2021 ATIH ACTIVITY REPORT

AGENCE TECHNIQUE DE L'INFORMATION SUR L'HOSPITALISATION

atih

2021 ATIH ACTIVITY REPORT

EDITORIAL

Like the previous year, 2021 was marked by the Covid-19 pandemic and its various waves, which impacted the Agency's activity.

Nevertheless, ATIH reasserted its great adaptability.
Our pandemic management efforts continued with the use of our tools, in keeping with the requirements of the Ministry of Health: improving the coding of the disease by distinguishing between vaccinated and non-vaccinated populations, post-Covid follow-up, etc. We contributed to adjusting the method of funding of healthcare institutions and assessing additional costs. The analysis of hospital activity was enhanced to take into account the reduction in patient's chances of cure due to the drop in screening and the deferral of interventions.

The Agency also made progress in its main projects. Work was conducted concerning the reform of the funding of A&E services, Psychiatry activity, SSR and the portion of the fee to be paid by the patient.
An appraisal was conducted on the modernising of the data collection system for its simplification and enhancement, through a project focused on a new approach to the collection of data (activity, quality-of-care and clinical data).
Studies were conducted to take greater account of quality in the funding of healthcare institutions (development of indicators derived from medico-administrative databases).
Hospital data output processes are under reorganisation, in particular through a single-entry portal to enhance access to the data.

Concerning the Agency's internal organisation, a teleworking charter was laid down to set the rules concerning remote and in-office work. This charter enabled us to manage the different phases of the pandemic in the most efficient way by promoting and guaranteeing the quality of our work.

In 2022, a major focus of the second half-year will be the defining of our next Objectives and Performance Contract (COP) that will lay down guidelines for the upcoming three years. The funding reform, the simplification of hospital data collection processes, and providing easier access to such data will undoubtedly form the pillars of this new COP.

Housseyni Holla
ATIH Managing Director

ATIH, A CENTRE WITH WIDE-RANGING EXPERTISE

Founded in 2000, ATIH (Agence Technique de l'Information sur l'Hospitalisation – France's Technical Agency for Information on Hospital Care) is a public administrative body coming under the authority of the Health and Social Security Ministers. The Agency is headquartered in Lyon and has a branch in Paris.

Its strategic policies are defined by a Board of Directors, a Steering Committee and a Scientific Committee.

The Chairman of the Board of Directors is appointed by the Ministers in charge of health, social affairs and social security.

ATIH is tasked with:

- the collection, hosting and output of data on the medico-economic activity of healthcare institutions
- the technical management of the institutions' funding mechanisms
- studies on the costs of medico-social and healthcare institutions
- defining and maintaining healthcare nomenclatures
- conducting analyses, studies and research on health data.

PUBLICS

SERVICES OF THE FRENCH STATE

General Directorate of Healthcare Services (DGOS),
General Directorate of Social Cohesion (DGCS),
General Directorate of Public Finance (DGfip),
Directorate of Social Security (DSS),
Directorate for Research, Studies, Evaluation and Statistics (DREES),
General Inspectorate of Social Affairs (IGAS),
General Secretariat of the Ministries in charge of Social Affairs, etc.

AUDITOR GENERAL

HEALTH INSURANCE

REGIONAL HEALTH AGENCIES (ARS)

FEDERATIONS OF HOSPITALS AND MEDICO-SOCIAL FACILITIES

HEALTHCARE INSTITUTIONS AND MEDICO-SOCIAL INSTITUTIONS AND SERVICES

NATIONAL ORGANISATIONS

Biomedicine Agency (ABM),
National support agency for the performance of healthcare institutions (ANAP),
Health-related digital technology agency (ANS),
National Management Centre (CNG),
National Solidarity Fund for Autonomy (CNSA),
Haute autorité de santé – French Health Authority (HAS),
National Cancer Institute (INCA), etc.

TEACHERS/ RESEARCHERS

COMPANIES

Study and consulting firms, media, etc.

MANAGEMENT

- External communication
- Partnerships mission
- Quality-of-care mission

GENERAL SECRETARIAT

- Quality
- Legal affairs and contracts
- Budget, accounting and financial management
- Management of human resources and internal communication
- Secretariat

COLLECTION OF MANAGEMENT INFORMATION

- Healthcare: MCO, HAD, SSR, Psychiatry
- Medico-social: EHPAD, PH, SSIAD/SPASAD

INTERNAL ORGANISATION OF THE AGENCY

IT ARCHITECTURE AND PRODUCTION

- Management of IT system demand and development
- Quality assurance and support
- Infrastructures

CLASSIFICATIONS, MEDICAL INFORMATION AND FUNDING MODELS

- Medical information
- Classification and funding of medical activities

FUNDING AND ECONOMIC ANALYSIS

- Analysis of activities and quality of care
- Analysis of the costs of healthcare institutions and medico-social facilities
- Analysis of the financial situation and National Objective for Healthcare Spending (ONDAM)
- Mechanisms for the funding of healthcare institutions: management and reforms

DATA REQUESTS, ACCESS, PROCESSING AND DATABASE ANALYSES

- Compiling and providing access to PMSI databases
- Output of hospital data

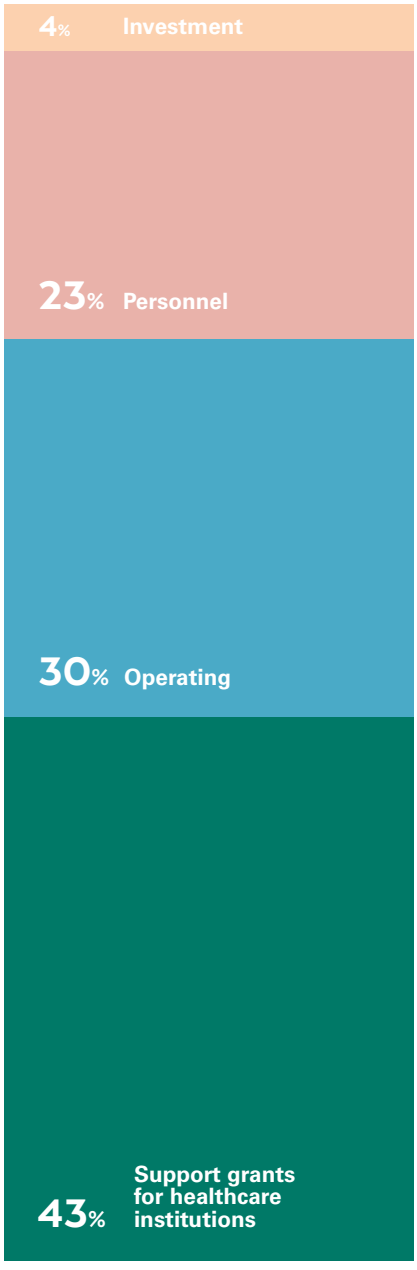
TEAMS

At 31 December 2021, the Agency's staff comprised 124 people, including employees under public contracts and civil servants working on a secondment basis.

