT scanner use, which has tripled in 15 years.

Mean effective doses per patient were evaluated at 0.66-0.83 mSv per year, depending on the hypothesis considered. Conventional radiology examinations appear to contribute roughly 35% of the total dose delivered to the population, CT scans approximately 40%, and nuclear medicine and interventional radiology 20-25%.

In 2005, IRSN and InVS decided to establish a system to obtain regular comparable information over time on the type and frequency of radiologic procedures, doses, and patient characteristics. Its aim is to identify the practices for which surveillance is most important because of the sensitivity of the populations exposed and the high doses delivered, such as interventional radiology and CT. Efforts are also required to assess cumulative exposure, especially in patients exposed because of their health status and who may have repeated diagnostic examinations.

At the same time, financial support from DGSNR enabled InVS to conduct an exploratory study in the field of interventional radiology and radiation burns.

Analysis of the activity of three pilot departments over a four-year period showed that a relatively high proportion of patients are exposed to several interventional radiology procedures during their lifetime and that tens of thousands of people in France have a first such procedure before the age of 40 (1-10% in cardiology, over 30% in neuroradiology). Specific analysis of the determinants of the dose received by the skin and organs by the pilot study in one department also showed that average doses were high (0.4 Gy for coronary angiography and 0.7 Gy for angiography) and that questions about information, prevention and follow-up of radiation burns were relevant for more than 5% of patients. This study showed the influence of the principal dose-determining factors. This category of patient can be identified in advance with a minimum of systematically collected information, and the dose/treatment efficacy ratio thus optimized.

Finally, a one-year survey by the French Dermatology Society showed that radiation burns resulting from interventional radiology were diagnosed very late after the intervention

(7.5 months on average). Nonetheless, some may lead to serious complications because of the need for plastic surgery. These studies provide a basis for an analysis of the usefulness and feasibility of recording information on the conditions of these procedures, doses delivered, and consequences to optimize these procedures and the treatment of their consequences. Following this proposal, a radioprotection training program for cardiologists was set up. The French Society of Cardiology welcomed this successful initiative. It has led to new study proposals, initiated by cardiologists themselves. This shows that the common interest of all stakeholders can be served by this type of information production and monitoring program.

InVS also plans to deal with the problem of cumulative radiation exposure associated with some diseases. An initial study considered exposure of premature infants during their hospitalization in neonatal intensive care units. We found that the dose received is low despite numerous examinations. This, however, is only one episode in the life of the preterm infant. Another study is underway among patients with cystic fibrosis.

ELFE: an ambitious proposal to study the determinants of children's development and health

The ELFE (French longitudinal study beginning in childhood) proposal plans to establish a nationally representative cohort of 20 000 children to be followed from birth through adulthood in a multidisciplinary approach. This study will constitute a single data source to analyze children's development in their environment and will investigate the interaction of different factors throughout childhood and adolescence. It is built around three major themes: child health, relations between environment and health, and social and demographic aspects.

The ELFE proposal results from the combination of two initiatives:

- a proposed "national children's cohort"; this was first suggested in 2002 based on the observation, expressed by several public institutions and intergovernmental agencies, of the limitations of existing tools to identify and analyze the effects of various social and demographic factors on children's outcome, especially in the areas of education and health;
- activity 26 of the PNSE, adopted in June 2004: its objective is to learn the age and levels at which children are exposed to different pollutants, at which stage of growth health effects appear, and the nature and strength of the relation between exposures and health effects.

In this context, 2005 was a very important year. It was marked by the development of a single proposal, entitled ELFE, and the decision to administer the combined proposal in the form of a scientific interest group (GIS), composed of InVS, INED, INSERM, and the State, represented by the national institute of statistics and studies (INSEE), the DGS, the Ministry of Health's department of research studies, evaluation and statistics (DREES), and the department of continuing education. Other partners, including the national health insurance fund or the family allowance fund, may join the GIS later.

It relies on a coordination team and a group of topic supervisors. It is proceeding by calls for proposals to define the protocol, with analyses at each stage of data collection.

This multidisciplinary proposal is as interesting to demographers and sociologists (focusing on the family, work, and education) as to epidemiologists. The latter will simultaneously conduct etiological research and monitoring. The representative nature of the cohort should make it possible to extrapolate the prevalence of some diseases and of some environmental and other exposures.

An internet site is already functional and can be consulted at the following URL: www.elfe.ined.fr

DEPARTMENT OF OCCUPATIONAL HEALTH (DST)

The Public Health Policy Act enacted in August 2004 and ensuing governmental plans have reinforced the responsibilities of InVS in the field of epidemiologic monitoring of occupational risks. The reorganization of State agencies and bureaus in this field was debated in 2004 and implemented in 2005. During this year, the DST consolidated many of the initiatives it had begun. Planned activities continued, while those being completed began to produce significant results, many of them groundbreaking.

Strengthened role

The governmental occupational health plan, published in February 2005, reaffirmed the determination to develop knowledge about health in the workplace, by the development of research in this field and the creation of a public agency responsible for health at work. This agency was created by the decree in September 2005 that transformed AFSSE into AFSSET. It will be associated with the Ministries of Labor, Health and the Environment. AFSSET "[...] will ensure scientific and technical monitoring of hazards and risks in the workplace; assess the risk for humans, based on integrated expertise about hazards and exposures; organize the expert advice necessary to set threshold values for hazardous substances; and respond to all requests from the ministries concerned about risks and hazards in the workplace".

At the same time, the decree reinforced the role of InVS in monitoring population health and conducting epidemiologic investigations of occupational risks. A protocol was signed with the department of labor relations (DRT).

InVS considered how to best conduct the new mission assigned to it by the Public Health Policy Act of 2004: "to implement—in liaison with the health insurance funds and statistics departments of the relevant ministries—a tool enabling the centralization and analysis of the statistics of workplace accidents, occupational diseases, presumed occupational diseases, and all other data relative to health risks in the workplace, collected in compliance with article L.1413-4". An epidemiologist was hired in March 2005 to inventory the relevant data and information loops, and a report was presented in August 2006. This review showed the extreme complexity of the information systems and circuits at the local and national levels. To conduct this project, InVS set up a close collaboration with the relevant

partners, including the office of information, research, and statistical studies (DARES) and all the health insurance funds.

At the request of DRT and DARES, a joint IGAS (inspection general of social affairs)/INSEE group concurrently audited the available information systems for workplace accidents and occupational diseases. Taken as a whole, this endeavor should make it possible to develop proposals for the centralization and management of these data to provide reliable public statistics meeting European requirements. The report will be made public in 2006.

InVS has made a major effort to encourage professionals to contribute to epidemiologic monitoring and health surveillance, especially targeting occupational physicians. This has made it possible to include several workplace health monitoring programs in several regional public health plans. Several programs relying on occupational physician networks have been proposed or initiated in new regions. They pertain to both thematic programs (musculoskeletal diseases, asthma, and mental health) and data transmission of "non-specific" problems considered attributable to work. In this context, InVS signed a protocol at the end of 2005 with the Provence-Alpes-Côte d'Azur (PACA) regional labor and training bureau and the DRASS, to implement monitoring systems for musculoskeletal diseases and other occupational diseases, as part of the DST national programs. An epidemiologist was hired for this task at the PACA regional epidemiology team and began working in January 2006.

In the long term, this should make it possible to build a truly nationwide network for reporting work-related health problems, on condition that national and regional funding is provided for these networks.

Continuation of the establishment of epidemiologic surveillance systems

The establishment of epidemiologic surveillance systems continued with:

- development of "Matgéné", a general job exposure matrix;
- development of a tool for long-term follow-up of the health status of workers (all industries and every job status: private, public, self-employed, farmers, etc.) by the establishment of a multi-risk multi-industry cohort, COSET, which continues in partnership with CÉTAF and INSERM;
- publication in 2005 of groundbreaking data from periodic and systematic analysis of mortality by cause and industry (COSMOP program), based on data from INSEE'S permanent demographic sample; continuation of the search for the best existing data led to an agreement to use the INSEE database apparently most relevant for this analysis;
- the establishment of a post-retirement medical follow-up for self-employed workers exposed to asbestos during their working life, set up in cooperation with CANAM and the retirement fund for self-employed workers. This experimental program in three regions should develop over time and be extended to other types of occupational exposure.

