

Carte Vitale 2 in French health insurance system

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Introduction

The “*Carte Vitale*” is the insurance card for France’s national health insurance (NHI). It enables automated and direct reimbursement to a beneficiary or health care provider from the individual’s primary health insurance fund. While its use is not mandatory, the *Carte Vitale* simplifies management of medical expenditures for the NHI system. The card is embedded with a microchip (also called a “smart card”) and contains the beneficiary’s basic social and medical insurance information, including the individual’s social security number (N° INSEE)¹ to which every French citizen is entitled at birth.

Originally introduced in 1998, there have been many technological modifications and updates, leading to the most recent generation used since 2008 called “*Carte Vitale 2*”. The main difference between earlier versions and the *Carte Vitale 2* is a photo of the beneficiary on the card, and additional electronic functions to allow the existence of electronic health records in the future along with other identification data. In addition, the card previously carried information for an entire family, simply declaring their eligibility for reimbursement of covered benefits under the French NHI system, whereas the *Carte Vitale 2* is for individuals (or his/her dependants, minors or spouse) only.

History

Background: Funding of Health Services^{1,2,3,4}

The NHI system (*l’Assurance Maladie*) under the social insurance system (*Sécurité Sociale*) in France covers an individual’s basic health care benefits. The system is managed through different mandatory health insurance funds or regimes, which are determined by an individual’s occupation (also called *Assurance-Maladie Obligatoire, AMOs*), and is primarily financed through employer and employee payroll deductions.

¹ Wikipedia, Caisse primaire_d’assurance_maladie <[http://fr.wikipedia.org/wiki/Caisse_primaire_d’assurance_maladie](http://fr.wikipedia.org/wiki/Caisse_primaire_d'assurance_maladie)>. Accessed 27 November 2013.

² L’Assurance Maladie En Ligne, AMELI <<http://www.ameli.fr/l-assurance-maladie/connaitre-l-assurance-maladie/missions-et-organisation/la-securite-sociale/histoire-de-l-8217-assurance-maladie.php>>. Accessed 27 November 2013.

³ Rodwin V. G. The Health Care System Under French National Health Insurance: Lessons for health reform in the United States. *American Journal of Public Health* (93) 1: 31-37, 2003.

⁴ Sandier S. V. Paris and D. Polton. Historical Background, Organizational Structure and Management. Chapters 1-3 from their report, *Health Care Systems in Transition: France*. Copenhagen. WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies, 2004. <<http://www.euro.who.int/document/e83126.pdf>>

There are three principal NHI funds that oversee the administration of insurance at the national level: the fund for salaried employees (*regime général*; approximately 84% of population), the agricultural fund (*Mutualité Sociale Agricole, MSA*; 7.2% of population), and the fund for independent professions and other self-employed workers (*Régime Social des Indépendants, RSI*; 5% of population). There are seven smaller plans for specific occupations are affiliated under the *regime général* and an additional 4 smaller funds. In addition, people not qualifying for any of the health insurance ‘funds’ by virtue of their profession or personal situation (i.e. unemployed people, [or low-income families and individuals]) are covered under the universal medical fund (*Couverture Maladie Universelle, CMU*), without premium payments for an annual income of 8,593€ for an individual or 18,045€ for a family of four.⁵ The CMU fund covers approximately 1.6% of the population, and is also overseen by the *régime général*.

Under the *regime général*, the *Caisse nationale de l'assurance maladie des travailleurs salariés* (CNAMTS or CNAM) oversees coverage of health insurance and workplace accidents. There are approximately 129 agencies in charge of local management, reimbursement of costs, and direct relation with beneficiaries (*Caisse primaire d'assurance maladie* (CPAM)); at a regional (department) level, there are 16 funds whose responsibilities range from work accidents and illnesses to control of hospitals.

In general, the compulsory NHI funds cover approximately 75% of the costs depending on the service (ranges from 60% for basic care to 100% for hospital visits) with the balance considered a copayment, which is waived for the elderly, disabled or impoverished.ⁱⁱ The remainder of the costs, as well as non-covered benefits, are either paid out-of-pocket by the individual directly (approximately 11% of expenditures) or covered by supplementary health insurance plans (*Assurance Maladie Complémentaire, AMC*; approximately 12.4% of expenditures), provided by non-profit mutual-aid societies (*Mutelles*) or private commercial companies. The annual fees for AMCs, which can range from 500€ to more than 1800€ per year and on average cost approximately 20% of a household's gross income on health, are usually paid for by an individual directly or their employer.

Previously, patients had to pay directly for the health services (i.e. doctor consultations, outpatient services and exams, prescription drugs) rendered at the visit. Afterwards, they obtain reimbursement from their local CPAM, and then their supplementary insurance plan if they have one. Previously, patients had to submit a paper proof of payment or claim (“*feuille de soins*”) to their local CPAM for reimbursement; however, it was decided in 1991 to switch to an electronic system, although this has taken years to become operational.

Emergence of the Carte Vitale

⁵ French-Propoerty.com, Couverture Maladie Universelle (CMU). <<http://www.french-property.com/guides/france/public-services/health/cmu/protection-complementaire/>>. Accessed 23 January 2014.

Founded in 1993 by the three principal NHI funds, the *Groupement d'Intérêt Économique SESAM-Vitale* (GIE SESAM–Vitale)ⁱⁱⁱ, is responsible for project supervision of the *SESAM-Vitale* system (*Système Électronique de Saisie de l'Assurance-Maladie*).^{iv} *SESAM-Vitale* is a program designed to make paperless billing for health insurance in France, based on the *Carte Vitale* card. Initially, switching from the paper-based system to a plastic smart card was expected to help “replace a huge quantity of paper records and save an estimated \$17 billion over a 10-year period;”⁶ in 1998, it was hoped to create an annual savings of two billion francs.⁷ Prior to launching this national system, a dozen local experimentations of health cards were already using similar smart card technology throughout France. Between 1994 and 1998, four pilot experiments were run (in Vitre, Boulogne and Lilliers, and Charleville- Mézières) with a total circulation of 550,000 cards, although each of the plans used different cards visually.⁸

Different Generations

Since its universal adoption of the current visual appearance in June 1997, the *Carte Vitale* has seen many different generations, which increasingly evolve with each new generation in terms of components and embedded functions.