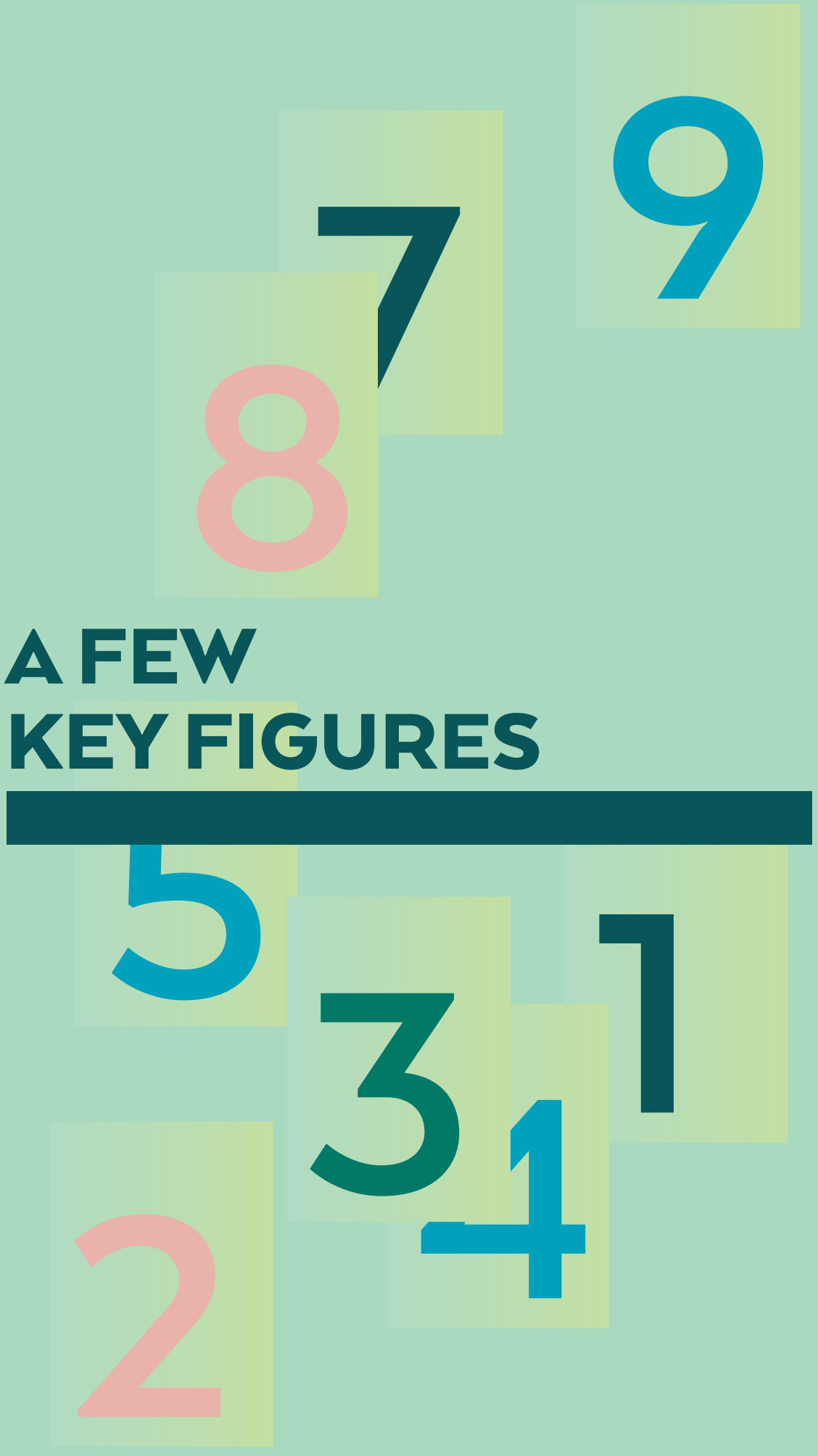
THE AGENCY'S 2021 BUDGET

ATIH's expenses amounted to €38,845,000 while its revenue totalled €38,895,000.

BREAKDOWN OF EXPENSES



BREAKDOWN OF REVENUE


A FEW
KEY FIGURES

2021 KEY FIGURES ON HOSPITAL CARE

Data derived from the 2021 PMSI, rounded off to the nearest thousand.

12.6M
patients treated

332,000
Covid patients

2.6%
patients with Covid

+9%
compared to 2020

65 years
average age of patients with Covid

51 years
average age of patients

396,000
deaths in the hospital

14 %
deaths of Covid patients

+1.4%
compared to 2020

Medicine, surgery, obstetrics MCO

12.2M
patients treated

2.4 %
patients with Covid symptoms

+9.4%
compared to 2020

1.9 %
patients under full hospitalisation due to Covid

66 years
average age of patients with Covid

49 years
average age of patients in MCO

71.8M
days of hospitalisation (stays excl. sessions)

5.5 %
days for Covid patients

+3.8%
compared to 2020

322,000
deaths

13 %
deaths of Covid patients

+2.4%
compared to 2020

2.4M
nights in intensive care

29.5 %
during a stay with Covid

+6.9%
compared to 2020

A Covid stay corresponds to a stay with a symptomatic Covid diagnosis.
ICD-10 codes: U071, U0710, U0711, U0714, U0715

Post-acute care and rehabilitation
SSR

894,000
patients treated

5.8 %
patients with Covid

+9.4%
compared to 2020

77 years
average age Covid patients

68 years
average age of patients

33,000
deaths

12 %
deaths of Covid patients

-12.1%
compared to 2020

684,000
patients treated on a full-time basis

7.2%
of patients with Covid

-1.6%
compared to 2020

28.4M
days of treatment on a full-time basis

4.8 %
days for Covid patients

-3.8%
compared to 2020

259,000
patients treated on a part-time basis

1.3 %
of patients with Covid

+20.3%
compared to 2020

4.4M
days of treatment on a part-time basis

1.4%
compared to 2020

+41.1%
compared to 2020

2021 activity versus 2019 activity

12.6M patients in 2021
i.e. -1.8% compared to 2019

396,000 deaths in 2021
i.e. +9.2% compared to 2019

12.2M MCO patients in 2021
i.e. -1.6% compared to 2019

894,000 SSR patients in 2021
i.e. -12.6% compared to 2019

398,000 Psychiatry patients in 2021
i.e. -5% compared to 2019

157,000 HAD patients in 2021
i.e. +22.9% compared to 2019

Hospitalisation at home HAD

157,000
patients treated

7.3 %
patients with Covid

78 years
average age Covid patients

+2.3%
compared to 2020

68 years
average age of patients

41,000
deaths

6 %
deaths of Covid patients

+6.5%
compared to 2020

6.8M
days of treatment on a full-time basis

3.9 %
days for Covid patients

+2.5%
compared to 2020

Psychiatry

398,000
patients treated

0.7 %
patients with Covid

43 years
average age of Covid patients

+2.2%
compared to 2020

42 years
average age of patients

310,000
patients treated on a full-time basis

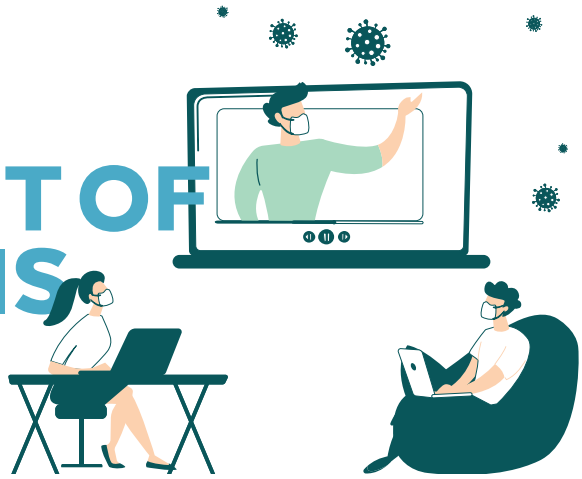
+2.5%
compared to 2020

17.4M
days of treatment on a full-time basis

-0.9%
compared to 2020

REVIEW OF THE YEAR 2021

PARTICIPATING IN THE MANAGEMENT OF THE HEALTH CRISIS



Adaptation of funding arrangements according to the pandemic

In 2021, the Agency ensured the consistency of the healthcare institutions' funding guarantee mechanism throughout the year. Unlike the previous year, the mechanism was integrated in the e-PMSI platform for the transmission of hospital data and valuation of hospital activity. Payment confirmations were thus generated automatically.

Collection and management of data on additional costs incurred by institutions

ATIH conducted a survey of the actual 2020 impacts of the Covid-19 crisis in terms of additional costs, including human resources, for the year as a whole. It took part in the defining and calculation of financial compensation.

Change in coding procedures

In 2021, ATIH produced coding guidelines for the use of the new WHO codes concerning: prior Covid-19 infections, post-Covid-19 disorders, multisystem inflammatory syndrome. In the absence of WHO guidelines, the Agency identified the ICD-10 codes to be used to classify the Covid-19 cases developed by vaccinated persons.

Fast-Track PMSI data transmission system

For MCO, the fast-track transmission of PMSI data between institutions, ATIH and CNAM, launched in July 2020, continued throughout 2021. In view of the continuation of the Covid-19 epidemic, it is indispensable to make PMSI-MCO data accessible to authorised users.

Data outputs and analyses on the impact of Covid-19

In 2021, the Agency developed ScanCovid, an interactive visualisation tool for monitoring Covid-19 hospital stays and patients in the 4 fields of activity. The application is freely accessible. More detailed information is solely available to healthcare players (users of ATIH's application management platform – PLAGE).
ScanCovid is designed to provide better knowledge of the epidemic in the hospital. The indicators are compiled using the activity data of institutions in the fields of medicine, surgery and obstetrics (MCO), hospitalisation at home (HAD), post-acute care and rehabilitation (SSR) and Psychiatry. The data are collected via the Programme for Medicalisation of Information Systems (PMSI).
The data are regularly enhanced with the information provided by institutions. They are presented in the form of interactive charts, tables or maps, along with a large selection of available indicators.