In 2005, the methodology for construction of job-exposure matrices applicable to the general population was standardized by DST, in a document forwarded to collaborating teams. Three matrices related to organic dust were completed (leather, cereal, and flour dust). Applying these matrices to

1999 census data and a sample of 8000 occupational histories allowed DST to perform descriptive analyses of the proportion of exposed people in the overall population and to follow its course over time. This also made it possible to estimate the fractions of disease attributable to these two exposures in the French general population (fractions of adult-onset asthma attributable to flour dust exposure and fractions of sinonasal cancer attributable to leather dust exposure).

Moreover, the effort to work in partnership with large private employers intensified to meet the requirements of the Public Health Policy Act, which promotes the development of epidemiologic surveillance systems in public and private companies, in relation with InVS.

Greater involvement in the work of the High Council for Occupational Risk Prevention

At the request of the DRT, DST participated actively in 2005 in the work of the occupational disease committee of the High Council of Occupational Risk Prevention (CSPRP, tripartite organism headed by the Minister of Labor).

At DRT's request, DST initially compared the IARC (International Agency for Research on Cancer) list of known or strongly suspected carcinogens with those included in the official tables of occupational diseases and presented this work to the committee in March 2005. A report on this topic is available at the InVS internet site (in French only: *Confrontation des cancérogènes avérés en milieu de travail et des tableaux des maladies professionnelles - Rapport InVS*, May 2005). Thereafter, DRT asked InVS to organize an expert committee to consider the revision or possible creation of new occupational disease tables. InVS therefore took charge, on an experimental basis, of the scientific expert assessment that must necessarily precede a possible revision of the French list of occupational diseases ("Table 43"). The DST proposed to CSPRP a memorandum of understanding specifying the procedures it planned to use to conduct this assessment, which is currently underway.

DST also presented to the committee the principal results of the COSMOP study, which analyzes mortality by cause and by industry in France.

Finally, it has been agreed that the DST will participate regularly in the work of the CSPRP occupational disease committee.

ALERT COORDINATING COMMITTEE

Since 2004, InVS has experimented with the implementation of a health surveillance system based on nonspecific data. While these data are not intended, when produced, to be used for health surveillance, their nature (from physicians in private practice, hospitals, and mortality records) and their accessibility from computer databases make them especially valuable for the development of new surveillance systems.

InVS also plays an important role in providing information to policy-makers: in 2005 it created a daily bulletin to inform them of the alerts underway. These

tools represent a notable advance in the early recognition of abnormal health phenomena and in providing information to health authorities.

OSCOUR, the emergency department network

In June 2004, this system began to collect and assess emergency room admissions data. Its organization continued in 2005. This year, 36 establishments participated in the network, 23 in Île-de-France and 13 in other regions. Each day, approximately 3000 adult visits and 1000 pediatric visits are reported. For each visit, data collected include age, sex, severity, medical diagnosis, and short-term outcome (hospital admission, transfer, discharge).

Two approaches are used to analyze the data: the first, a quantitative approach, takes into account the numbers of visits; the second looks qualitatively at the diseases and age groups of patients consulting in the emergency department. Data from this surveillance system cover several diseases: bronchiolitis, influenza-like illness, gastroenteritis, carbon monoxide poisoning, and fever. They can also be used in a more ad hoc manner, as was the case during surveillance of the viral meningitis epidemic in the Paris metropolitan region during the spring of 2005.

The value of these data is now firmly established. Accordingly, their collection will be extended as emergency departments progressively computerize their data collection and will include new establishments and regions in 2006.

SOS médecins/UMP: the emergency house-call network

Various groups of private-practice physicians maintain emergency call services and provide house-calls. Since June 2004, InVS has been receiving information from these groups for Paris. The data for each call list the sex, age, chief complaint, and postal code of residence.

This experiment confirms the relevance of the data recorded by these groups and validates the need to record the reason for the

call. This principle will therefore be extended to other groups. A protocol has been signed with the "SOS Médecin" federation that should lead to the signature of a national Memorandum of Understanding. It provides for the daily transmission to InVS of data from all 60 "SOS Médecin" groups. Implementation of the new surveillance system is planned for the first half of 2006.

Automated death certificate reporting

The first phase of the experiment with automated mortality reporting, set up with INSEE in June 2004, demonstrated the value of this information. It covered 147 municipalities that transmitted individual data on the deaths recorded each day: sex, decade of birth, date of death.

At the end of October 2005, the sample was extended to 1152 municipalities, that is, all of the computer-equipped vital status registries in France (including overseas territories). These municipalities account for nearly 70% of the daily deaths in France, approximately 1000 deaths a day.

The data transmitted daily by INSEE are made available to the regional epidemiology teams in real time, via a secure-access internet site.

Daily Alert Bulletin (BQA)

The BQA was created in October 2003, at the request of the Minister of Health. It contains a full record for each new alert and a regularly updated summary of existing alerts. This bulletin thus provides daily information for policy-makers so that they can implement the necessary measures of prevention and control for each health event and follow its progression. In 2005, 66 alert records were reported in the BQA. Infectious diseases accounted for 90% (48 from DMI, 11 from DIT), 7% of which came from the regions (CIRE).

This bulletin has proved to be an excellent means for fostering InVS's dialogue with the districts, which generate alerts, with policy-makers—especially the DGS—for implementing follow-up of management measures, and with the Minister's office for appropriate communications.

An important event of 2005 at the international level was the operational start of the ECDC. This new European organization began working in a difficult context. Its ambitions are initially limited to communicable diseases. Its prospects, however, look very bright. InVS has worked to position itself as an active partner of ECDC.

ECDC: NEWCOMER IN THE EUROPEAN LANDSCAPE

The ECDC was created rapidly and consensually in April 2004. It began operations in May 2005, under the direction of Zsuzsanna Jakab, a Hungarian civil servant with extensive experience at the European office of WHO.

The role of the center—housed on the campus of the prestigious Karolinska Institute of Stockholm—is to identify, assess, and communicate current and emerging threats posed by infectious diseases. ECDC is intended as a flexible structure for the coordination, collection, and distribution of information. It must serve as a "community source for advice, assistance, and independent scientific expertise" for the community institutions and also for Member States and citizens.

ECDC does not have regulatory jurisdiction. It is considered the "operator" of the epidemiologic infectious disease surveillance and control network established at the end of the 1990s by the Commission and Member States. The network, used for epidemiologic surveillance of dozens of diseases and as an early alert system intended to prevent and control them, supports ECDC's activities.

A RESPONSIVE ORGANIZATION AND OPERATION

Organization

Its institutional structure was set up quickly. The Management Board, composed of one representative of each Member State and representatives of the European Commission and Parliament, meets three times a year.

The advisory forum, which brings together representatives of technical bodies of Member States, meets four times a year. It functions as an interface between national surveillance centers and the ECDC at the same time as it provides the center with scientific support.

Some 60 people work at the ECDC today. Three scientific units are already operational: surveillance and communication, preparedness and response, and scientific advice. Two support units are also functioning: administration and information technologies.

Activities

In monitoring communicable diseases, the center may choose to bring together the twenty-odd European surveillance networks already in existence. The idea is to set up routine monitoring (basic indicators) for all diseases and more detailed surveillance for the priority diseases, currently being selected. HIV/AIDS and antibiotic resistance monitoring are already considered to be priorities. Integration at the center of microbiological expertise activities together with surveillance is under study.

In terms of alert and crisis preparedness, epidemic intelligence procedures have been set up, with in-house *ad hoc* organization. It also brings together the European Commission, Member States, and WHO. In 2005, a first plan of international health crisis management was tested. The organization of the European response to the threat of "avian flu" provided ECDC with an occasion to prove its usefulness.

The provision of scientific advice is also being organized. Expert panels are being constituted, with priority going to influenza. Calls for expression of interest were fruitful and testified to the European scientific community's desire to participate in ECDC.