*La Carte Vitale 1:*⁹ In April 1998, the first “familial” *Carte Vitale* cards were distributed in the region of Bretagne; it was not until July 1999 that all those eligible (37 million beneficiaries at the time) were in possession of the card. It contained the administrative data of the insured beneficiary, as well as all his/her eligible dependents (spouse and children) up to 19 recipients. This version of the *Carte Vitale* had only 4KB of memory, and like most smart cards, its duration only lasted 3 years. Since it was expected to be replaced at the end of the 20th century by *Carte Vitale 2*, along with a new “health component”, there were not fields containing the end date of one’s right to universal health coverage. From September 2001, the manufacturers began the distribution of “personal” cards, rather than familial, for all beneficiaries over the age of 16 years.

There have been several generations of *Cartes Vitale 1*: V1, V1bis and V1ter. “SCOT 400” was the name historically used to refer to the first generation (V1) of *Cartes Vitale* deployed from 1998 to June 2003. “IGEA” was the generic name for the second generation (V1bis) of *Carte Vitale* deployed starting in July 2003. The *IGEA 440* generation, used from 2004 to 2006, had a bug preventing the electronic signature or

⁶ Lassey ML, Lassey WR, and Jinks MJ (1997). *Health Care Systems Around the World: Characteristics, Issues, Reforms*; Prentice Hall, Upper Saddle River, NJ, 07458, USA.

⁷ Wikipedia, SESAM-Vitale <http://fr.wikipedia.org/wiki/SESAM-Vitale#GIE_SESAM-Vitale>. Accessed 27 November 2013.

⁸ SESAM-Vitale <<http://www.sesam-vitale.fr/nous-connaître/histoire.asp>>. Accessed 27 November 2013.

⁹ Wikipedia, Carte Vitale <http://fr.wikipedia.org/wiki/Carte_Vitale>. Accessed 6 November 2013.

blocking the card during updates in the terminals. As a result, nearly an estimated 2 million cards had to be replaced.^v In addition, these 2 generations of cards contain no physical or technological way to specify an end date of rights to coverage, therefore allowing permanent coverage.

In April 2004, the report of the General Inspectorate of Social Affairs explained that there were 10 million *Cartes Vitale* outstanding; in other words, 60 million had been issued when there were only 50 million cardholders 16 years or older. Therefore, the *Carte Vitale V1ter* generation was introduced to eliminate the problems with previous generations. Unlike the V1 and V1bis cards, the date of expiry is always present in a V1ter card.

However, the supply of chips of the older generation was not guaranteed after 2007, as card manufacturers could not keep outdated production lines to produce new *Carte Vitale 1* cards. In addition, after joining the *SESAM-Vitale* in 2000, the supplementary health plans expected to have a "complementary component" on the card, to help inscribe their necessary data for electronic claims.¹⁰

*Arrival of Carte Vitale 2:*¹¹ The appointed project of *Carte Vitale 2*, with a component for medical information, was something long discussed but slowly put into place.^{vi} After numerous postponements, Philippe Douste-Blazy (French Minister of Health) pledged that the *Carte Vitale 2* would be deployed in the last trimester of 2006 and then distributed until mid-2008. However, it was not until March 2007 that the first forms were sent to policyholders, and the first *Carte Vitale 2 cards* were delivered in May 2007. Similar to the *Carte Vitale 1* distributed ten years before, dissemination began in the Bretagne region for those individuals having no *Carte Vitale* (i.e. card was stolen, lost, or unusable, or minors aged 16 and new members), spread gradually to the region of "Pays de la Loire" and finally to the rest of France.

According to NHI funds, the cost of the card would be 2.20 €, plus 0.50 € for the photo, for a total of 2.70 € per *Carte Vitale 2* card. (The cost of the *Carte Vitale 1* was 3.66 € when it was launched in 1998.) The government designated 35 million Euros to the project of updating and adding photos.¹² However, this cost does not include the management fees in receptions of funds to help some insured beneficiaries to complete the application files of this card.

While updating one's card with a photograph was mandated in 2004, general rollout has been slowly achieved, and the card is far from being used widespread.^{vii} Between May 2007 and April 2008, only 1.9

¹⁰ Wikipedia, *Carte Vitale 2* <http://fr.wikipedia.org/wiki/Carte_Vitale_2>. Accessed 6 November 2013.

¹¹ Wikipedia, *Carte Vitale 2* <http://fr.wikipedia.org/wiki/Carte_Vitale_2>. Accessed 6 November 2013.

¹² French Sénat, *Projet de loi relative à l'assurance maladie* <<http://www.senat.fr/rap/a03-425/a03-4257.html>>. Accessed 27 November 2013.

million Carte Vitale cards were issued (nearly one million in 2007), whereas in previous years there were 1.5 million annual replacements for lost or stolen *Carte Vitale 1* cards. Although, by the end of 2007, more than 90% of the new cards issued by the different compulsory plans were *Carte Vitale 2* cards. By 2012, approximately 15 to 16 million updated cards with photograph had been produced, at an estimated cost excluding distribution of 177 million Euros, most likely pushing renewal of all the cards in distribution to another eight years.¹³ According to the 2011 SESAM-Vitale Annual Report, 20 million *Carte Vitale 2* cards with the insured's photo have been released since 2007 (4.5 million cards alone in 2011), followed by an additional 4.4 million cards distributed 2012.¹⁴

Since updating requires people to send in their photographs, rather than having the insured go somewhere in person to perform this operation, take-up has been slow. In one year, 30% of the 3 million people invited to send their photo had still not responded, and 20% of the 2 million requests received were unusable because of oversized photos.

Timeline of <i>Carte Vitale</i> Implementation and Generations	
1998	April: generic <i>Carte Vitale</i> card introduced
1999	July: 37 million cardholders ^{viii}
2001	September: Distribution of “personal” cards, rather than familial
2004	April: 50 million <i>Carte Vitale</i> cards, with an additional 10 million excess in circulation
2007	<i>Carte Vitale 2</i> introduced
2008	April: Only 1.9 million new <i>Carte Vitale 2</i> cards had been issued
2011	20 million <i>Carte Vitale 2</i> cards updated with photographs
2012	Additional 4.3 million <i>Carte Vitale 2</i> cards distributed; Total of 66 million cards updated
2013	<i>Current number unavailable</i>

Designer and Manufacturer

Although the card remains the property of the compulsory plans, *Carte Vitale* is managed and deployed by *GIE SESAM-Vitale*, as previously noted. This organization is therefore responsible for identifying the contracts for those organizations that manufacture and supply the cards.