Hospital activity analyses were conducted throughout 2020 and again in 2021. The scope and frequency of these analyses were increased due to the Covid-19 pandemic.
In 2021, MCO activity was studied on an infra-annual basis and on various levels: comprehensive studies covering the activity as a whole (activity during the 4th, 6th and 9th months of the year), with a medical content (6th and 9th months of the year) and a medical analysis dedicated to the care of children and adolescents (6th and 9th months of the year).
In addition, the DGOS continued the close monitoring of target activities: cancer treatments, abortions, cardiology and neurology. The Agency continued its work on those activities.
Moreover, based on PMSI MCO data and bi-monthly Psychiatry reports, analyses were conducted on the care provided for mental health problems in MCO and Psychiatry.
Alongside this work, "general public" summaries were published based on the 2020 activity data stemming from the annual summary of hospital activity (Covid-19 and non-Covid), key hospitalisation figures, and dashboards providing "summary indicators of national activity" on ScanSanté. These studies sought to measure the impact of the health crisis on hospital activity across all fields of activity. A specific study on the care provided to Covid-19 patients was also conducted.
Since the impact of the crisis varied according to regions, regional analyses of 2020 MCO activity were initiated in 2021 in partnership with regional health agencies (ARS). The aim of these analyses is to provide details of regional epidemiological factors and the organisational measures put in place.

Tool for the collection of data from the Covid-19 tests performed by hospital laboratories

The funding of the services involved in RT-PCR tests for the diagnosis of Covid-19 was established in March 2020 in several stages depending on the regions. Tests for the detection of Covid-19 antigens, or "antigen tests", were distributed to institutions in September 2020, along with the sequencing of Covid-19 variants (possible in certain institutions).
For the valuation of this activity, the collection of data from these various tests took place from 2020 to 2021 via the Fichsup files made available to the institutions. In June, ATIH adapted the tool: data collection is now done on a single file instead of two. Instructions on how to fill in the files were provided in coordination with the DGOS.
They were amended in October to cater for the changes in procedures regarding the conduct and valuation of tests.

Tool for the collection of hospital vaccination data

In France, vaccination against Covid-19 started in December 2020. It can be performed in vaccination centres, whose operation is partly or entirely managed by healthcare institutions. ATIH organised the transmission of data for these vaccination services. It is done through Fichsup files for public and private institutions operating in the fields of MCO, SSR and Psychiatry and managing a vaccination centre. Its purpose is the valuation of this activity conducted by the institutions. Data collection guidelines are transmitted through notices published by ATIH, drawn up in consultation with the DGOS and DSS.
The first notice was amended three times in 2021, in keeping with changes in vaccination

practices (organisation, authorised personnel) and valuation methods (vaccination lines, hourly supplements, etc.).

Platform to track stocks of medicinal products and medical devices

At the request of the supervisory authorities, ATIH created the "Dispostock" platform in 2020 to replace the pre-existing fee-paying solution to keep track of stocks of medicinal products and medical devices in healthcare institutions and medico-social facilities.
In 2021, ATIH made major changes to the platform, again at the Ministry's request, firstly by integrating the tracking of stocks of Covid-19 vaccines, as well as vaccine procurement requests. The tracking of vaccination devices (syringes, needles, etc.) was then added to enable healthcare institutions to report on their stocks and also make urgent requests via the platform.
Major developments were undertaken to rapidly integrate the tracking of sensitive equipment (respirators, extracorporeal membrane oxygenation machines, etc.) for institutions, as well as the tracking of personal protection consumables for the care of Covid-19 patients. Developments for the tracking of community laboratories' consumables were also conducted during the year.

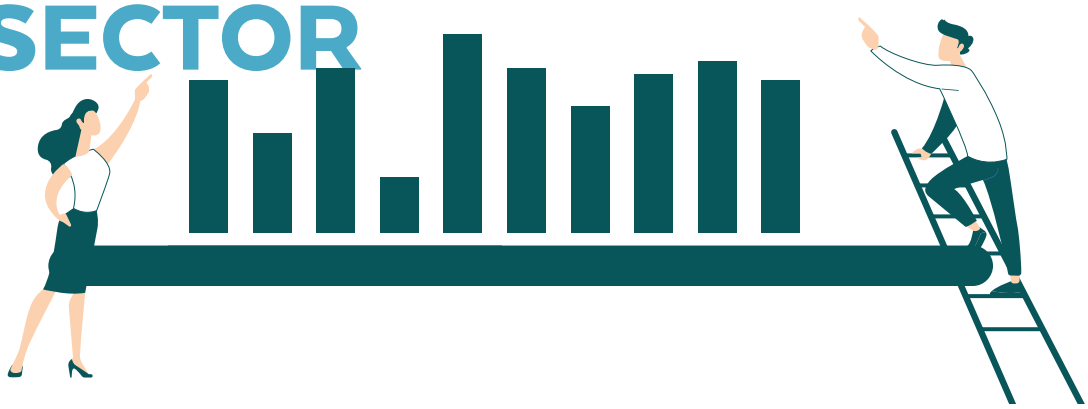
Regular collection of data on the activity of institutions authorised to conduct psychiatric activities

Following the public authorities' decision, ATIH produced a platform for the input of psychiatric activity data through bi-monthly reporting. To assist the institutions, the Agency published a technical notice, as well as a platform user guide.
On a monthly basis, the Agency populated the hospital data platform with the data stemming from the psychiatric information report. It also produced a dashboard for the close monitoring of the facilities' activity.

Support provided to regional health agencies (ARS) for the management of the health crisis

In 2021, ATIH was asked to provide to the regional health authorities, on the hospital data platform, the anonymised database of the national population screening system (SIDEP) for Covid-19 and Covid-19 vaccine data. These data are provided on a daily basis.
The Agency was also required to generate an AtlaSanté feed with data stemming from Dispostock and data on vaccination centres and professionals.

CONTRIBUTING TO FUNDING REFORMS IN THE HEALTHCARE AND MEDICO-SOCIAL SECTOR



1. Participating in the designing and implementation of the funding reform

Participating in the designing and implementation of combined payments

Flat rates for the follow-up of patients (chronic diseases)

ATIH completed its work on the collection of data and valuation of the flat rate for "chronic renal disease": creation of a new data transmission tool (MATIS), update of data collection guidelines, participation in the defining of quality indicators, work with ANAP on the support of institutions concerning new organisational measures.

Quality-based funding (IFAQ)

In 2021, the Agency took account of the results of certain indicators for the allocation of the IFAQ budget (€450m).

Change in the district hospital funding model

The Agency ensured the continuity of this mechanism for the calculation of the flat-rate allocation (100% of revenues for years N-1 and N-2) in connection with the annual funding guarantee linked with the crisis, and taking account of measures from the Ségur de la Santé healthcare agreement.

New funding model for A&E

ATIH compiled an infra-annual RPU (emergency care summary) database – using data transmissions from the 6th month of 2021 – in order to calculate quality control indicators for the data collected and transmitted by A&E facilities. This information will be used for the calculation of the supplementary allocation of quality-based funding created in the new A&E funding model.

As the implementation of the new A&E funding model was deferred to 1 January 2022, ATIH helped to finalise the legal framework and calculate activity-based flat rates based on SNDS data. All parameters, including activity-based parameters (flat rates based on age, imaging, biology, participation in A&E activities, etc.) were stabilised.

Continuing our technical work and the support provided to the DGOS on funding models

Reform of SSR activity funding

A new version of the SSR medico-economic classification is planned for 2022. In order to help institutions get ready for the viewing of their activity with this new tool, an "experimental" version was made available in July 2021.

Changes were made to Ovalide tables in 2021 to enable institutions to view the valuation of the activity using the new "VExp_2022" classification.

At the end of 2021, ATIH – in coordination with the supervisory authorities – finalised the different compartments of the model and defined the parameters for the valuation of activities in 2022. It also carried out simulations covering the entire model. While the implementation of the new model will only start in 2023, the parameters for the calculation of the allocation based on 2022 activity will take account of the new classification and the new activity valuation rules.

A new funding model for psychiatry

ATIH continued its work on population-based allocation criteria, compartments and weighting for the allocation per active file. This work was the subject of discussions with the relevant players during technical group meetings led by the DGOS.

At the end of the year, the Agency finalised the compartments and carried out comprehensive simulations on the whole of the model coming into effect on 1 January 2022. The regional health authorities transmitted the results to the institutions concerned.

Moreover, in the last quarter of 2021, the legal framework for the implementation of the reform was stabilised on the basis of the Decree. The Order for the provisional allocation which secures the funding for psychiatric institutions was published in December 2021.

HAD funding reform

The study initiated in 2020 on the change in the HAD funding model was finalised (report released in July 2021) and presented by the service provider to the players involved during a steering committee meeting.

Funding of medicine activities de médecine

This action, included in Amendment No.1 to the Agency's 2020-2022 Objectives and Performance Contract, provided for the set-up of an allocation in 2021 under an option right, along with work on the experimentation of a population-based allocation for the target funding model for this activity.