InVS is strongly involved in ECDC's development: its executive director represents France on the Management Board and the head of the department of infectious diseases is an active member of the advisory forum. The participation of InVS workers in the many meetings and working groups organized by the center is highly appreciated, but demands substantial amount of time and effort. Since April 2004, InVS has seconded a scientist to ECDC. Two other scientists from InVS were also hired by the ECDC, including the head of its "preparedness and response" department.

An especially complex community context

ECDC, which was created at the moment of the enlargement that added ten new Member States, must now coordinate 25 countries with distinct surveillance systems.

Moreover, within the Commission, it reports to DG Sanco (Directorate-General for consumer and health protection), traditionally less powerful than the other directorates.

The other European agencies with which ECDC must work are relatively distant and at different stages of development. For example, the European Agency for the Evaluation of Medicinal Products (EMA) is well established in London while the European Food Security Agency (EFSA) in Parma is still coming up to speed.

Finally, the current situation of a blocked Europe, or at least a European impasse, is obviously unfavorable. Budgetary difficulties can be foreseen, and activities concerning emerging threats and bioterrorism that should have been launched with the adoption of the constitutional treaty are at best being deferred.

A promising start, a future to prepare

While the assessment of ECDC's first year of activity is positive, these efforts must be sustained.

In the current field of communicable diseases, ECDC must imperatively:

- consolidate its activities: numerous projects have been launched, mobilizing Member States: it is important not to disappoint them and to provide them with real additional value;
- maintain a virtuous balance between the activities of the center, those of WHO, and those of the Member States. WHO remains the legitimate international institution technically competent in the field of health surveillance and response to health threats that are, after all, universal. In addition, the international community having just adopted an *ad hoc* tool (the revised international health regulations), the center should

not develop at WHO's expense. Finally, since the Member States have substantial work to do with their own domestic health surveillance activities, ECDC must mobilize them wisely;

- anchor its credibility in its scientific production: the preexisting EC surveillance network had already led to improved practices, because of the sharing of expertise and preference given to scientific projects over political considerations. But the ECDC can go further still, with rapid scientific production (risk assessment, for example) and the development of shared methods;
- contribute to the creation of a common European culture, through its training, information, and communication activities.

ECDC may also enlarge its field of intervention. The regulation creating the center includes provision for revision of this jurisdiction (art. 31). It stipulates that an independent evaluation of its results be organized starting in May 2007. This evaluation will bear on the "possible need to extend the scope of its mission to other community public health activities, in particular health surveillance". Nonetheless, the extension of its activities to fields such as health surveillance and environmental health can only be envisioned if the task assigned in the field of communicable diseases is accomplished well.

Towards positive and constructive synergy between ECDC and InVS

Cooperation between InVS and ECDC will certainly be very effective in anticipating and judging the extent of current and emerging threats related to communicable diseases. Other synergies may also produce positive effects:

- pooling information useful for health surveillance (epidemic intelligence), through the consolidation of health surveillance information collected by the various Member States. English, French, and German institutions have already begun sending their daily observations to ECDC. Sharing and reconciling these isolated data is likely to enrich each information supplier considerably;
- reinforcement of the scientific foundations of opinions: Sharing the expertise of the different Member States and objective assessment of ECDC scientists will strengthen the scientific basis of the opinions of national agencies and help them remain independent of political considerations;
- development of research and better use of research funds. ECDC should make it possible to federate research paths proposed in different Member States. More effective intervention could therefore be envisioned at the level of the Community Research and Development Program—which is very well funded—for the selection of subjects for research projects and the organization of responses to calls for bids;
- the enhancement of specific French expertise, especially in the field of tropical diseases: France's colonial past and the existence of overseas territories make it a rather unusual Member State. French territories are vulnerable to tropical diseases and some scientific and operational institutions (Pasteur Institutes, IRD, etc.) are organized in networks covering every continent (except Antarctica). Other large countries (Great Britain and Germany, to a lesser degree) are also well equipped in this field but approach it with different traditions. The comparison of these institutions in a scientific framework could prove fruitful, especially in suspected crises.

The French Institute for Public Health Surveillance—a public agency reporting to the Ministry of Health, created by L. 98-535 dated 1 July 1998 to reinforce health surveillance and the safety of products intended for human use. Its missions were restated by the Public Health Policy Act of 2004.

InVS is responsible for:

- continuous surveillance of population health (populations in France and French populations overseas)
- detecting all threats to public health
- alerting the public authorities
- recommending all appropriate measures to control and prevent these threats
- bringing together, assessing critically, and promoting knowledge about health risks, their causes, and their changes over time
- conducting or supporting activities (investigations, studies, expert appraisals, etc.) to contribute to these health surveillance duties.

A WIDE-RANGING FIELD OF ACTION...

These tasks are performed in a far-ranging field that covers many different aspects of public health:

- infectious diseases (including HIV and hepatitis C infections, sexually transmitted diseases, and infectious foodborne risks such as listeriosis and salmonellosis), zoonoses (infectious diseases transmissible from vertebrate animals to humans), vaccine-preventable diseases (including meningitis and hepatitis B), nosocomial infections and antibiotic resistance, and imported respiratory infections (such as tuberculosis and legionellosis)
- environmental health—in other words, the effects of the environment on health: risks related to air pollution and exposure to chemical pollutants and ionizing radiation, waterborne risks, physical hazards, etc.
- workplace health, that is, risks of occupational origin: occupational cancers, effects of asbestos and the fibers used as substitutes for it, musculoskeletal diseases, use of chemical products, etc.
- chronic diseases and injuries: cancer, diabetes, nutrition, accidents and injuries...

InVS also conducts studies of risk behaviors (risk reduction in drug users) and studies targeted at particular populations (Abena study on poverty and nutrition).

...WITHIN A NETWORK OF HEALTH AGENCIES

InVS is one of the health agencies created during the 1990s to strengthen the capacity for independent expert scientific advice on public health issues.

Its orientation—both generalist and cross-sectional—leads it to collaborate regularly with most of the other health agencies:

- French agency for the security of health products (AFSSAPS)
- French food safety agency (AFSSA)
- High Health Authority (HAS)
- Institute of radioprotection and nuclear safety (IRSN)

- French blood agency (EFS)
- French biomedicine agency (formerly the French transplantation agency)
- French agency for environmental and occupational health security (AFSSET), recently created.

GREATER RESOURCES

InVS's resources have been strengthened in recent years to allow it to carry out its various tasks. Aside from the Directorate-General—to which the strategic mission, management control, and the Alert Coordinating Committee report directly—it is organized in six scientific departments:

- department of infectious diseases
- department of environmental health
- department of occupational health
- department of chronic diseases and injuries
- department of international and tropical diseases
- department of training and documentation;

and four transversal service departments:

- communications department
- financial, logistic, and economic department
- information systems department
- human resources department.

REGIONAL RELAYS

InVS depends for its action on regional and interregional teams. The 16 regional epidemiology teams (CIRE) are under the direct scientific supervision of InVS. Physically located within the regional health and social affairs bureaus, they conduct the field activities for InVS and transmit pertinent local information by leading the network of local participants. The CIRE also have close relations with the district health and social affairs bureaus (DDASS).

NUMEROUS PARTNERS

The national network of InVS partners constitutes another relay. It has several components:

- national reference centers (CNR): responsible for expert analysis of suspicious biological samples, assessed and financed by InVS since 2005
- morbidity registries
- networks for nosocomial infections control
- healthcare professionals—both hospital-based and in private practice (mandatory reporting of some diseases)
- hospital departments, for monitoring some diseases (such as whooping cough and hepatitis C)
- public and private analytic laboratories (surveillance of gonorrhea, invasive bacterial infections and meningitis, etc.)
- some networks of healthcare professionals, such as sentinel networks of general practitioners and the network of occupational physicians.

STRONG INTERNATIONAL PRESENCE

InVS is very active in European and international health networks. Until the European Center for Disease Prevention and Control (ECDC)—established in 2005—is fully up to speed, InVS continues to coordinate several European networks: EuroHIV (HIV/AIDS), EuroTB (tuberculosis), listeriosis, and APHEIS (health effects of air pollution). It also coordinates European information activities through the Eurosurveillance bulletin.