The operating system (“masque”) was originally made by Bull-CP8, a subsidiary of Groupe Bull who specializes in the design and development of operating systems used in smart cards, in 1993.^{15,ix} However, starting in April 2004, Sagem Défense Sécurité developed the operating system of the new card. This

¹³ I-Med blog: Vers une carte Vitale 3? <<http://www.i-med.fr/spip.php?article458>>. Accessed 27 November 2013.

¹⁴ Rapport d'Activité 2012, SESAM-Vitale <<http://www.sesam-vitale.fr/pratique/catalogue/index.html>>. Accessed 23 January 2014.

¹⁵ Wikipedia, Carte Vitale <http://fr.wikipedia.org/wiki/Carte_Vitale>. Accessed 6 November 2013.

operating system is implanted on two components of 32KB of memory (compared to earlier generations with only 4KB of memory).

Carte Vitale 2 required the construction of a new "infrastructure of card issuance" ("portal of card issuance and management of orders of customization"). In May 30, 2006, Axalto and Gemplus International were chosen to provide the customized *Carte Vitale 2* cards. The contract was for a minimum of 8 million cards over an initial period of two years, renewable twice for a period of one year. ^x

Management of the back-office of *GIE SESAM -Vitale* was granted to Experian, associated with Sagem Défense Sécurité, on 17 June 2006. Their role is to process *Carte Vitale* requests received in the mail by scanning application forms and providing the scanned photos to the issuance portal. By contract, Experian must ensure the processing of 1.5 million cases every month within 24-48 hours; the contract is for a minimum of 24 million processed forms completed by the insured. ¹⁶

Present Situation

How Does It Work?

To use a *Carte Vitale*, a certificate of social security must be delivered to the individual's compulsory fund at their local CNAM office. This certificate acts as a paper attestation to the individual's right to coverage and is sufficient for reimbursement of care.

At the time of the visit, the healthcare provider swipes the *Carte Vitale* into a card reader (see image at right), similar to a credit or debit card. Previously, this enabled direct reimbursement from the fund to the patient's bank account within five days of the service. However, now once the card is verified, the doctor can bill the compulsory fund directly for reimbursement, and payment is sent directly to the provider from the insurance fund in contrast to direct payment by the patient ("*tiers payant*"). In addition, some providers also accept proof of the individual's supplementary insurance to bill those plans directly rather than the patient paying upfront first.



As part of an essential component of the *SESAM-Vitale* system, the card helps transmit a standard and secure billing flow for care benefits, including:

- of electronic care sheets (*feuilles de soins électroniques, FSE*) to the portals of the compulsory funds; and

¹⁶ Wikipedia, Carte Vitale 2 <http://fr.wikipedia.org/wiki/Carte_Vitale_2>. Accessed 6 November 2013.

- of electronic reimbursement claims (*demandes de remboursement électroniques, DRE*) to the portals of the supplementary health insurance plans.

This structure allows for the automated management of the invoicing/billing of care, while providing faster processing of applications for reimbursement of medical expenses as well as a decrease in administrative costs by the plans. In 2012, the system processed nearly 1.17 billion secured transactions for the compulsory funds and 11 million requests for electronic reimbursement to the supplementary plans, in relation to 306,000 health providers.¹⁷ Currently, there are 315,900 health providers in the SESAM-Vitale system.¹⁸

Who's Covered?

Carte Vitale is available to all individuals over the age of 16, who are also French citizens or those entitled and living in France; children under the age of 16 are included on the card of their parent or guardian.¹⁹ Those individuals over the age of 16, who are dependants of others (*ayant droits*), are listed on the social security and health insurance accounts of the main beneficiary but will have possession of their own *Carte Vitale* card. Minor dependents of child welfare (*l'aide sociale à l'enfance, ASE*) also have *Carte Vitale 2* cards with their own social security number.^{20,xi} In addition, those people who have moved to France permanently and have become residents for an uninterrupted period of 5 years or more,^{xii} who work in France more than 40 hours a month, or are full-time students under the age of 26 years can be eligible for the *Carte Vitale*.²¹ Valid throughout the life of the cardholder, assuming they remain eligible for health insurance coverage, the cards are free of charge and given by the compulsory funds to all of their beneficiaries.^{xiii} (Of note, except for production and distribution costs, the majority of costs for the GIE SESAM-Vitale system are funded by the compulsory (86%, or 64% for CNAMTS alone) and supplementary (14%) plans. Other “ad-hoc” expenses are supported by the General Assembly.)²²

The card may only be used within France; however, those French citizens working in the French Principality of Monaco do not have a *Carte Vitale* because they are attached to the *Caisse de Compensation des Services Sociaux (CCSS)*. *Carte Vitale* is also considered complementary to the European Health Insurance Card

¹⁷ Rapport d'Activité 2012, SESAM-Vitale <<http://www.sesam-vitale.fr/pratique/catalogue/index.html>>. Accessed 23 January 2014.

¹⁸ SESAM-Vitale, Les chiffres-clés de la facturation <http://www.sesam-vitale.fr/divers/chiffres/chiffres-cles_facturation-sv.asp>. Accessed 22 January 2014.

¹⁹ Carte Vitale, The French Health Insurance Card <<http://www.french-property.com/guides/france/public-services/health/health-card/>>. Accessed 11 November 2013.

²⁰ Wikipedia, Carte Vitale 2 <http://fr.wikipedia.org/wiki/Carte_Vitale_2>. Accessed 6 November 2013.

²¹ Wikipedia, Carte Vitale <http://fr.wikipedia.org/wiki/Carte_Vitale>. Accessed 6 November 2013.

²² Rapport d'Activité 2012, SESAM-Vitale <<http://www.sesam-vitale.fr/pratique/catalogue/index.html>>. Accessed 23 January 2014.