In view of the extension of the funding guarantee in 2021, the set-up of a base allocation has been deferred to 2022. In 2021, ATIH worked on defining the scope of the activity to be covered by the base allocation, simulating its level, and detecting the institutions for which this measure would be favourable (according to the activity's historical trend).

Funding model for critical care

Discussions with the DGOS started with the defining of funding schemes according to 2 models – one based on "needs" and the other on "expenses" – and the setting of the timeline for that reform, in keeping with authorisation requirements.

A&E rebuilding agreement

This action, introduced by Amendment No. 1 to the Agency's 2020-2022 Objectives and Performance Contract, provides for changes to the direct hospital admission pathway for elderly people.

In 2021, work was conducted with healthcare institutions to identify pathways for informing and providing care to persons over the age of 75. Following a consultation with the medical information departments (DIMs), a decision was taken to create a "scheduled/non-scheduled" variable in the PMSI repository, in addition to the information detailing the patient's direct admission.
ATIH took part in the reflection aimed at defining indicators allowing the funding of this Ségur measure.

Contributing to the reform of the portion of the fee to be paid by the patient

In 2021, ATIH completed the work initiated in 2020 for the reform of the portion of the fee to be paid by the patient in 2022.
The Agency thus produced national fee tables for daily services in the fields of MCO (formerly DG) and Psychiatry and built transition mechanisms. The reform's legal framework was finalised and the various tools were sent to the regional health authorities to enable them to notify each institution, starting in January 2022, of the national fees for daily services.

Contributing to the funding reform in the medico-social sector

ATIH completed the collection of data from all SSIAD and SPASAD facilities after having designed and transmitted the data collection tool to the players involved and informed the facilities concerned. The Agency oversaw the collection of data, processed the data and proposed updates of the funding model.
It took part in discussions with the players on the funding model, which will need to be stabilised in 2022, prior to the first simulations.
In 2021, ATIH prepared the data collection planned for 2022 within the framework of the Seraphin-PH project (CNIL file, methodology, implementation of the tools, recruitment and training of medico-social institutions and services).
This data collection – which is not a national cost study – will comprise 3 samples:
- the "common core" sample involving 1,200 facilities, with the objective of making blank funding simulations to measure the effects of the new funding model, via the collection of data on the characteristics of the facility and the persons cared for
- out of the main sample's 1,200 facilities, a "time" sub-sample of 300 institutions and services will be required to record, in addition to the basic data, the times of the direct services and transport carried out or funded by the facility, with this data consolidating the results of 2018 and 2019 national cost studies (ENCs);
- a "pathway" sub-sample of 150 facilities already in an advanced stage of the transformation process. These facilities will need to record the person's entire pathway, including the support provided by partners of the institution or service.

2. Putting in place the innovative funding mechanisms

Making further progress in the work conducted on the experimentation of payment per care episode in surgical interventions (EDS)

This experimentation covers total hip replacement, total knee replacement and colectomy.

In 2021, a revision of the model took place for the 3 cohorts. It involved: the factoring-in of the geographical coefficient, an update of the "improved post-surgery recovery" (RAAC) coefficient, the revision and validation of the lists used for the identification of comorbidities and rehospitalisations.

ATIH participated in the calculation of quality indicators and the update of national specifications.

Supporting the work done on the experimentation of a shared care incentive (IPEP) and payment per team of healthcare professionals (PEPS)

As from 2021, ATIH has been handling the maintenance (updates and adjustments) for the calculation of "quality" indicators related to hospital care.

3. Adapting the technical tools concerning funding, management and knowledge of the hospital and medico-social sector, to meet the requirements of the health system transformation strategy (STSS)

Updating and ensuring the accurateness of hospital and medico-social costs

As part of this action plan, ATIH has improved the measuring of costs in the healthcare and medico-social sectors by:
- refining the measurement of work units (UOs)
- continuing the experimentation on the measurement of the intensity of the care (SIIPS)
- conducting cost studies.

In 2021, ATIH conducted work on the revision of the analytical tree and keys for the breakdown of expenses per work unit across a group of sections covering activities related to Covid-19. The Agency conducted work dedicated to SSR and MCO consultations, ENC/RTC convergence, the publication a new Pharma UO, and the diagnosis of keys/UO carried out in 2019.
This work is conducted by a work group involving the players concerned.

In 2021, ATIH published a good practice guide for healthcare institutions concerning the use of ENC and RTC data. ATIH held webinars to present this guide, for which recordings are available on its website: Guide d'utilisation des données RTC & ENC | Publication ATIH (sante.fr)
Concerning the extension of the ENC/RTC scope to external care, following the approved defining and revision of the analytical tree in 2020, ATIH adapted the data collection tools in 2021, for their use in the 2021 ENC/RTC campaign covering MCO and SSR.

Classifying medical activity in view of its analysis and funding

Concerning the modernising of homogeneous patient groups (GHMs), ATIH completed its exploratory work to simplify the description of severity in medicine. In 2021, it went from exploratory work to the revisions to be conducted in the fields of MCO and SSR on associated complications and comorbidities (CMAs). This work, which hospital players have long awaited, will continue in 2022. It will give rise to new severity levels (e.g. 5 in MCO), as well as the development of modulation methods and multiple CMAs. The fundamental principles of the CMA methodology will be consolidated (use of a new statistical algorithm, revision of diagnostic exclusions).

In 2021, two classification changes were put forward in MCO, in view of their implementation in March 2022:

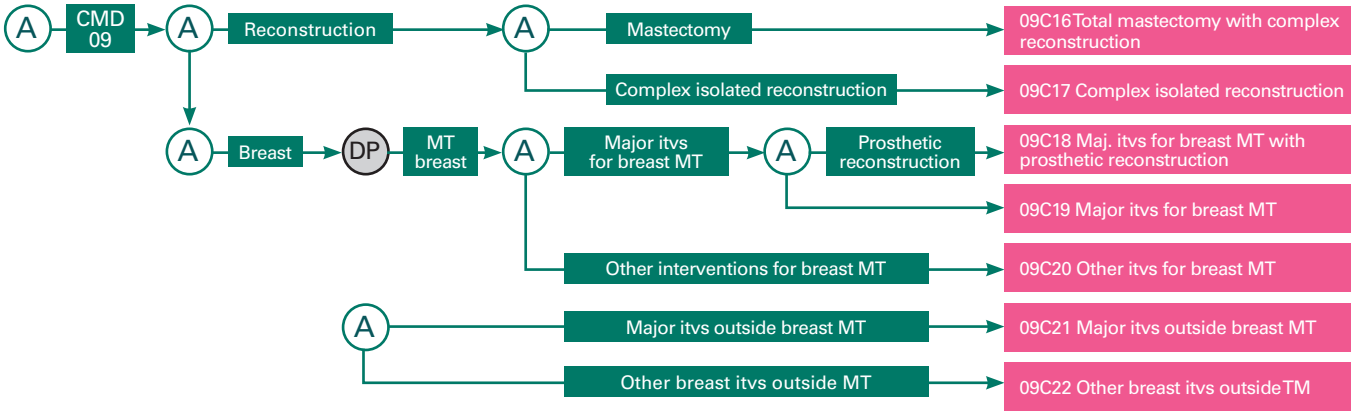
1. Reform of the CMD 09 surgical diagnostic category

To make it easier to detect outpatient roots and make the roots more homogeneous in terms of treatment burden, attention was focused on the surgical part of the CMD 09 diagnostic category. The CMD 09C sub-category was thus thoroughly analysed and revised, in collaboration with professionals concerned and federations.
Changes were made in breast surgery (whether due to cancer or not) to make it easier to detect heavy treatments (reconstructive flap surgery) or concomitant treatments (insertion of clips and the various simultaneous reconstruction procedures).

The new CMD 09 will provide a better description of the treatment of malignant skin tumours through the creation of 3 dedicated roots. Broadly speaking, a redistribution was created by categorising the treatments according to the burden of the procedures carried out.

Breast procedures

The burden of certain procedures has been factored in and improvements have been made to the description of concomitant procedures, such as the insertion of clips and the various simultaneous reconstruction procedures. This has given rise to the creation of 7 roots, thus improving the homogeneity of all breast treatments.



2. Creation of K roots in CMD 08

To take account of the development of interventional techniques in healthcare institutions, two K roots have been created in CMD 08. The first (08K05) is dedicated to kyphoplasty procedures. The second (08K06) is dedicated to all short stays for spine procedures.

SSR

Following the production in 2020 of a new version of the SSR classification, distinguishing between rehabilitation intensity, patient burden and severity, ATIH released support tools in 2021 to enable players to come to grips with this classification to be implemented in March 2022.