InVS also maintains close ties with WHO. It participates in different international networks, most especially the global epidemic alert and response network (GOARN). Working with the Ministry of Foreign Affairs, it also provides technical support to other countries.

InVS 2005, in a Few Figures

INVS ACTIVITIES

- Studies conducted in 2005: 25
- New studies begun in 2005: 21
- Reports published: 90
- Number of alerts covered in the 2005 BQAs: 80
- Number of issues of BEH published: 38
- Cooperation activities conducted abroad: 29
- Press releases issued: 25

INVS HUMAN RESOURCES

- Staff (full-time equivalents on December 31, 2005): 360
- New jobs created in 2005 to strengthen its capacities to fulfill its tasks: 5
- Distribution by occupation:
 - epidemiologists: 156
 - other scientists: 53
 - other occupations: 151

INVS FINANCIAL RESOURCES

- InVS operating budget (effective) in 2005:
45 491 507 €
- InVS investment budget (effective) in 2005:
1 571 344 €
- Increase in operating budget 2005/2004:
+ 45.2%
- Increase in investment budget 2005/2004:
+ 64.3%

NETWORKS AND PARTNERS

- Number of CIRE: 16
- CIRE staff (on 31/12/2005, in FTE-InVS): 50
- Number of CNRs: 62
- Budgetary resources allocated to CNRs (in million €): 8.8
- Number of disease registries: 41
- Budgetary resources allocated to (all) registries (in million €): 3.5
- Number of emergency departments participating in the OSCOUR network: 46
- Number of municipal vital records offices participating in the transmission of death certificates: 929
- Number of collaboration agreements and memoranda of understanding reached with partners: 256
- Number of States participating in EuroHIV and Euro TB: 52

Professor Gilles Brücker is the director of the InVS. The InVS is organized in six scientific departments and four transversal service departments. The InVS has a strategic mission. It also has a Board of Directors (22 members) and a scientific advisory board (17 members).

InVS regional activity is carried out through the 16 interregional epidemiology groups, under the scientific supervision of InVS and located within the regional health and welfare departments (DRASS): Dijon, Fort-de-France, Paris, Lyon, Marseille, Lille, Nancy, Rennes, Toulouse, Bordeaux, Saint-Denis de la Réunion, Rouen, Orléans, Nantes, Montpellier, and Clermont-Ferrand.

InVS is developing a network to collaborate with many partners who play a role in the surveillance of the health status of the French population. These include government offices, health professionals, national reference centers, disease registries, welfare agencies, hospitals, health professionals, and regional health observatories.

SCIENTIFIC DEPARTMENTS

Department of Infectious Diseases (DMI)

(70 permanent personnel). It is divided into five specific units:

- HIV, HCV, and sexually transmitted diseases
- enteric and foodborne infections and zoonoses
- vaccine-preventable infections
- nosocomial infections and antibiotic resistance
- airborne infections (legionellosis, tuberculosis) and imported diseases.

It also hosts two European programs: the European HIV-AIDS surveillance program, EuroHIV, and the tuberculosis surveillance program, EuroTB.

Department of Environmental Health (DSE)

(55 persons). It is organized in three functional units:

- methods and investigations unit, which, beyond methodological development, provides technical support for the regional epidemiologic teams and responds to extreme climate events
- risk knowledge and surveillance unit, which includes all of the national and international epidemiologic surveillance programs (air and health; toxic products and substances, and allergic and asthma diseases, etc.)
- information and statistics systems unit.

Department of Occupational Health (DST)

(35 persons). It is composed of three units:

- unit for surveillance of occupational health (PSST)
- unit dealing with the epidemiologic analysis of national databases and development of occupational health indicators (ABISAT)

- occupational exposure evaluation unit (EVEP).

DST is responsible for the epidemiologic surveillance of occupational risks: occupational cancers (especially asbestos-related mesothelioma), musculoskeletal disorders, occupational asthma, and mental health in the workplace. It is establishing basic tools that will make it possible to assess mortality by occupation and exposures associated with occupational factors.

Department of Chronic Diseases and Injuries (DMCT)

(50 persons). It is organized into three units and three programs:

- cancer unit, responsible for cancer surveillance and evaluation of screening programs
- nutritional epidemiology surveillance unit (USEN), a mixed unit staffed by personnel from InVS and from the institute for nutritional sciences and techniques (ISTNA)
- everyday accidents surveillance unit (household, sports, and hobbies)
- cardiovascular disease surveillance program
- diabetes surveillance program
- France Coag network, which monitors coagulation defects.

This department provides, jointly with INSERM, the technical secretariat for the national disease registries committee.

Department of International and Tropical Diseases (DIT)

(7 people). Its missions are principally transversal:

- manage the international surveillance for early detection of health events occurring abroad that might affect populations in France or French populations worldwide
- monitor tropical diseases such as malaria and dengue in metropolitan France and the overseas districts
- participate in activities and missions of the global epidemic alert and response network (GOARN) coordinated by WHO
- develop collaborations with analogous institutions in partner countries and conduct technical assistance activities at the request of the Ministry of Foreign Affairs.

Department of Training and Documentation

(15 persons). It is organized in two units:

- documentation unit, which makes available to all InVS personnel and to its network of correspondents, the documents necessary for their work
- training unit, which runs a tutorial program in field epidemiology and the IDEA course, in association with the national school of public health. It also organizes InVS participation in numerous training programs, university-based and otherwise.

DFD coordinates the Eurosurveillance project (bilingual newsletter of infectious disease surveillance in Europe).

AGENCY SERVICE DEPARTMENTS

Communications Department

(12 persons). In collaboration with the directorate-general, scientific departments, and agency service departments, it develops the external and internal communications policies for the Institute.

Its work is divided among three units:

- editing—publishing unit, which sees to the production of the assorted media in which InVS disseminates content
- Weekly Epidemiologic Bulletin (BEH)
- communication unit: external (including press relations, *Prévalence*, editorial responsibility for the Institute's website) and internal (Intranet...).

Financial, Logistic and Economic Department

(33 persons). It is divided into two sections, one unit, and management control:

- budgetary and accounting section, which develops the budget and ensures its execution
- logistic sections: purchasing, procurement, and logistics, which develops a purchasing policy ensuring the quality of competitive procedures and manages InVS real estate and the day-to-day life of the establishment
- program management unit, which works with the activity programs from their initial conception and ensures the legal aspects of their implementation and follow-up, in particular, all contracts and agreements
- management control section, which functions as an interface between the directorate-general and this department.

Information Systems Department

(20 persons). It has two units:

- administration and operations unit, which manages the computer and telephone systems, maintains them, and plans their future development

- design and development unit, which ensure the consistency of the systems, develops surveillance applications, and administers and develops the Internet and intranet sites as well as the databases necessary for health surveillance activities.