(eEHIC) when a cardholder is outside of the country.^{xiv} Recipients of state medical assistance (*l'aide médicale d'État, AME*) do not have a *Carte Vitale* and their data is retrieved from a paper certificate. Non-residents must use their country's insurance card, such as the European Health Insurance Card, or purchase private coverage while in France.²³

In addition, health providers also use a registered smart card (*Carte de Professionnel de Santé*, currently called the *CPS3*), whose use is theoretically limited to one individual, and must be used in conjunction with the patient's *Carte Vitale* in order to transmit billing information to Social Security,²⁴ or for direct reimbursement from the plans. Initially deployed to ambulatory care sector providers (mainly physicians and pharmacists), it has now been extended to inpatient care providers and all categories of health care personnel. In 2009, 84% of billing in the ambulatory care sector was transmitted electronically.²⁵ Also supplied by Oberthur Technologies, there were approximately 1.5 million of these cards in February 2011.²⁶

Components

The *Carte Vitale* is identical for all compulsory funds. Currently, the *Carte Vitale 2* contains the following information:^{27,28}



1. Visible data on the card (*see image at right*): Includes appearance of a “V” and an “L” in Braille, a serial number unique to the card, the date of issuance, and cardholder identification data (such as the individual's social security number (N° INSEE); his/her first and last names -- or if the applicant requests, their common name; a recent color photograph^{xv, xvi} including the face and bareheaded; and a sign of identification embossed on the card);²⁹

²³ Wikipedia, Carte Vitale <http://fr.wikipedia.org/wiki/Carte_Vitale>. Accessed 6 November 2013.

²⁴ Wikipedia, Carte Vitale <http://fr.wikipedia.org/wiki/Carte_Vitale>. Accessed 6 November 2013.

²⁵ Chevrel K et al (2010). France: Health System Review, *Health Systems in Transition* 12 (6), European Observatory on Health Systems and Policies. <http://www.euro.who.int/__data/assets/pdf_file/0008/135809/E94856.pdf>. Accessed 23 January 2014.

²⁶ The Smart Sense: *The Online Newspaper for SMART Technologies* <<http://thesmartsense.com/25375>>. Accessed 4 December 2013.

²⁷ Wikipedia, Carte Vitale <http://fr.wikipedia.org/wiki/Carte_Vitale>. Accessed 6 November 2013.

²⁸ L'Assurance Maladie, La Carte Vitale <<http://www.ameli.fr/assures/soins-et-remboursements/comment-etre-rembourse/la-carte-vitale/mettre-a-jour-votre-carte-vitale.php>>. Accessed 27 November 2013.

²⁹ Wikipedia, Carte Vitale 2 <http://fr.wikipedia.org/wiki/Carte_Vitale_2>. Accessed 6 November 2013.

AND

2. The card also has the capability to enter the following data electronically through the bar code located on the back of the card:
 - All data mentioned above, as well as the period of validity of the card, the name of the cardholder if different from commonly used name, other names if applicable, date of birth, address and digitized photograph identical to the one on the card;
 - Entitlements and information under basic health insurance through their compulsory fund;
 - Physician of choice of the cardholder (*médecin référent*). If a patient is registered and part of a health care group, their rate of refund will be higher;
 - Where appropriate and subject to consent, the circumstances of the cardholder under his supplementary health insurance plan (i.e. rights to *couverture maladie universelle complémentaire (CMUC)*);
 - Where appropriate, rights to any exemption from co-payment if you have the title of a long-term illness (*affection de longue durée, ALD*),^{xvii} maternity, accidents at work, etc. This includes the situation of the cardholder in matters of occupational accidents or diseases, including the last recognized occupational diseases or sicknesses;
 - Data on access to care in case of stay or residence in another EU Member State or party to the European Economic Area (*currently not activated*);
 - Details of a person to contact in case of an emergency, if the cardholder gives consent (*currently not activated*); AND
 - An indication that the owner has been informed of the provisions and regulations regarding organ donation (*currently not activated*).

If there are any changes in circumstances (i.e. pregnancy, birth, long-term diseases (ALD), etc.), the *Carte Vitale* can be updated in an online terminal, present at all pharmacies, the counter of local CPAM, or in some healthcare facilities; in addition, updates can be mailed to individual health plans if the cardholder is immobile. In 2012, there were 41,350 places to update cards, mostly in the pharmacies, and this resulted in 66 million cards being updated online.³⁰ Currently, there are 46,400 active and approved locations to update, resulting in more than 5 million attempts per month by cardholders to update.³¹

³⁰ Rapport d'Activité 2012, SESAM-Vitale <<http://www.sesam-vitale.fr/pratique/catalogue/index.html>>. Accessed 23 January 2014.

³¹ SESAM-Vitale, Les chiffres-clés autour de la carte Vitale <http://www.sesam-vitale.fr/divers/chiffres/chiffres-cles_carte-vitale.asp>. Accessed 22 January 2014.

Since 2007, the *Carte Vitale* must be updated each year after its date of issue.^{xviii} If this is not done, cardholders cannot benefit from the advanced exemption of fees for benefits in kind of health insurance (in other words, people can be exempt for paying fees for services prior to billing, if they present updated cards showing health coverage, rather than paying first and submitting for reimbursement). In addition, during an update, and if eligibility of health insurance has expired, the *Carte Vitale* can be deactivated to prohibit use at health providers' offices; it can be reactivated later if the rights are opened again.³²

The NHI funds are currently responsible for replacing stolen, damaged or lost cards for free. In 2004, the Department of Social Security proposed that the cost of replacing lost cards should be borne by the respective insured beneficiary. This measure, although ultimately rejected by Parliament, would have yielded an estimated 4 to 12 million Euros per year, taking into account only the cost of the cards or the total replacement procedure respectively. Now, the declaration of loss of passport, an identity card or the *Carte Vitale* can be performed online via <[Mon.service-public.fr](http://mon.service-public.fr)>, a web portal of French administration created in early 2009 to simplify the process.

*Security Features:*³³ In March 2005, Jacques de Varax, Director of *GIE SESAM –Vitale*, explained that the *Carte Vitale 2* "will be the key to safe personal health" (in other words, the personal health record).^{xix} In effect, it was expected that the card would be able to contain authentication and signature certificates to ensure the electronic signature functions properly, to protect access to the card's information, and to authenticate the card as the cardholder's health insurance card. For these purposes, the *Carte Vitale 2* includes an "IAS" component (identification, authentication and signature), but it is currently not enabled.^{xx} The Department of Social Security (*DSS*) estimated that the costs of implantation of authentication certificates in the *Carte Vitale 2*, and management of the Public Key Infrastructure (*l'Infrastructure à clés publiques, IGC*), would have been 50 to 130 million euros per year for the first five years. (For each card, the annual cost of such certificates would be 0.85€ to 2.2€.)

*Payment History (l'Historique des Remboursements):*³⁴ Since 2007, physicians can access online all care, medications and tests their patients have received, and that had been reimbursed by health insurance regimes, for the previous twelve months, with the goal of avoiding drug interactions and duplicate exams.^{xxi} Non-reimbursed medicines (i.e. contraceptive pills, drugs advice) as well as those provided by hospital pharmacies were not available. This consultation requires the joint presence of the *CPS* Health Professional

³² L'Assurance Maladie, La Carte Vitale <<http://www.ameli.fr/assures/soins-et-remboursements/comment-etre-rembourse/la-carte-vitale/mettre-a-jour-votre-carte-vitale.php>>. Accessed 27 November 2013.