HAD

In 2021, ATIH resumed its work on the HAD classification, which had been interrupted by the health crisis in 2020. It should be completed by the first quarter of 2022.

Training and support documents will subsequently need to be produced, prior to the implementation of this classification on an experimental basis. At the same time, the IT developments relating to this new grouping function will be launched.

Psychiatry

Concerning the description of medical activities in Psychiatry, the work conducted in 2021 concerned outpatient activities, part-time care, and changes in the recording of restraint and seclusion measures in keeping with legislative changes.

Determining rates and the allocation of resources

The actions planned in the 2020 and 2021 Objectives and Performance Contracts (COPs) have been completed: set-up of distance-based transport supplements and graduated valuation of hospital outpatient activities in the field of medicine.

PARTICIPATING IN THE DEVELOPMENT OF INDICATORS CONCERNING CARE QUALITY, SAFETY AND RELEVANCE

1. Contributing to extending the measurement of the satisfaction and experience of patients/residents in the hospital and medico-social sector

After having extended the measurement of satisfaction to SSR in 2020, ATIH developed a pilot tool in 2021 for the collection of satisfaction data in the field of HAD. It should be rolled out in 2022, subject to HAS' decision on the matter.

ATIH completed the IT development for the dissemination of an additional questionnaire on the handling of tobacco use, appended to patient satisfaction questionnaires (MCO 48H, outpatient surgery and SSR).

Within the framework of that project, over 10 million e-mails were sent to patients (initial e-mails and reminders) in the 3 fields, and over 1.2 million responses were recorded, amounting to a response rate above 31% for these satisfaction surveys.

The Agency contributes to the structuring of patient surveys for patient-reported experience measures (PREMs) and patient-reported outcome measures (PROMs).

In this concern, in 2021, the DNS (Health-related digital technology department) approved ATIH's strategy of rolling out the Eval-Santé platform. V1 of this platform has been finalised and is now in the test phase.

Pilot projects (100% Santé, MRC, SAS, e-Satis) are in the process of being validated by the DNS, for their expected launch in the first quarter of 2022.

2. Developing the processing of data to contribute to the development of indicators

Care pathway quality indicators

Over the duration of the COP (2020-2022), ATIH must contribute to the development of care pathway indicators.

In 2021, ATIH participated in the work conducted by HAS and CNAM to define quality indicators relating to the care pathway of adult patients suffering from chronic obstructive pulmonary disease (COPD) or chronic renal disease (CRD). This work resulted in HAS' publication of a report in September 2021 – *Parcours du patient adulte présentant une maladie rénale chronique : Définition des indicateurs de qualité du parcours de soins*

Surgical vigilance indicators

In 2021, ATIH contributed to the defining of vigilance indicators concerning professional practices in the field of surgery, in collaboration with HAS and the DGOS. This work covered all surgical specialities: identification and defining of indicators and the criteria to be used to set warning thresholds. A report on this topic is due to be published in the first quarter of 2022.

3. Developing studies for the design and construction of indicators for quality-based funding

Within ATIH

The aim is to increase ATIH's expertise in the design and development of indicators to be used within the compartment framework for the quality-based funding of healthcare institutions.

In addition to the items mentioned in 2020, the work initiated in 2021 in collaboration with the DGOS thus concerned:

- the development of indicators based on PMSI data to provide a "financial incentive to improve quality" (IFAQ), including the following:
  - in MCO: standardised outpatient ratio
  - in Psychiatry: ratio of long stays (excluding care without consent) lasting over 90 days and ratio of patients having benefitted from outpatient follow-up within 15 days after their hospitalisation
  - in SSR and HAD: exploratory work was conducted to appraise the possibility of automating calculations based on the PMSI data of HAS indicators computed by referring to the patient record.
- the development of indicators concerning the quality of A&E care summaries (RPUs) for the calculation of the 2021 supplementary allocation of quality-based funding (DCQ) created upon the reform of the A&E funding model.

At the same time, work was conducted in collaboration with the DGOS to develop indicators on the quality of A&E care. This work will continue in 2022 with the aim of including these indicators in the 2023 DCQ.

- the defining of quality indicators concerning the care of patients suffering from chronic renal disease (CRD). The results of these indicators should be added to the calculation of the quality-based allocation provided within the framework of the flat-rate funding of chronic renal disease – CRD.

Within the Scientific Committee

The aim is to strengthen ATIH's ties with research teams within the scope of the work carried out by the Agency's Scientific Committee to develop studies for the design and construction of quality-based funding indicators.

In 2020, following the first call for expression of interest on this topic, four projects were selected:

- Development of an IT platform for the recording of PREMS/ PROMS data in French psychiatric institutions: "Patient Experience Data Hub in Psychiatry"

- Development of an indicator for potentially avoidable serious rehospitalisations

- Development and validation of an indicator measuring quality of life at work in healthcare institutions

- Development and validation of A&E care quality and safety indicators that can be automated and rolled out across all French emergency services.

These projects are regularly monitored by the Scientific Committee and provided with technical support from ATIH teams.

Another call for expression of interest was launched in 2021. Three projects were selected:

1. Quality indicators concerning the pathway of patients with chronic coronary syndrome or having suffered a stroke (CHU Bordeaux)
2. Perinatal care quality and safety indicators (QUALI-N) (Inserm Equipe Epope)
3. Tele-expertise (AP-HP – Hospinomics).

Agreements with the project holders were approved by the Board of Directors on 30 November 2021.

MODERNISING DATA COLLECTION AND OUTPUT TOOLS IN KEEPING WITH THE HEALTH-RELATED DIGITAL TECHNOLOGY

1. Modernising and expanding data collection tools

Adapting and expanding data collection tools

ATIH has undertaken work to modernise the activity data collection mechanism within the framework of a project called DRUIDES (unified and integrated healthcare institution data reporting mechanism). This new mechanism was reviewed in 2020, following remarks from the CNIL and the results of the tests conducted (rollout difficulties expected in small facilities). In 2021, further tests were conducted with the institutions and software publishers. The mechanism should be deployed in 2022.

The Agency managed the creation of the technical system for the collection of data and output of data from the performance dashboard in the medico-social sector, technical assistance, and the maintenance of the platform hosting the data. In 2021 – the year in which the Agency resumed its provision of general assistance in this

matter – 21,822 medico-social institutions and services (ESMSs) were registered to take part in the data collection. Some 90% of ESMSs logged into the platform and around 83% of them – i.e. 18,049 facilities – had their campaigns approved by their pricing and control authorities (regional health authorities and/or Departmental Councils).
The Agency provided outsourced support on this subject: 754 level-1 tickets were dealt with, as well as 82 level-2 tickets. To enhance the technical support mechanism and limit the use of outsourced technical support, the Agency developed tutorials and made them available to the players.

In 2020, ATIH made use of the record of social security numbers of patients having received outpatient psychiatric care (CMP), in order to link up the various treatments received (hospitalisation/outpatient care). In 2021, reviews were conducted concerning their exhaustiveness and quality. Ongoing monitoring of the expansion of the mechanism will be required.
In collaboration with the DGOS, the Agency continued the overhaul of the health system observatory (OSIS). In 2021, changes were made to OSIS V2, such as the integration of HOP'EN – the digital aspect of the Ségur de la Santé healthcare agreement.
In 2021, ATIH made proposals for the revision of the transmission of A&E summaries (RPUs), in particular to enable institutions to correct the information transmitted. These proposals follow on from the reform of A&E funding, a portion of which is quality-based.

Putting in place interoperable data collection solutions in line with changes in funding based on care quality and relevance

ATIH will be looking into the creation of tools to collect record-type data and medical data stemming from the healthcare institutions' clinical information systems. In 2020/2021, work was conducted on CarT-Cells (in collaboration with Lysarc) and on the CRD flat rate (REIN record, ABM).
This work is now part of a broader project: the design of data collection tools suited to the new activity records (chronic diseases, Article 51, etc.) and the Ségur de la Santé policies aimed at simplifying the collection of information. This "new data collection" project started at ATIH in 2021 with a review of the institutions' IT systems and the healthcare software market.

Maintaining and developing tools to collect data in the field of innovation

ATIH continued its maintenance of the PIRAMIG and INNOVARC tools.

Continuing to improve tools for the collection of data on costs, funding, accounting and human resources, in coordination with other data collection systems (DREES, DGFIP, and DNS)

The financial data collection platform (ANCRE) was overhauled in 2020. This overhaul has made it easier for institutions to report their financial data, in particular through the use of their accounting balances.
In 2021, institutions were provided with support in the use of this platform to produce their financial accounts, through information sessions, webinars, and the tutorials made available. With this support, institutions reported a satisfaction rate of 77% ("satisfied/highly satisfied") for the 2020 financial accounting campaign, exceeding that of the 2018 campaign (75%).