Human Resources Department

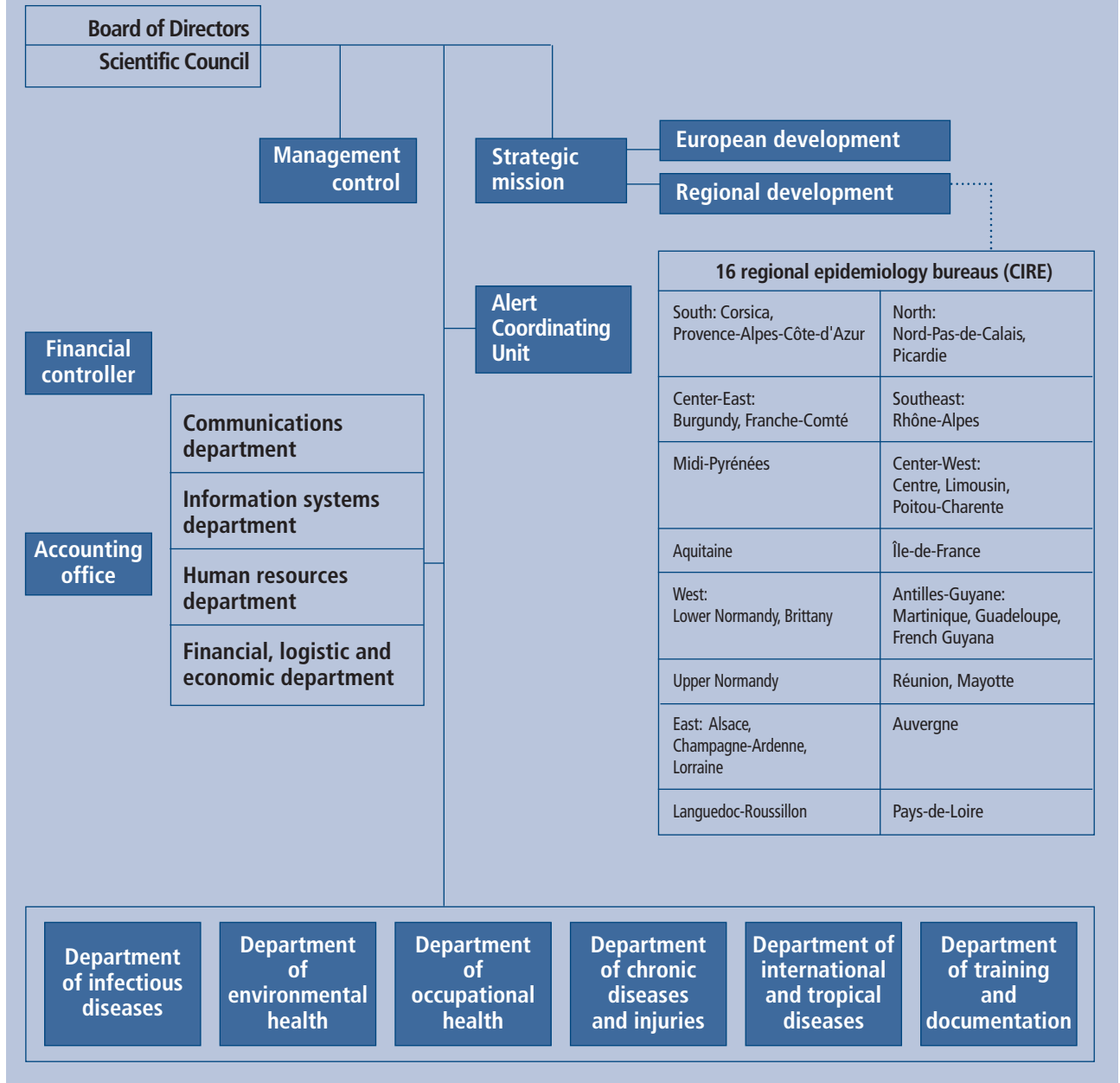
(9 persons). It helps to ensure that the Institute has a skilled and competent staff, through its policies in hiring, training, and continuing education. It is prepared to aid each employee in the management of his or her career and sets up, with the communications department, the in-house communications policy that ensures the agency's cohesiveness. It assists management in reaching decisions about human resource policies (social policy, mobility, evaluations, etc.).

STRATEGIC MISSION AND ALERT COORDINATING COMMITTEE

This 10-person unit reports directly to the director, and strategic mission staff represent him in a variety of settings. It implements regional development and coordinates European activities and the construction of the national public health network. It also conducts the follow-up and evaluation of the initial departmental contracts, in association with the department, and prepares subsequent contracts. It is also responsible, together with the information systems department, for developing the master plan for the information systems.

The Alert Coordinating Committee is responsible for the cross-sectional management of the Biotox plan and of vague alerts of undetermined origin. It works in liaison with all of InVS's departments and manages the surveillance system for non-specific events based on emergency room and mortality data. It produces the daily alert bulletin, which is forwarded to the Minister of Health and the Director-General of Health. It is setting up an experiment on the transmission of reports of serious adverse events associated with health care.

Directorate-General



Reports

JANUARY 2005

- Évaluation de l'action d'incitation au dépistage de la syphilis dans les consultations de dépistage anonyme et gratuit, Paris, mai - septembre 2002.

FEBRUARY 2005

- Évaluation de l'impact sanitaire de la pollution atmosphérique urbaine, zone de Montpellier. Impact à court et long terme.
- Maladies infectieuses et parasitaires à Mayotte. Proposition de dispositif d'alerte et de surveillance épidémiologique intégrés.
- Évaluation des risques sanitaires liés à l'exposition de forts consommateurs de produits de la pêche de rivière contaminés par des toxiques de l'environnement.
- Séroprévalence humaine autour des foyers porcins de brucellose à *Brucella suis biovar 2*, France 1933-2003.
- Conséquences sanitaires de la présence de lindane dans l'eau de distribution de la commune de Belgentier.
- Investigation d'une suspicion d'agrégat de cancers École Bignon, Mortagne-au-Perche (61).
- Investigation d'une suspicion d'agrégat de leucémies autour de Saint-Philbert en Mauges (Maine-et-Loire).
- Évaluation de l'impact sanitaire de la pollution atmosphérique urbaine. Agglomérations d'Angoulême, Niort et Poitiers. Impact à court et long terme.
- Surveillance épidémiologique suite aux inondations survenues à Arles. Décembre 2003 - janvier 2004.
- Dispositif de surveillance des intoxications au CO. Rapport d'évaluation de la phase expérimentale. Décembre 2004.
- Investigation de cas groupés de légionellose dans l'agglomération de Poitiers. Août - septembre 2003.
- Étude de la couverture vaccinale lors de la campagne de vaccination préventive contre le méningocoque C, Puy-de-Dôme, 2002.
- Surveillance de la maladie de Lyme. Réseau Limousin, Bulletin d'information n° 1. Période de surveillance du 1^{er} avril au 30 septembre 2004.

MARCH 2005

- Stockage des déchets et santé publique. Synthèse.
- La maladie de Lyme. Données du réseau de surveillance de la maladie en Alsace, mars 2001 - février 2003.

APRIL 2005

- Les malformations congénitales du petit garçon en Languedoc-Roussillon. Étude des cryptorchidies et des hypospadias opérés à partir des données du PMSI de 1998 à 2001.
- Étude des facteurs de risque de décès des personnes âgées résidant à domicile durant la vague de chaleur d'août 2003 - juillet 2004.
- Évaluation de l'impact de la vague de chaleur de l'été 2003 sur la morbidité hospitalière infantile.

MAY 2005

- Épisodes de syndromes irritatifs à l'école de Sandy Ground, Saint-Martin, Guadeloupe, janvier 2002 - avril 2004.
- Situation et évolution des apports alimentaires de la population en France, 1997-2003.
- Surveillance du VIH/sida en France - Rapport n° 2. Données au 31 mars 2004.
- Réseau expérimental de surveillance épidémiologique des troubles musculo-squelettiques dans les Pays de la Loire. Surveillance en entreprises en 2002.

JUNE 2005

- Projet Cosmop : Cohorte pour la surveillance de la mortalité par profession. Premiers résultats de l'étude de faisabilité à partir de l'échantillon démographique permanent.
- Bilan de la surveillance et de l'investigation des infections humaines à virus West Nile sur l'interrégion Sud en 2003.
- Évaluation de l'impact *a priori* de nouvelles stratégies vaccinales - Exemples de la vaccination contre la varicelle des adolescents et contre la coqueluche des jeunes adultes.
- APHEIS Health Impact Assessment of Air Pollution and Communication Strategy Third Year Report 2002-2003.
- Système d'alerte canicule et santé 2005 (Sacs).
- Étude des facteurs de risque de décès des personnes âgées résidant en établissement durant la vague de chaleur d'août 2003.
- Vers une intégration de la Guyane française au programme d'élimination de la rougeole dans les Amériques - Évaluation des activités de vaccination antirougeoleuse et anticoquelucheuse.
- Préparation à la lutte contre une pandémie grippale.
- Évaluation de l'exhaustivité de la déclaration obligatoire de la tuberculose en Limousin.