³³ Wikipedia, Carte Vitale 2 <http://fr.wikipedia.org/wiki/Carte_Vitale_2>. Accessed 6 November 2013.

³⁴ Wikipedia, Carte Vitale <http://fr.wikipedia.org/wiki/Carte_Vitale>. Accessed 6 November 2013.

Card and the *Carte Vitale* of the patient.^{xxii} In 2012, there were 4.3 million authentication requests to view payment history.³⁵

The Court of Audit in France, in its report published in September 2008, said that the estimated cost for this project for the period 2005-2008 would be about 10 million euros for CNAM, a million for the social plan for independents (RSI) and a few hundred thousand euros for the agricultural Mutual Assistance (MSA) and the public service unions.

Pharmaceutical Record:^{36,37} "Babusiaux" experiments aim to analyze patterns of drug consumption of insurance members to officially improve the quality of care and generate savings.^{xxiii} Therefore, the *Carte Vitale* can also be used since 2009 at a national level, in those pharmacies that are connected, to supply the contents of the pharmaceutical record.^{xxiv} Pharmacists identified by their *CPS* card have access to the last four months of drugs dispensed in different pharmacies connected to the portal helping to prevent duplicate prescriptions and unwanted drug interactions. Unless stated otherwise by the patient, all the dispensed drugs reimbursed or not will be listed. (Hospital delivery is excluded from this project.)

This information is located on a site whose main contractor is the National Council of the Order of Pharmacists (*le Conseil national de l'Ordre des pharmaciens, CNOP*). Archives are kept for the past three years use by the host Santeos.

In practice however, for identifying pharmacy records, the social security number is not used. The *SESAM-Vitale* software of pharmacies is backed by reading the *Carte Vitale*, which then serves to generate a temporary identifier, the number of pharmaceutical record (*le Numéro du Dossier Pharmaceutique, NDP*). Experts believe it will take at least five years for the unique health identifier to be operational and replace this temporary identifier.

*Fraud:*³⁸ Currently, much of the existing fraud relates to paper certificates and forged prescriptions. To fight against this, since June 2004, pharmacies' software operate a national list of those *Carte Vitale* cards that are in opposition.^{xxv} This "liste d'opposition électronique" (LOE) contains the serial numbers of all *Carte Vitale* cards put in opposition of the compulsory funds if it has been reported lost or stolen (to avoid usage of

³⁵ Rapport d'Activité 2012, SESAM-Vitale <<http://www.sesam-vitale.fr/pratique/catalogue/index.html>>. Accessed 23 January 2014.

³⁶ Wikipedia, Carte Vitale <http://fr.wikipedia.org/wiki/Carte_Vitale>. Accessed 6 November 2013.

³⁷ Chevreur K et al (2010). Ibid.

³⁸ Wikipedia, Carte Vitale <http://fr.wikipedia.org/wiki/Carte_Vitale>. Accessed 6 November 2013.

the duplicate card), has been subject to misuse, or if it is invalidated by the regime who issued it.³⁹

Previously, the manufacturer either mailed an updated list each month directly to the pharmacists or sent an update to a technical hub (*l'organisme concentrateur technique, OCT*) between the 18th and 22nd of each month, which then forwarded the list to pharmacists.^{xxvi} Since March 2009, following a national convention of pharmacists^{xxvii}, the list of opposition for *Carte Vitale* changed, and is now incremental and must be downloaded every day.

Currently, the LOE only applies to pharmacists, but there could possibly be an extension to all health providers following new agreements at future conventions. A new law, proposed by the National Assembly,^{xxviii} would allow the director of the local *CPAM* to impose a financial penalty against those health providers, institutions and insured who had committed fraud, and would depend on the severity of such fraud.⁴⁰

Future Development

Integration with Personal Health Records and Care Coordination Pathway

Ahead of most other countries, France has long used smart cards for keeping electronic medical records; “more than one-half million were in use in 1994”⁴¹ and were expected to be integrated with the *Carte Vitale* system. With the passage of the *Act of Health Insurance Reform* in August 2004, the country has made more of an effort to improve quality of care while also fighting against abuse and waste. However, while the capacity to hold much of the proposed information exists within the current generation of *Carte Vitale 2*, the majority of these integration have yet to be activated to date.

Health Component:^{42,43} Early in the *SESAM-Vitale* program, a health component was expected to be quickly added to the new *Carte Vitale* to help group information gathered by outpatient and inpatient providers. In other words, a mini-electronic, portable medical record (*carnet de santé*) was to replace the paper health record to aid with the continuity and coordination of care, as well as define the content of the health component and the conditions of access for different categories of health providers.^{xxix} The decision to

³⁹ Vitale Infos Equipements : La Liste d’Opposition des Cartes Vitale chez les pharmaciens (2004)

<http://www.ameli.fr/fileadmin/user_upload/documents/pharmaciens_loe_br.pdf>. Accessed 27 November 2013.

⁴⁰ French Sénat, Projet de loi relative à l’assurance maladie <<http://www.senat.fr/rap/a03-425/a03-4257.html>>. Accessed 27 November 2013.

⁴¹ Lassey ML, Lassey WR, and Jinks MJ (1997). Ibid.

⁴² Wikipedia, Carte Vitale <http://fr.wikipedia.org/wiki/Carte_Vitale>. Accessed 6 November 2013.

⁴³ Chevreur K et al (2010). Ibid.

include this information is determined by the patient on a voluntary basis, but was offered along with financial incentives (increase in reimbursement rates for those opting in, or increased co-payments for those who opt out). In May 2006, the specifications of the *SESAM- Vitale* software integrated the management of the Coordinated Care Pathway. The personal medical record will contain health information (allergies, test results, current medications , etc.); created and updated by the physician of his choice, this record will be computerized, in strict compliance with the medical confidentiality. Following the delay of the *Carte Vitale 2* program, as well as the announcement of the generalization of the Personal Medical Record for 1 July 2007, this health component became obsolete. Instead, the new *Carte Vitale 2* contains a reduced "medical component".^{xxx}

In September 2006, it was announced that the new *Carte Vitale 2* would also allow the integration of new services (i.e. declared doctors, organ donation, etc.). This includes mention of the care coordination pathway along with the physician of choice for treatment (currently only their General Practitioner), monitoring and orientating the care system for each insured person aged 16 and older.^{xxxi} The mention of "declared attending physician" should have been integrated into the *Carte Vitale 2* by mid 2007, as well as an indication that the cardholder "is aware of the regulatory provisions on organ donation", but there was nothing as of March 2009.⁴⁴

*Emergency Component.*⁴⁵ The Health Insurance Reform Act also planned for the *Carte Vitale* to contain details of the person to contact in case of need; in other words, it would include an emergency component "in order to receive the necessary information for urgent interventions" so that health providers can complement care after the express consent of the cardholder. However, this too has not been integrated as of 15 March 2009.