In coordination with the DGFIP, work has begun on the integration of data stemming from Hélios, the DGFIP's computer application dedicated to the local public sector. This work focuses on the feasibility of the automatic population of our data collection tools with DGFIP data. These improvements should reduce the institutions' input work and increase the consistency between financial account data and Hélios data.
In 2020/2021, the DGOS and ATIH worked on the convergence of expense scopes and definitions between PIRAMIG and RTC data. This work will continue through 2022, in view of the automatic population of PIRAMIG accounting data by the RTC.

2. Modernising data output platforms

ATIH deployed a new data output application for medicinal products and medical devices. This modernised tool facilitates data queries and the in-depth analysis of data on the consumption of additional medicinal products and medical devices (MDs) in institutions. It processes numerous types of data: number of stays, patients, consumption, activities, etc. It also allows easy comparisons. Additional medicinal products are listed per product, per classification level for MCO, HAD and SSR fields, and per indication for MCO and HAD. MDs (MCO only) are presented per title, chapter and code in the lists of products and services (LPP).

Moreover, in partnership with the DGOS, CNSA and ANAP, ATIH has developed a new "Medico-social activity" application under ScanSanté, which includes ESMS dashboard data. It makes it possible to examine the medico-social sector's offering and activity. It provides data on the characteristics of institutions and services, as well as data on medical care and support, human resources, IT systems and sustainable development.

Furthermore, in 2021, in partnership with INCA, ATIH developed the output of data on "Cancer activities subject to a threshold" (accessible with PASREL identifier only on the hospital data platform). Annual activity

thresholds were defined for cancer surgery, external radiotherapy and chemotherapy. This new application provides the volume of activity of each institution for each of these forms of treatment.
Work is under way for the ScanSanté integration of care quality and safety indicators also developed in partnership with INCA. This work should be completed in 2022.
In 2021, ATIH created a new data output tool called "ScanCovid", in RShiny, offering new data visualisation possibilities. The development of new data outputs and the overhaul of existing ones (e.g. Casemix MCO) is now under way through the use of the latest technologies.

Following a CNIL verification, ScanSanté's activity data concerning small teams was masked to allow access to those data.
The Agency is working on the set-up of a secure ScanSanté-specific device for institutional players, and on the adaptation of the security level for access to non-sensitive data. In this connection, in 2021, ATIH made available the "complete" ScanSanté application, i.e. without masking small teams, on a secure server meeting SNDS security standards. Work was conducted to allow the installation of a two-factor authentication system for ScanSanté users (with no physical tokens). This new system is scheduled for 2022, subject to CNIL approval. This system may be extended to include access to the non-sensitive data of the hospital data platform (e.g. financial data).

Intermediate data outputs

ATIH will continue the development of an offering of "intermediate" data, i.e. between raw data and indicators, in line with the requests of the Agency's data output users. In 2021, work was carried out on the needs of ATIH data users. In 2022, technical functionalities will be defined to increase the flexibility of data outputs. Webdesign work has already taken place to improve the user experience and provide a single entry point for data access and outputs. A new web-based portal to access ATIH data was completed at the end of 2021.

3. Participating in the management of healthcare nomenclatures

Participating in the work of the Haut Conseil des Nomenclatures

Following the publication of the Decree and Order on the composition of the Haut Conseil des Nomenclatures in April 2021, ATIH was asked, in particular, to participate in the overhaul of the CCAM. It thus took part in the preparatory work for the establishment of clinical committees composed of clinicians, grouped by specialities. The Agency contributed to the production of training documents, and to the reflection on the structuring of the new CCAM.

Updating the Specific Catalogue of Rehabilitation Procedures (CSARR)

In order to simplify this tool – in compliance with Ségur de la Santé recommendations – ATIH consulted the players involved to set up a work group made up of professionals appointed by the federations, as well as members of the CSARR Expert Committee. A total of more than 90 professionals are involved in 6 work groups, with the aim of completing the simplification process by the 2nd quarter of 2022.

Deploying ICD-11 in collaboration with France's WHO Collaborating Centre (WHO CC)

In 2021, ATIH completed the translation of ICD-11 headings into French. The first phase of the translation had been carried out by the Agency in 2019, resulting in the translation of nearly 80% of existing headings at the end of 2020. This work was completed by professional translators from June to September 2021. They translated the remaining headings and associated paragraphs (definitions, notes, etc.). This was followed by a validation and consolidation phase, managed by ATIH, before the transmission of the translations to the WHO platform. Furthermore, discussions are under way with French-speaking countries concerning the definition of synonyms.

SECURING, ENHANCING, SIMPLIFYING AND FACILITATING ACCESS TO HEALTH DATA

1. Continuing to develop and enhance the hospital data platform

ATIH is progressively continuing to enhance the hospital data platform, in particular by providing data from the new records, in accordance with the needs of healthcare players. In 2021, data concerning chronic renal disease and treatment with Car-T cells were integrated, for example for certain types of users, after approval by the DGOS.

ATIH is continuing its technical work concerning processing on the hospital data platform, using technologies such as R and Python as alternatives to the SAS software.

Major training programmes were offered to staff on the R tool in 2021. An inter-service work group was created for the sharing of knowledge and information on R utilisation and programming.

Work was carried out in 2021 concerning the update of PMSI data storage, in order to facilitate data access from development environments other than SAS. The selected solution will be deployed in 2022.

All of these initiatives have resulted in the use of R and Python for data processing developments: medication survey, ENC medical data outputs, design of an interactive dictionary in RShiny on the hospital data platform, etc.

The extension of this data processing in R/Python in 2022 will require the creation of a data science platform for both internal and external users.

2. Contributing to the governance of health data

ATIH contributes to the development of the SNDS through its various governance bodies, the Data Producers' Committee and the Strategic Committee.
It participates in the governance meetings of the health data platform (General Meeting and Strategic Committee meetings of the Health Data Hub).
The work under way concerns the defining of a pricing framework for access to SNDS data, the defining of criteria for the selection of databases to be included in the wider SNDS and listed in the Catalogue Order, and the revision of the SNDS' security standards.

3. Participating in the security of the pseudonymisation process in the collection and output of data

In 2020 and 2021, ATIH conducted work to install a new pseudonymisation system to ensure the security of the dissemination of PMSI data. Following the preparation of an architecture proposal and a project macro-plan in 2021, the developments started, with a view to the completion of the new system in 2022.

FURTHER IMPROVING ATIH'S INTERNAL PERFORMANCE AND SUSTAINING ITS EXTERNAL POSITIONING

Consolidating the Agency's internal performance

Adapting the teams' skills and working methods in keeping with new technologies

Through its training programme, ATIH ensures that its staff's skills are in step with new technologies, organisational changes and environment developments.

Training in R software development

The switch to alternatives to the SAS software has required the development of training programmes focused on Python software, and most importantly R software. After an initiation phase in 2019 and 2020, several training programmes in 2021 further increased staff proficiency in the use of R software.