- Épidémie de fièvre Q dans la vallée de Chamonix (Haute-Savoie), juin - septembre 2002.
- Recommandations pour la surveillance et la lutte contre le charbon animal et humain - Guide méthodologique.
- Évaluation de l'impact sanitaire de la pollution atmosphérique urbaine. Zone d'Avignon. Impact à court et long terme.
- Guide méthodologique pour l'évaluation et la prise en charge des agrégats spatio-temporels de maladies non infectieuses. Mai 2005.
- Cas groupés d'hépatite A dans plusieurs communes des Landes. Octobre - novembre 2004.
- EuroHIV. HIV/AIDS Surveillance in Europe n°71.
- Surveillance de la tularémie chez l'homme en France 2003/2004.
- Surveillance des infections à *Campylobacter* en France. Bilan de surveillance du réseau de laboratoires de ville et hospitaliers (2001-2003).
- Enquête permanente sur les accidents de la vie courante. Résultats 2002-2003.

JULY 2005

- Stockage des déchets et santé publique.
- Observatoire des maladies à caractère professionnel "Les Semaines des MCP" dans les Pays de la Loire.
- Épidémie communautaire de légionellose - Pas-de-Calais, France, novembre 2003 - janvier 2004. Rapport d'investigation.
- Surveillance du paludisme en Corse, 1999-2002.

AUGUST 2005

- Ateliers pour la mise en place d'un PEV en Guyane, Cayenne, 9-11 février 2004. Recommandation pour la définition des stratégies et élaboration du plan d'action du PEV de la Guyane.
- Étude pilote pour l'établissement d'un mécanisme d'alerte rapide dans le domaine de la prévention des blessures.
- Establishing a rapid response mechanism within the injury prevention programme: a pilot study.
- Survenue de cas groupés d'hépatite A en Guyane - Rapport d'investigation. Proposition.
- Les accidents de la vie courante en France selon l'Enquête santé et protection sociale 2002.

SEPTEMBER 2005

- Cas groupés de tularémie, Vendée, août 2004.
- Dépistage du cancer du sein. Rapport d'évaluation du suivi épidémiologique. Données 2001 et 2002.
- Mortalité par cancer du poumon en France métropolitaine. Analyse de tendance et projection de 1975 à 2014.
- Surveillance of tuberculosis in Europe - EuroTB. Report on tuberculosis cases notified in 2003.

OCTOBER 2005

- Rapport annuel 2004.
- Mésothéliome pleural : professions et secteurs d'activité à risque chez les hommes à partir des données du Programme national de surveillance du mésothéliome (PNSM).

- Baromètre gay, résultats 2002.
- Analyse de la mortalité générale et par cancer des travailleurs et ex-travailleurs d'Électricité de France - Gaz de France.
- La surveillance épidémiologique des accidents de la circulation. Propositions et détermination des priorités.

NOVEMBER 2005

- Surveillance épidémiologique des noyades. Enquête noyades 2004, 1^{er} juin - 30 septembre 2004.
- Investigation d'une suspicion d'afflux massif de patients dans les services d'urgence du secteur sanitaire Nord, île de la Réunion - Octobre 2003.
- Épidémiologie de l'asthme à la Réunion : analyse de la mortalité (1990-1998) et de la morbidité hospitalière (1998-2002).
- Surveillance de la maladie de Lyme. Réseau Limousin. Bulletin d'information n° 2. Période de surveillance du 1^{er} avril 2004 au 31 mars 2005.
- Effets à court terme du contenu pollinique de l'air sur le risque de rhino-conjonctivite allergique. Résultats d'une étude pilote utilisant comme indicateur de santé la consommation de médicaments anti-allergiques. Clermont-Ferrand, 2000-2001.
- Base de données EV@LUTIL. Évaluation des expositions professionnelles aux fibres.

DECEMBER 2005

- Effets à court terme du contenu pollinique de l'air sur le risque de rhino-conjonctivite allergique. Résultats d'une étude pilote utilisant comme indicateur de santé la consommation de médicaments anti-allergiques. Clermont-Ferrand, 2000-2001.
- Étude des déterminants de la vaccination antigrippale chez le personnel des Centres hospitaliers de Vichy et Montluçon (Allier).
- Annual report 2004.
- Cas groupés d'infections respiratoires aiguës - Maison de retraite de Faulx - Meurthe-et-Moselle - Février-mars 2005.
- Évaluation de l'impact sanitaire de la pollution atmosphérique urbaine - Agglomérations d'Orléans et de Tours - Impact à court et long terme.

- Bilan social 2004.
- La surveillance épidémiologique de la grippe en France : renforcement des systèmes de surveillance. Bilan de la saison grippale 2004-2005.
- Canicule personnes âgées.

BEH

JANUARY 2005

- 1
 - Éditorial - Que retiendrons-nous des 52 numéros du BEH parus en 2004 ?
 - Évaluation de la pertinence du signalement des infections nosocomiales dans l'interrégion Nord, janvier 2002 - août 2003.
 - Recommandations aux auteurs, 2005.
- 2
 - Lésions précancéreuses et cancers du col de l'utérus diagnostiqués par le frottis cervical, Île-de-France, enquête Crisap, 2002.
 - Incidence et facteurs de risque de la séroconversion au virus de l'hépatite C dans une cohorte d'usagers de drogue intraveineux du Nord-Est de la France.
- 3
 - Comportements de prévention et dépistage du VIH chez les femmes en Nouvelle-Calédonie, 2002-2003.
 - Accidents de montagne sur la période estivale, France 2002-2003 : éléments statistiques descriptifs.
- 4
 - Conséquences des changements de codage des causes médicales de décès sur les données nationales de mortalité en France, à partir de l'année 2000.

FEBRUARY 2005

- 5
 - Surveillance de l'hépatite A en France au cours des vingt dernières années : les données actuelles ne permettent pas d'estimer le taux d'incidence.
 - Évaluation d'un système pilote de surveillance pour l'hépatite A, France 2001.
- 6
 - Surpoids et obésité chez les élèves de sixième scolarisés dans les collèges publics du département de la Haute-Savoie, septembre 2003.

- Portage rhinopharyngé de *Streptococcus pneumoniae* chez les enfants sains âgés de 2 à 24 mois, en Nouvelle-Calédonie, entre août 2002 et avril 2003.

- 7
 - Vaccination antitétanique chez les patients ayant consulté le Centre de vaccinations internationales et de conseils aux voyageurs de Strasbourg.
 - Conduite à tenir devant un ou plusieurs cas de coqueluche.
- 8
 - Éditorial - Faut-il vacciner les nourrissons contre la varicelle ? De la difficulté de la décision vaccinale.
 - Épidémiologie de la varicelle en France.
 - Appel à candidature pour la nomination des Centres nationaux de référence.

MARCH 2005

- 9-10. 8 mars - Journée internationale des femmes
 - Abus sexuels précoces et santé reproductive des femmes en Nouvelle-Calédonie, 2002-2003.
 - Violences envers les femmes et état de santé mentale : résultats de l'enquête Enveff 2000.
 - Pourquoi le nombre d'avortements n'a-t-il pas baissé en France depuis 30 ans ?
- 11. Numéro spécial VIH
 - Éditorial.
 - La prévalence de la séropositivité VIH en France.
- 12-13. Numéro thématique - Étude Entred : suite des résultats
 - Éditorial - Que nous apprend la diabéto-vigilance nationale ? Les données de l'étude Entred.
 - Prévalence des complications macrovasculaires et niveau de risque vasculaire des diabétiques en France, étude Entred 2001.
 - Rétinopathie et neuropathie périphérique liées au diabète en France métropolitaine : dépistage, prévalence et prise en charge médicale, étude Entred 2001.
 - Caractéristiques et état de santé des personnes diabétiques âgées et leur prise en charge médicale, étude Entred, 2001.

APRIL 2005

- 14
 - Investigation de cas groupés de légionellose dans la commune de Soulac-sur-Mer, France, 2004.

- Évaluation d'un protocole de contrôle des sérologies virales du patient-source lors des accidents exposant au sang, CHU de Saint-Étienne, 2001-2003.
- Modification des recommandations de prévention du paludisme : passage de sept pays d'Afrique en zone 3.