Connection with Other Smart Cards⁴⁶

Carte DUO: Following recommendations in the Babusiaux report, the French Federation of Insurance Companies (*Fédération Française des Sociétés d'Assurances, FFSA*) began an experiment with a smart card *DUO*, developed by *GIE SESAM –Vitale* and supplied by *Oberthur Technologies*. This microchip located on the supplementary health insurance card contains an administrative component to modernize direct payment to health providers by making transactions more secure. It started in June 2007 in the department of Bouches-du-Rhone (conducted by insurers SOGAREP, AMIS, Aviva, AXA, GAN, Groupama and MMA), and gradually extended to Calvados, the Deux-Sèvres, in the Seine-Maritime, in the

⁴⁴ Wikipedia, Carte Vitale 2 <http://fr.wikipedia.org/wiki/Carte_Vitale_2>. Accessed 6 November 2013.

⁴⁵ Wikipedia, Carte Vitale 2 <http://fr.wikipedia.org/wiki/Carte_Vitale_2>. Accessed 6 November 2013.

⁴⁶ Wikipedia, Carte Vitale <http://fr.wikipedia.org/wiki/Carte_Vitale>. Accessed 6 November 2013.

Var and in Vienna. However, this card remains experimental, as currently the majority of those individuals possessing supplementary insurance have paper “*Carte de Tiers-Payant*” instead.

In 2007, 55,000 *cards DUO-FFSA* were delivered, with 140,000 total cards to be distributed in the pilot.⁴⁷ This card, sent directly to the insured by the insurer, does not need to be updated at least once per year like the *Carte Vitale* cards and does not contain a photo identification. It therefore reflects the true situation of the insured and beneficiaries. The insurer, in the event of non-payment of the contract, may be put into opposition. It is often used in conjunction with the *Carte Vitale* by pharmacists equipped with new billing software. The tests began with the third-party payer pharmacy, then for radiology, and then to other health providers. The cost is borne exclusively by the supplementary insurance agency, and was estimated in 2005 at about 2.20€.

NETC@RDS:⁴⁸ The European electronic health insurance card (e-EHIC; or *La carte électronique européenne d'assurance maladie, e-CEAM*) is the electronic version of the European Health Insurance Card. (5.2 million EHIC cards were distributed in 2011, followed by an additional 5.4 million in 2012.)⁴⁹ This project, announced in 2010, offers the ability to progressively make paperless all forms of support; without this service, mobility of insured Europeans throughout the European Union would be prevented. It enables access to health care and guarantees the payment of medical bills performed in different European health institutions, if the European citizen provides evidence of their entitlement to coverage.

The European NETC@RDS consortium (Germany, Austria, Finland, France,^{xxxii} Greece, Hungary, Italy, Liechtenstein, Norway, Netherlands, Poland, Czech Republic, Romania, Slovakia, and Slovenia) is responsible for the development of this electronic card. The NETC@RDS portal contains the following information:

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- Acquisition of the identification data of the patient by scanning the EHIC card or directly reading in the *Carte Vitale* terminal;
 - Secure verification of online rights on the NETC@RDS portal;
 - Editing a NETC@RDS electronic form; AND
 - Exchange of data between the health facility and the European Agency for the financial management of care.
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⁴⁷ Oberthur Technologies, Health Solutions: ID-ONE Health (2010) <oberthur.se/get_downloadsection_file.aspx?id=113>. Accessed 3 December 2013.

⁴⁸ NETC@RDS: A Step towards the Electronic EHIC <<http://www.netcards-project.com/web/frontpage>>. Accessed 27 November 2013.

⁴⁹ 2011 and 2012 Rapport d'Activité, SESAM-Vitale

Starting in 2002-2003, the first step, called "Phase A1", consisted of a feasibility study with five partners from four different countries. The next phase in 2004-2006 (Phase A2-A3) expanded to 85 European hospitals (including the Georges-Pompidou European Hospital); the project involved twenty partners from ten countries. Finally, the third phase "B" started in June 2007 and was completed in 2009. In 2008, new service outlets were opened in France (Saint Roch Hospital in Nice, Deaconess Clinic in Strasbourg) and in Germany (Lorach). The objective of Phase B was to deploy and evaluate a trans-European tele-service for paperless management of care. There are currently 206 facilities (hospitals and clinics) and around 500 points of service participating, located in 16 EU countries.

In theory, cardholders present either an electronic EHIC or their own national electronic health insurance card to verify to the participating health provider that they have approved health insurance coverage. While *Carte Vitale 1ter and 2* cards contain components reflecting data on whether the cardholder possess E128, E112 and E111 forms and an optional NETC@RDS component, these have currently not been activated.

In addition, it is difficult to deploy an interoperable system while each European country presents specific constraints in terms of technology or structure of its health information systems system. Some states have launched their own national program for electronic health cards, similar to France's system with *SESAM-Vitale*. Others have their own electronic health card; for example, Germany has the eHealth card launched in 2008 by AOK (Allgemeine Ortskrankenkasse), the Lombardy region in Italy has the SRS-CISS card (or the "Carta Regionale dei Servizi, which is a card of services including health), Austria has an ecard, and Belgium has the SIS card.

What's Next? In 2012, presidential candidate Nicolas Sarkozy proposed launching a new biometric *Carte Vitale (Carte Vitale 3)* to curb benefit fraud, similar to how French passports and identity cards were updated with biometric systems.⁵⁰ However, how this would be accomplished remains unclear since Sarkozy lost the election.

While the new *Carte Vitale 2* card clearly has begun to improve security, reduce fraud and simplify integration of medical services, distribution still needs to be more widespread nationally. In addition, many of the card's more technologically-advanced measures need to be activated to take full advantage of its potential. Once these steps have been taken, a discussion on future steps may be more realistic.