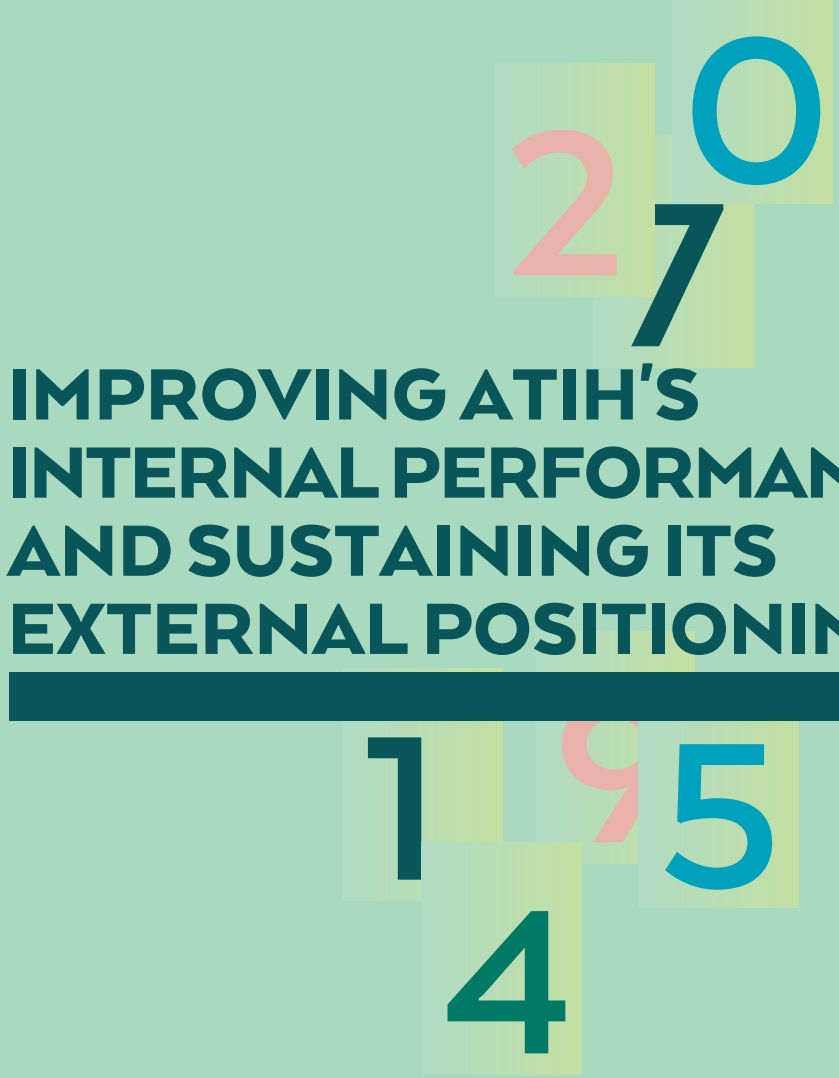
Details of R training provided in 2021

Topics	Duration of the training in days	Number of participants	Total number of days of training
Introduction to R	3	5	15
Data visualisation	1	9	9
Use of Git/Gitlab for R	1	5	5
Shiny applications	2	5	10
Reproducible reports with R Markdown	1	9	9
Advanced programming in R	1	3	3
Object-oriented programming	1	4	4
Total		40	55

Management of teleworking

The 2021 revision of the teleworking charter – providing the possibility of remote working on a regular basis for up to 3 days a week – required the provision of support to Heads of Departments and Heads of Divisions, through dedicated training.

In 2022, this procedure will be supplemented with a training programme on good teleworking practices aimed at all ATIH employees.



IMPROVING ATIH'S INTERNAL PERFORMANCE AND SUSTAINING ITS EXTERNAL POSITIONING

To measure and improve its performance, ATIH notably relies on a satisfaction barometer.
satisfaction.The Agency regularly queries its users to learn about their overall and detailed level of satisfaction according to certain key criteria.
The questionnaires, usually short and online, enable respondents to help improve a service/ product in a quick and easy way through a few questions.
Individuals can also leave their contact details for additional contributions if the Agency wishes a more in-depth study of a particular subject.

The Agency uses this barometer to:

- obtain relevant and regular feedback on its activities
- adapt by undertaking actions targeting the chief expectations of users
- evaluate its efforts by observing the effects on satisfaction.

In particular, this barometer covers each data collection campaign (such as PMSI, ENC, financial accounts, etc.), each database disseminated (such as PMSI, RTC, etc.), the Agency's website, on-demand data processing, and ScanSanté data outputs.

Participants in the collection and transmission of data from the social assessment

83%

of respondents state that they are satisfied or highly satisfied with the process

Participants in the national data collection on the characteristics of persons receiving care from SSIAD and SPASAD facilities

74%

of respondents state that they are satisfied or highly satisfied with the process

Participants in ENCs on healthcare fields

96%

of respondents state that they are satisfied or highly satisfied with the process

Participants in the SERAFIN-PH cost study

86%

of respondents state that they are satisfied or highly satisfied with the process

Participants in the collection and transmission of financial data

79 %

of respondents state that they are satisfied or highly satisfied with the process

Participants in the collection and transmission of PMSI data

84%

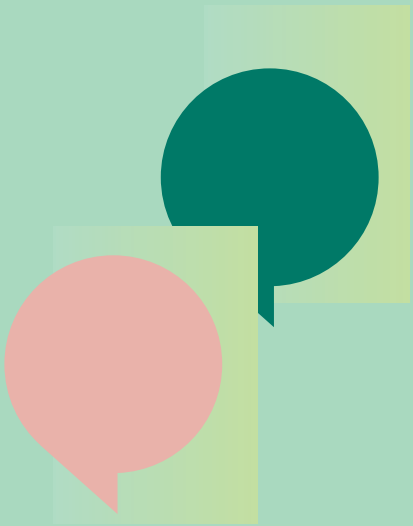
of respondents state that they are satisfied or highly satisfied with the process

Users of PMSI databases on the hospital data platform

90%

of respondents state that they are satisfied or highly satisfied with the PMSI databases and their access system

A WORD FROM THE TEAMS



TESTIMONIALS FROM ATIH IT SPECIALISTS

As part of the new organisation of the Agency's IT Architecture and Production Department, certain functions have been restructured and new jobs have been defined.
A few IT specialists have given us their first impressions.

Nicolas Mayot
Lead Developer,
IT System Demand and Development Management Department (GDSI)

What does that title imply?

The job of an IT Developer consists in creating, updating and maintaining data collection/output software. Being a developer does not mean producing code non-stop.
I'm also a technical adviser on project studies for the creation of software. On behalf of various contracting authorities, who are mainly internal, I analyse specifications in order to appraise the technical feasibility and time required for the development of software.

What has changed since the rollout of the new organisation?

All of the Agency's IT developers now work within a single department: IT System Demand and Development Management (GDSI). This enables us to discuss our practices, even though everyone works on their own assignments. Now and then, we work together on specific programmes.
Regular meetings, either involving the whole department or focusing on specific technical issues, provide group dynamics.
We are now able to plan out all our tasks and trace everything. We can thus date tasks, record the time spent, track the pace of a project and adjust its parameters. It is also easier for us to provide updates on any delay or the early completion of our work.

In concrete terms, how do you work?

The project is managed through "Jira", our project management/planning tool, which handles the costing of specifications and the follow-up of requests (using tickets).
With this tools, I monitor the progress of the project, I manage the various requests on a

ticket basis and for each software version (each version can comprise several tickets).
The life of a project and the associated team is centralised by our collaborative tool "Confluence". It is used to manage documents, centralise requirements, keep track of decisions, write meeting reports, etc.
For most projects, in order to optimise our operation, the Agile method is used across the department for project management and the supply of software versions.

What topics are you working on at the moment?

I am currently working on several projects:
- DRUIDES, the unified and integrated healthcare institution data reporting mechanism
- Solfeges, an electronic invoicing solution managed on a service basis
- Paprica, the upload of HAD data from the public and private sectors
- Lamda HAD, the catch-up of modified data from the previous year
- the merger of data from HAD institutions to catch up on the previous year's modified data
- the Genome product, which manages nomenclatures (CSARR, CCAM descriptive and the generation of short headings).

What type of relations do you have with users of the software produced by the Agency?

I have little direct contact with our users. My contacts are with people within the Agency, in particular the team of doctors.
For technical support, I provide level-3 support, which requires specific development or the creation of a new software version.

Aurélie Garnier
Project Manager, Professional Relations in the IT System Demand and Development Management Department (GDSI)

What is the role of a Project Manager, Professional Relations?

An IT project manager's involvement starts in a project's study phase: he/she responds to the professionals' requests, defines the time required and the corresponding budget. The project manager may be involved in the drafting of specifications or help the contracting authority with this task. His/her role is to ensure the fulfilment of the objectives and compliance with the requirements in terms of project cost, quality and lead times.

And what do you do within the Agency?

My role is to define, organise, monitor and steer the IT projects entrusted to me.

Within the GDSI department, I coordinate the teams on projects concerning the PMSI, and monthly publications to collect the hospital data of healthcare institutions in MCO, SSR, HAD and Psychiatry.
For this Agency-wide project, I manage requests from the doctors' CIM MF division (requests stemming from the DGOS or DSS). I analyse the requests and discuss their feasibility and technical aspects with the development teams and statisticians. I draft functional specifications for the development engineers of the GDSI department and the statisticians in the DATA team. Discussions also take place with the FAE department on the "payment confirmation" aspect, which of course affects the e-PMSI platform and Ovalide tables. I schedule discussions every month, I prepare the test phase and coordinate the teams. I make sure that everything is operational before switching into production to publish the software, update the e-PMSI

platform and thus comply with the schedule.
Every month, publications need to be planned on PMSI topics, such as reference lists to be updated (list of FINESS numbers, medicinal products, CCAM, etc.), an annual change in formats, additional Covid files (tests, vaccines, etc.), payment confirmations, etc.