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- Dépistage du saturnisme dans une population d'enfants âgés de 12 à 20 mois ayant consulté dans un centre d'examen de santé de Paris, avril-septembre 2004.
- Bilan d'impact d'un réseau ville-hôpital "hépatites" après 12 ans d'activité, Maine-et-Loire, 1991-2002.

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- Investigation autour d'un cas importé de fièvre hémorragique Crimée-Congo en France, novembre 2004.
- Surveillance des bactériémies nosocomiales et communautaires en région Centre, 2000-2004.

MAY 2005

• 17-18. Numéro thématique - Le point sur la tuberculose

- Éditorial - La tuberculose reste d'actualité en France.
- Les cas de tuberculose déclarés en France en 2003.
- La tuberculose à Paris en 2003, situation actuelle et contribution du Service de lutte anti-tuberculose.
- Tuberculose chez les sans domicile fixe à Paris : mise en œuvre de la stratégie DOT, Directly Observed Therapy.
- Organisation de la surveillance et de la lutte antituberculeuse dans les prisons.
- La tuberculose à Londres : quelles réponses en terme de contrôle ?
- La tuberculose multirésistante en France : surveillance et prise en charge, 1992-2002.
- Évaluation des modalités de suivi thérapeutique des patients atteints de tuberculose à l'aide du logiciel TB-info, France, janvier 1996 - décembre 2003.
- Perspectives d'évolution de la politique vaccinale BCG en France.

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- Synthèse des évaluations d'impact sanitaire de la pollution atmosphérique urbaine, France, 1995-2002.
- Traitement chirurgical du cancer colorectal, évolution de l'activité des établissements, données du PMSI, France, 1998-2001.

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- Les usagers fréquents de cannabis, éléments descriptifs, France, 2004.
- Composition et caractéristiques de cannabis collectés auprès des usagers dans quatre sites en France, 2004.

• 21-22 Numéro thématique - Journée mondiale sans tabac, 2005

- Éditorial.
- Évolution de la consommation de cigarettes en France par sexe, 1900-2003.
- Tabagisme : estimation de la prévalence déclarée, Baromètre santé, France, 2004-2005.
- Baisse du tabagisme chez les adolescents : principaux résultats de l'enquête Escapad France, 2003.
- Les professionnels de santé face au tabagisme : résultats de l'enquête Baromètre santé médecins/pharmaciens, France, 2003.
- Rôles et actions efficaces des médecins généralistes dans le sevrage tabagique.
- Les indicateurs du tabagisme.
- Tableau de bord mensuel tabac : un outil réactif pour suivre l'évolution du tabagisme en France.

JUNE 2005

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- Prévalence des co-infections par le virus des hépatites B et C dans la population VIH+, France, juin 2004.
- Survie des patients atteints de sida diagnostiqués dans les hôpitaux parisiens : facteurs pronostiques et évolution, 1994-2001.
- Contaminations professionnelles par le VIH et le VHC chez le personnel de santé, France, situation au 31 décembre 2004.

• 24-25 Numéro thématique - Santé des voyageurs et recommandations sanitaires, 2005

- Éditorial.
- Recommandations sanitaires pour les voyageurs, 2005.
- Épidémiologie des pathologies au cours des voyages, revue de la littérature.
- Évolution de la chimiosensibilité du paludisme d'importation en France en 2003-2004.

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- Les légionelloses survenues en France en 2004.

• 27-28 Numéro thématique - Veille sanitaire : nouveau système, nouveaux enjeux

- Éditorial.
- Organisation expérimentale d'un nouveau système de veille sanitaire, France, 2004-2005.
- Intérêt de la surveillance de la mortalité dans une perspective d'alerte.

- Les systèmes de surveillance de la mortalité à l'étranger, deux exemples.

JULY 2005

• 29-30

- Calendrier vaccinal 2005 et autres avis du Conseil supérieur d'hygiène publique de France relatifs à la vaccination.

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- Déclaration obligatoire des hépatites B aiguës : résultats de la première année de surveillance, France, 1^{er} mars 2003 - 1^{er} mars 2004.

• 32

- Incidence des cancers de l'enfant en France, 1990-1999.
- Expérimentation francilienne en faveur de l'accès à la prophylaxie et aux soins bucco-dentaires.

• 33

- Signalements d'infections nosocomiales invasives à *Streptococcus pyogenes* en post-opératoire ou post-partum en France du 1^{er} août 2001 au 31 décembre 2003.
- Hépatite E, bilan d'activité du Centre national de référence des hépatites entéro-transmissibles, France, 2002-2004.

AUGUST 2005

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- Registre du cancer de Nouvelle-Calédonie, bilan de 15 années de surveillance, 1989-2003.
- Épidémie de trichophyties cutanées chez les judoka, pôle France d'Orléans, octobre 2004 - avril 2005.

SEPTEMBER 2005

• 35

- Enquête nationale de prévalence des infections nosocomiales, résultats sur la population des sujets âgés de 65 ans et plus, France, 2001.
- Mortalité, morbidité et coût des infections à rotavirus en France.

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- Évaluation de l'application du nouveau cahier des charges du dépistage du cancer du sein.
- Importation d'un cas de rage canine en Aquitaine : recherche et prise en charge des contacts à risque, août 2004 - mars 2005.

• 37-38 Numéro thématique - L'insuffisance rénale chronique

- Éditorial - Mieux connaître l'épidémiologie pour adapter la prise en charge.

- La prévalence de l'insuffisance rénale chronique terminale traitée par dialyse en France en 2003 : l'enquête nationale Sros - IRCT.

- Le Réseau épidémiologique et information en néphrologie (Rein) : un registre national des traitements de suppléance de l'insuffisance rénale chronique.

- Incidence et évaluation des traitements de suppléance de l'insuffisance rénale chronique dans sept régions françaises en 2003.

- Tendances et perspectives de la greffe rénale en France.

- Prévalence élevée de maladie rénale chronique à l'Île de la Réunion, Étude Rédia (Réunion - Diabète).

- Les points essentiels des recommandations de l'Anaes sur l'insuffisance rénale chronique.

OCTOBER 2005

• 39-40 Numéro thématique - Éradication de la poliomyélite : la situation en 2005

- Éditorial.
- Poliomyélite : état des lieux en France en 2005.
- Surveillance des entérovirus en France métropolitaine, 2000-2004.
- Confinement des poliovirus en laboratoire.

• 41-42

- Rougeole : déclaration obligatoire et nouvelles mesures vaccinales.

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- Inégalités de santé et comportements : comparaison d'une population de 704 128 personnes en situation de précarité à une population de 516 607 personnes non précaires, France, 1995-2002.
- Identification des freins au dépistage et à la prise en charge des patients infectés par le virus de l'hépatite C : Étude Gymkhana 1, France, du 9 au 12 décembre 2002.

NOVEMBER 2005

• 44-45 Numéro thématique - La surveillance épidémiologique des troubles musculo-squelettiques

- Éditorial - Les troubles musculo-squelettiques d'origine professionnelle : nouvelle épidémie.
- La situation épidémiologique des troubles musculo-squelettiques : des définitions et des méthodes différentes, mais un même constat.
- Le réseau pilote de surveillance épidémiologique des TMS dans les Pays de la Loire : objectifs et méthodologie générale.
- Surveillance en population générale du syndrome du canal carpien dans le Maine-et-Loire en 2002 et 2003.

- Les "Semaines des MCP" dans les Pays de la Loire, un observatoire des maladies à caractère professionnel.
- Les perspectives du réseau pilote de surveillance épidémiologique des TMS dans les Pays de la Loire : vers la constitution d'un programme national.