⁵⁰ I-Med blog: Vers une carte Vitale 3? <<http://www.i-med.fr/spip.php?article458>>. Accessed 27 November 2013.

List of Acronyms

- ALD:** *Affection de Longue Durée*
- AMC:** *Assurance Maladie Complémentaire*
- AME:** *state medical assistance (l'Aide Médicale d'État)*
- AMO:** *Assurance-Maladie Obligatoire*
- ASE:** *l'Aide Sociale à l'Enfance*
- CCSS:** *Caisse de Compensation des Services Sociaux*
- CMU:** *Couverture Maladie Universelle*
- CMUC:** *Couverture Maladie Universelle Complémentaire*
- CNAMTS or CNAM:** *Caisse Nationale de l'Assurance Maladie des Travailleurs Salariés*
- CNOP:** *le Conseil National de l'Ordre des Pharmaciens*
- CPAM:** *Caisse Primaire d'Assurance Maladie*
- CPS:** *Carte de Professionnel de Santé*
- DRE:** *Demandes de Remboursement Electroniques*
- DSS:** *Department of Social Security*
- eEHIC:** *electronic-European Health Insurance Card (also called *La carte électronique européenne d'assurance maladie, e-CEAM*)*
- FFSA:** *French Federation of Insurance Companies (Fédération Française des Sociétés d'Assurances)*
- FSE:** *Feuilles de Soins Electroniques*
- GIE SESAM–Vitale:** *Groupement d'Intérêt Économique SESAM-Vitale*
- IGC:** *Public Key Infrastructure (l'Infrastructure à Clés Publiques)*
- INSEE code:** *Social security number issued by l'Institut National de la Statistique et des Etudes Economiques*
- LOE:** *Liste d'Opposition Electronique*
- NDP:** *le Numéro du Dossier Pharmaceutique*
- NHI:** *national health insurance*
- OCT:** *technical hub (l'Organisme Concentrateur Technique)*
- SESAM-Vitale:** *Système Électronique de Saisie de l'Assurance-Maladie*

ⁱ The individual's social security number (N° INSEE) usually takes the following format, although there are exceptions:
“*syymmllloookk cc*, where:

- *s* is 1 for a male, 2 for a female,
- *yy* are the last two digits of the year of birth,

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- *mm* is the month of birth, usually 01 to 12,
 - *ll* is the number of the department of origin (2 digits, or 1 digit and 1 letter in metropolitan France, 3 digits for overseas),
 - *ooo* is the COG number of the [commune](#) of origin with a department (3 digits in metropolitan France or 2 digits for overseas),
 - *kkk* is an order number to distinguish people being born at the same place in the same year and month, given by the *Acte de naissance*, and
 - 'cc' is the "control key" (01 to 97, equal to 97, or to 97 if the number is a multiple of 97)."

[Wikipedia, INSEE code <http://en.wikipedia.org/wiki/INSEE_code#National_identification_numbers>. Accessed 4 December 2013.]

ⁱⁱ Amounts reimbursed to patients are calculated on the basis of negotiated rates minus a copayment, depending on the kind of service. However, close to one third of French physicians have opted to charge fees in excess of the nationally negotiated charges, and these additional charges may be (partially) covered by a patient's supplementary plan. (Rodwin V. G. and S. Sandier. Health Care Under National Health Insurance:

A public-private mix, low prices and high volumes. *Health Affairs* (12) 3:113-131, 1993.)

ⁱⁱⁱ SESAM-Vitale (www.sesam-vitale.fr) is an enterprise that responds to the project management needs between health insurance plans regarding the operation of the SESAM-Vitale program, and is coordinated by the National Health Insurance Fund for Salaried Workers (CNAMTS) through its Department SESAM-Vitale (DSV). Its members are composed of both agencies offering mandatory or compulsory health insurance; and contains representatives of health providers, health facilities and governmental ministers on its steering committee.

^{iv} Created by the Act of 27 January 1993.

^v However, replacement of cards that were lost, stolen, or unusable or with this malfunction (*IEGA 440 component*), were expected to last at least until 2013.

^{vi} The original launch date for the *Carte Vitale 2*, replacing all *Carte Vitale 1* cards, was 31 December 1999. On 3 November 1997, during the parliamentary debate for the Finance Bill of 1998 in the National Assembly, Jérôme Cahuzac (Special Rapporteur of the Committee on Finance, General Economy and Plan for Health) stated: "The *Carte Vitale 2*, meanwhile, will include information of health hazards, and will be distributed in the first half of 1999 and then more widespread." Because of delays *l'Assurance Maladie* had to cancel the 11.9 million *Carte Vitale 2* cards that were ordered in January 1997 and were expected to be distributed in 1998.

^{vii} In its annual report on "the enforcement of the financing of social security" for 2007, presented on 10 September 2008, the Court of Auditors explained that CNAMTS was not able to meet the unrealistic schedule of generalization of the *Carte Vitale 2*, "starting from 2006 and in 18 months. Generalization, began in late 2007, will not be achieved for several years."

^{viii} Since 1998, 90 million of *Carte (1) Vitale* cards were manufactured by Axalto / Schlumberger, Oberthur, Gemplus, SOLAIC / Schlumberger Sema.

^{ix} In February 2001, Schlumberger bought Bull-CP8 for \$325 million and then outsourced this activity to Axalto.

^x In June 2006, Axalto and Gemplus merged forming Gemalto. To avoid dependence on a single supplier, other manufacturers had to be selected (Oberthur Technologies, Sagem Orga, or the German Giesecke & Devrient).

^{xi} In 2009, during the reading of these cards, the rise of rights by billing software caused an error on the date of birth; children born after 31 December 1999 saw a century added. The specifications of SESAM –Vitale Version 1.40 explained: "The software must allow the healthcare provider to change the century of birth, because in some cases the function of reading a Carte Vitale recovered an incorrect date of birth. In effect, the beneficiaries under the age of 16 whose quality Carte Vitale card is different from "child" are considered as adults by the function "Reading Vitale law". In this case, the age of birth is wrong." This bug generates billing. We must systematically correct this date of birth manually to add the specific quotations to increase infant and child (majoration nourrisson (MNO) et enfant (MGE) respectively). In addition, the child is considered out of the "care pathway".

^{xii} As of September 30, 2007, some European pensioners living in France had their *Carte Vitale* removed for administrative reasons. The CPAM Hautes-Pyrénées stated: "According to the decree of 21 March 2007", under a European directive of 2004, "any non-active community resident located on our territory, and not eligible to receive or continue to receive European rights on presentation forms such as E106 or E121, cannot receive Social Security but must contract with a private insurance. Therefore, kindly return your Carte Vitale."

^{xiii} Since 1996, all health insurance plans are obliged to issue an individual smart card to any beneficiary.

^{xiv} The EHIC card is valid in all European Economic Area (EEA) countries.

^{xv} The Act of 13 August 2004 (Article L.161 -31 of the Code of Public Health) has mandated the presence of a photograph of the insured on the *Carte Vitale 2* to limit fraud. This photograph must meet the same size specifications for identity cards and passports. It must be recent, made by an approved photographer or a photo booth, in color, sized 35mm x 45mm, with a clear and plain background, and with a centered front and bareheaded face.

^{xvi} Since 1 December 2007, plans can only issue *Carte Vitale 2* cards with a photograph to their beneficiaries. The photo is printed on the card, but is also inscribed on the chip of the *Carte Vitale 2*. The CNIL banned for now the reading of the scanned image, which is protected by an anti-copy device.

^{xvii} In 1998, all patients with long-term diseases (*affection de longue durée*, ALD) had, for technical reasons, their ALD rights ending 31 December 1999 on their *Carte Vitale*. In 1999, faced with the risk of clogging medical services for renewals of exemptions in respect to ALD, *l'Assurance Maladie* decided to make the end date of the entitlement unreadable by modifying the reader software. Lacking updated cards, and the terminals still being rare, health providers had no way to verify that these 7 million cardholders were still benefiting from the ALD exemption. Since it was physically impossible for the doctors of the Medical Service Funds (*Service Médical des Caisses*) to treat all these cases, the rights of all ALD patients were administratively extended several times (with the deadlines of 31 December 1999, 31 December 2000, and 31 December 2002) without verification of their medical condition.

^{xviii} Since the publication of the decree of 14 March 2007 "relating to the conditions of issuance and management of health insurance cards."

^{xix} According to the law of 13 August 2004, this secure personal record should be generalized to all French beneficiaries on 1 July 2007.

^{xx} The decree of 14 February 2007 authorizing the *Carte Vitale 2* refers to a subsequent order setting in action security features. In addition, the Branch of Modernization of the State (*la Direction générale de la modernisation de l'État, DGME*) noted in April 2006 the importance of implanting electronic certificates in *Carte Vitale 2* cards at their issuance, particularly in order to strongly authenticate access to personal medical records. But this study did not start until late 2007, led by CNAMTS and stopped due to the freezing of the site of personal medical records by Roselyne Bachelot in June 2007.

^{xxi} This service, born with the law of 13 August 2004, had been "presented in 2004 as almost finalized" and promised by *l'Assurance Maladie* for deployment in April 2005. Finally, after a trial in September 2005 in Yvelines, it was partially deployed in August 2007 and only for *Caisse nationale d'assurance maladie (CNAM)*. In the end of 2007, the MSA, the RSI, the GAMEX, and the CNMSS joined the project. In February 2009, many plans such as *Mutuelle Générale* were still not connected.

^{xxii} The explicit consent of the patient is presumed by the fact that the patient has given his *Carte Vitale* to his doctor, assuming the doctor explains that he is using it to access this history online, and not to open the medical record in his business's software or to make an electronic spreadsheet of care.

^{xxiii} In 2004, the *Commission Nationale de l'Informatique et des Libertés (CNIL)* authorized, on an experimental basis for a period of twelve months, for the National Federation of French Mutual (*la Fédération nationale de la mutualité française, FNMF*) to access on behalf of its federated mutuelle, the CIP drug codes and the LPP codes (*Liste des produits et prestations*) of their member's electronic care sheets. These studies were permitted only when the *demandes de remboursement électroniques (DRE)* was anonymous. The identification data of the insured were transformed into an anonymous number and irreversible. Then, these data were aggregated and processed for statistical purposes. In 2006, FNMF was able to recover the first real flow of DRE performed with *Carte Vitale 1b*. By April 2007, FNMF had used the new version of the Administration Chain Cards (*la Chaîne d'Administration des Cartes, CAC*) developed by *GIE SESAM Vitale* for *Carte Vitale 2*.

^{xxiv} Following an initial authorization of the *Commission nationale de l'informatique et des libertés (CNIL)* dated May 30, 2007, the pilot phase began in June 2007 in some pharmacies in six departments (Doubs, Meurthe-et-Moselle, Nièvre, Pas-de-Calais, Rhone, Seine -Maritime). Then in February 2008, following a further decision of the CNIL, the experiment was expanded to the departments of Yvelines and Hauts-de-Seine, as well as 2,000 other pharmacies across the country. On 22 July 2008 the CNIL authorized the continuation of the experiment until 15 November 2008. Finally, on 2 December 2008, the CNIL gave permission for the generalization of the Pharmaceutical Record throughout France.

^{xxv} After testing in the second half of 2003 with 2,000 pharmacies (in Provence-Alpes-Cote d'Azur, Corsica, Gironde and Ardennes regions).

^{xxvi} The software version 1.31.4 or higher automatically blocks cards whose numbers are on the list of opposition; with version 1.31.5 and higher, the pharmacist cannot use a secure electronic care sheet for third-party payments. A degraded electronic care sheet - without use of the *Carte Vitale* - can be done, but in this case the pharmacist may not be refunded in case of third-party payment.

^{xxvii} The national convention of pharmacists signed on 29 March 2006 an Addendum No. 4 to the specifications published in March 2009.

^{xxviii} According to Article L. 162-1-14 in the code of Sécurité Sociale.

^{xxix} According to Article 8 of Ordinance No. 96-345 of 24 April 1996 "relating to the control of medical care expenses," . . . "This card has a medical component to receive relevant information necessary for the continuity and coordination of care." The content and function of this health component was officially registered in Article 36 of the Law of 30 June 1999 establishing Universal Health Coverage (CMU).

^{xxx} This part has replaced the health component "intended to receive only the necessary information for the urgent intervention as well as the elements of continuity and coordination of care" under the law of 27 July 1999 and was not implemented anymore under the medical component provided by the order of April 25, 1996.

^{xxxi} Article 3 of the Decree of 14 March 2007 states that the card may include data indicating "the existence of an attending physician and the information needed to identify him."

^{xxxii} The NETC@RDS project is coordinated in France by *GIE SESAM-Vitale*.