• **46-47 Numéro thématique –
Infection VIH-sida en France :
vision d'ensemble et spécificités
des départements français d'Amérique**

- Éditorial. Prévention, dépistage et accès aux soins restent les maîtres mots.
- Surveillance de l'infection à VIH-sida en France, 2003-2004.
- Les migrants africains au sein du dépistage anonyme du VIH, 2004.
- Analyse des motifs de sollicitation de VIH Info soignants en France, 1998-2003.
- Rencontre des partenaires masculins par internet et comportements sexuels à risque, Enquête ANRS-Presses gay 2004.
- Particularités de l'infection à VIH aux Antilles et en Guyane française en 2004.
- Les patients vivant avec le VIH-sida dans les départements français d'Amérique : résultats de l'enquête ANRS-VESPA, 2003.
- Vie de couple, vie sexuelle et prévention chez les hétérosexuels vivant avec le VIH-sida aux Antilles et en Guyane. Résultats de l'enquête ANRS-Vespa, 2003.

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- Infections sexuellement transmissibles et VIH : les partenaires sexuels sont-ils pris en charge en France ?
- Gestion d'une épidémie de grippe B dans un établissement de moyen séjour pédiatrique en mars 2005 : impact des nouvelles recommandations.

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• **49-50 Numéro thématique –
Les signalements d'agrégats de pathologies
non-infectieuses : investigations et réponses**

- Éditorial. Associer au mieux les populations.
- Signalements d'agrégats de cancer : comment sont-ils investigués ?
- Investigation d'un signalement d'agrégat de cancers de l'enfant à Saint-Cyr-l'École, octobre 2004.
- La dynamique sociale des mobilisations : l'exemple des antennes-relais de téléphonie mobile.
- Recensement des agrégats de pathologies non-infectieuses, France, 1997-2002.

• **51-52**

- Index par sujet des articles parus en 2005.
- Relecteurs des articles parus en 2005.

Prévalence

- 12 - Dossier "Loi de santé publique. Quel impact sur les missions de l'Institut de veille sanitaire ?". Juillet 2005.
- 13 - Dossier : La grippe aviaire sous haute surveillance. Octobre 2005.

Extrapol

- 25 - Pollution atmosphérique et personnes âgées : estimation des risques. Juin 2005.
- 26 - Pollution atmosphérique et personnes âgées : spécificités. Octobre 2005.
- 27 - Moisissures dans l'air intérieur et santé. Décembre 2005.

Eurosurveillance

- Vol. 10 (1-3) - Viral safety of blood. Janvier - Mars 2005.
- Vol. 10 (4-6) - Avril - Juin 2005.
- Vol. 10 (7-9) - 2003 Heat Wave. Juillet - Septembre 2005.
- Vol. 10 (10-12) - Rabies: a "neglected disease". Octobre - Décembre 2005.

MDO

- 7 - Surveillance de la rougeole. Juin 2005.
- 8 - Surveillance de l'hépatite aigüe A. Décembre 2005.

Lettre d'information

- 2 - Cohorte santé AZF. Juin 2005.

Appendixes

Abbreviations and Acronyms

ABENA	Food aid recipient study (Alimentation et état nutritionnel des bénéficiaires de l'aide alimentaire)	CSHPF	High council of public health in France (Conseil supérieur d'hygiène publique de France)
AFSSA	French food safety agency (Agence française de sécurité sanitaire des aliments)	CSPRP	High council of occupational risk prevention (Conseil supérieur de prévention des risques professionnels)
AFSSAPS	French agency for the security of health products (Agence française de sécurité sanitaire des produits de santé)	DARES	Office of information, research, and statistical studies (Direction de l'animation, de la recherche, des études statistiques)
AFSSE	French agency for environmental safety and health (Agence française de sécurité sanitaire de l'environnement)	DDASS	District health and welfare bureau (Direction départementale des affaires sanitaires et sociales)
AFSSET	French agency for environmental and occupational safety (Agence française de sécurité sanitaire de l'environnement et du travail)	DG SANCO	Health and consumer protection directorate-general
AIDS	Acquired immunodeficiency syndrome	DGS	Directorate-General of Health (Direction générale de la santé)
ALFÉDIAM	French diabetes conference (Congrès français de diabétologie)	DIT	Department of international and tropical diseases (Département international et tropical)
BEH	Weekly Epidemiologic Bulletin (Bulletin épidémiologique hebdomadaire)	DMCT	Department of chronic diseases and injuries (Département des maladies chroniques et traumatismes)
BQA	Daily alert bulletin (Bulletin quotidien des alertes)	DMI	Department of infectious diseases (Département des maladies infectieuses)
CANAM	National health insurance fund for self-employed workers (Caisse d'assurance maladie des professions indépendantes)	DRASS	Regional health and welfare bureau (Direction régionale des affaires sanitaires et sociales)
CAP-TV	Poison and toxicity monitoring center (Centre antipoison et de toxicovigilance)	DREES	Department of research studies, evaluation and statistics of the Ministry of Health (Direction de la recherche, des études, de l'évaluation et des statistiques)
CCA	Alert Coordinating Committee (Cellule de coordination des alertes)	DRT	Office of labor relations (Direction des relations du travail)
CIRE	Regional epidemiology bureaus (Cellule interrégionale d'épidémiologie)	DSE	Department of environmental health (Département santé environnement)
CNAM	National conservatory of arts and sciences (Conservatoire national des arts et métiers)	DST	Department of occupational health (Département santé-travail)
CNAM-TS	National health insurance fund for salaried workers (Caisse nationale d'assurance maladie des travailleurs salariés)	ECDC	European Center for Disease Prevention and Control
CNR	National reference center (Centre national de référence)	EFS	French blood agency (Établissement français du sang)
CNRS	National center for science research (Centre national de la recherche scientifique)	EFSA	European Food Security Agency (Agence de sécurité sanitaire des aliments), Parma
CO	Carbon monoxide	ELFE	French longitudinal study beginning in childhood (Étude longitudinale française depuis l'enfance)
COSET	Multi-risk multi-industry cohort (Cohorte multirisques, multisecteurs)	EMEA	European Agency for the Evaluation of Medicinal Products
COSMOP	Cohort for mortality by occupation (Cohorte pour la surveillance de la mortalité par profession)		

ENSP	National public health school (École nationale de santé publique)	INSERM	National institute for health and medical research (Institut national de la santé et de la recherche médicale)
EPAC	Permanent survey of home and leisure accidents (Enquête permanente sur les accidents de la vie courante)	InVS	National institute for public health surveillance (Institut de veille sanitaire)
EPIET	European Programme for Intervention Epidemiology Training	IRSN	Institute of radioprotection and nuclear safety (Institut de radioprotection et de la sécurité nucléaire)
FRANCIM	French cancer registry network (France-cancer-incidence et mortalité)	MATGÉNÉ	General job exposure matrix
GIS	Scientific interest group (Groupement d'intérêt scientifique)	OSCOUR	Emergency department surveillance data network (Organisation de la surveillance coordonnée des urgences)
GOARN	Global outbreak alert and response network	PACA	Provence-Alpes-Côte d'Azur
HAS	High health authority (Haute autorité de santé)	PASEPRI	Action plan for monitoring patients' exposure to ionizing radiation (Plan d'action pour la surveillance de l'exposition des patients aux rayonnements ionisants)
HBV	Hepatitis B virus	PNNS	National nutritional health program (Programme national nutrition santé)
HCV	Hepatitis C virus	PNSE	National environmental health plan (Plan national santé environnement)
HIV	Human immunodeficiency virus	SARS	Severe acute respiratory syndrome
HUS	Hemolytic uremic syndrome	STD	Sexually transmitted diseases
IARC	International Agency for Research on Cancer	UHC	University Hospital Center
IGAS	Inspection general of social affairs (Inspection générale des affaires sociales)	USEN	Nutritional epidemiology surveillance unit
INED	National demographic study institute (Institut national d'études démographiques)	WHO	World Health Organization
INPES	National institute for prevention and health education (Institut national d'éducation et de prévention pour la santé)		
INSEE	National statistics institute (Institut national de la statistique et des études économiques)		

INSTITUT DE VEILLE SANITAIRE
12 rue du Val d'Osne - 94415 Saint-Maurice Cedex - France
Phone : 33 (0)1 41 79 67 00 - Fax : 33 (0)1 41 79 67 67
<http://www.invs.sante.fr>

Issn : 1630-828X
Tirage : 600 exemplaires
Dépôt légal : Mars 2007
Imprimé par Labrador