In the medico-social sector, I work with the COLLIGE department on data records for the persons cared for and for SSIAD facilities. The development of these records is entrusted to service providers who also have to be coordinated with the Agency's teams.
The COLLIGE department sends me its requests. I discuss the functional specifications with them and manage the follow-up of the project for which the tool development aspect is entrusted to the service provider.
I also oversee the progress of the Druides project.

What are the different phases of a project?

Let's take an example. For the pandemic, the PMSI team was asked to collect data concerning vaccines and PCR tests.

1. The CIM-MF department expressed its request and provided us with a draft input file format to be complied with and a technical data sheet with the details.
2. I dealt with that request and discussed things with the teams to finalise the technical part and feasibility in order to validate the tools' input format, and define their output format.
3. The teams estimated their work load and, together, we validated the handling of this request and its timeline.
4. In the background, the file is transmitted on the e-PMSI platform, and statisticians develop new Ovalide tables for the output of the data on the platform. We then open the new data repository on the e-PMSI platform aimed at healthcare institutions.
5. In the meantime, I once again communicate with CIM-MF to validate with them the handling of their request, and possible changes to come to make it easier to anticipate requests.

What has changed in the IT department (API) since the creation of these Project Manager positions?

We are 5 IT project managers who coordinate the projects of the GDSI department in collaboration with our managers and colleagues.
If there's a job in which no two days are the same, it's that of project manager.
We structure and oversee the progress of the different projects. We use new tools in the Agency, such as Confluence and Jira, which help us on a daily basis to track and centralise documents, and manage the projects. Our role includes conducting meetings, managing teams, and sometimes cross-functional management. Each request made is handled by a project manager, according to the project.

What are the aspects that need to be improved in this organisation?

Sometimes, it's still difficult to get an overall picture of each person's work load and schedules.
This is starting to come into place. Since development engineers work on numerous projects, it's not always easy to prioritise projects.
Given our work load and our organisational structure, we don't yet have enough interactions among project managers. We still don't have enough time to share good practices.
One of the difficulties remains compliance with lead times. We often work on a just-in-time basis, which often proves stressful. Events can also interfere with the proper unfolding of projects. We need to be flexible and bounce back quickly to provide solutions within the allotted time.

What about the strong points?

The project managers' centralising and planning of requests facilitate exchanges and improve working methods and access to information. This takes some burden off development engineers who can focus more attention on technical development and tool production.

The project manager's role also includes general assistance and functional analysis.
Personally speaking, I really like coordinating projects, progressing as a team, dealing with a variety of issues, and improving my skills within the Agency.
I would say (laughter) that the project manager is a bit like a chameleon: he/she takes on this or that role and quickly shifts from one to the other!

Anne Lavallard
Software Factory Administrator, IT System Demand and Development Management Department (GDSI)

What is the meaning of the new term "Software Factory"?

The Software Factory is a factory for the development of software. The aim is to automate the maximum number of tasks in the production of software, in particular the phases where human intervention brings little added value or can even be a source of errors, such as repetitive tasks or very long procedures. The objective is to remove human intervention where it is not needed.

In concrete terms, what is your role?

Today, I devote one third of my time to the Software Factory.
Along with a colleague, we are the administrators of the future platform that organises the automation robots – Jenkins, a robot orchestrator site. A robot will read a settings file like a kitchen recipe, and implement the different stages of the recipe.
I ensure that Jenkins is operating properly and I write the recipes that describe the construction of the application, and then its deployment in the right environment. A project is usually sent to three places:
- the development environment for developer colleagues
- validation for the operational teams (internal or external) who check the application
- production for the final version aimed at users.

Test stages are to be added between the application development and deployment stages. The tests well be described by the new AQS team. The goal is to have a maximum number of automatic tests conducted by Jenkins for each new software version.
To facilitate the engineers' work, we have to ensure that the factory meets their needs. We thus listen to their grievances and correct problematic aspects.
At the moment, the factory is undergoing adjustments. We need to collectively validate that the chosen organisational structure is operational for developers and testers.

How does the Software Factory work?

There are several Jenkins (around ten of them) in the Agency, i.e. one or two per former API department. The new factory is designed to host all projects and ultimately keep only one Jenkins. To avoid any impacts on rollout, shutting down a Jenkins requires the prior transfer of all the projects it manages to the new factory. This is an ambitious but important goal, to free us from the maintenance of all those sites, which are all slightly different.
Transferring these projects requires prior harmonisation work. They must be adapted to be built like the projects already in the factory. This reduces multi-tiered operation and improves each developer's ability to intervene in a project, even if he/she hasn't conducted that project themselves.

What has changed with the creation of this

Software Factory?

Automating what can be automated implies the standardisation of practices, which means pooling them and making them visible to all.
The big advantage is having a robot that applies a recipe which is always the same, and much more often than a human being.
My role is to disseminate good practices within the department and organise the factory based on the state of the art and the methods used in other projects worldwide.

What is the advantage of the Software Factory?

It saves precious time and avoids human error, in particular by getting rid of repetitive operations. It works well if time is devoted to proper structuring prior to production.
For instance, in late December 2021, a global security flaw was generated by the "log4shell" vulnerability which affected all projects developed in the Java programming language. The Pasrel projects, written in Java, were affected, but as they had already migrated to the new factory, they were quick to correct. Everything was already automated. All I had to do was change one description line. I saw the robots getting to work and I only had to check the result at the end. That's the advantage of the Software Factory!

What does a Software Quality and Test Engineer do?

He/she is tasked with ensuring the proper operation of the software developed at ATIH and checking that the results comply with the specifications of each product.
Before the rollout of the new IT department organisation, development engineers used to test all the software themselves. This did not allow detailed tests to be conducted on all the functionalities developed.

How do you work?

Within the AQS department, we are now 3 quality and test engineers. For my part, I exclusively work on the new PMSI MCO software.
To enhance our professional qualifications and skills, we attend training sessions that will lead to a certification from the ISTQB (International Software Testing Qualifications Board) in 2022. This will enable us to acquire the vocabulary, meet testing standards (ISO – International Organization for Standardization and IEEE – Institute of Electrical and Electronics Engineers) and master the entire test process.
Furthermore, in synergy with the Software Factory team, we are currently developing a system to automate tests. Tests are conducted on a "Jenkins" continuous integration platform, which operates like a website. We develop snippets of code (script) that the server launches automatically to search for the parts of the programme to be tested. It then generates a table of indicators stating whether the tests have succeeded or failed. We thus find the errors and produce an anomaly record.

What do you actually do?

To conduct the tests, I develop a set of specific data for each functionality to be tested (anomalies detected with the description and the data set used to reproduce the bug) in the form of tickets in the Jira tool.

We also use the Confluence tool to consult the version delivery sheets and capitalise on our techniques and methods in the test processes.

My developer colleagues can thus correct the bugs and improve the software's quality, performance and robustness.

I create the tools that will generate data sets, i.e. sample files that the software will be able to process. I then check the results generated by the software to make sure that they match the specifications defined.

I also manage the tests across several test environments. Software can be tested on a PC, a virtual machine (Citrix, an environment isolated from a workstation), a tablet, a mobile phone, etc.

For the quality aspect, I check that the results put out by the software are consistent with the input data and that the data computing and processing rules comply with the software's specifications.

How are the tests carried out?

To begin with, we generate a test plan to define the components to be tested. Tests are conducted throughout the creation of the software, all the way to its utilisation phase.

A software test can be defined on 4 levels:

1. component test, for example on an authentication button: to see if it works
2. integration test, for the functioning of the interface between different components: to check whether the authentication server recognises the request
3. software system test: to confirm that the software complies with the specifications
4. acceptance test: to confirm that the final result complies with user needs (ergonomics, operation, professional rules, etc.).

What types of tests are conducted?

There are different types of tests:

- functional tests to ensure that the software meets user needs, and that the results provided are correct
- performance tests to estimate the response time for each command, calculate the resources needed by the application for its operation (the amount of time taken by the disc/processor and the amount of memory allocated)
- compatibility tests, to validate the user environment (co-existence of several versions of the same software with different data sets)
- reliability tests, to check that user needs are met (maturity), that the product offered is actually available to users, its ability to withstand load peaks (availability), the application's reaction following an error (robustness), the amount of time required to restore the application (recoverability)
- security tests, to assess the security level for the application and its environment, and also the security for users of the application, by ensuring that only authorised persons access the data (confidentiality), that the actions carried out by a user are linked to that user in a unique way (responsibility), and that the person identified as having carried out an action is effectively that person (authenticity)
- non-regression tests performed on a previously tested programme which has undergone one or more modifications. We have to ensure improvement and enhance the data set and test book to add new functionalities.

Do institutions test the software they are going to use?

Yes. When an intermediate software version is ready, we launch a full-scale test by asking a few institutions to take part in it. We provide them with a product along with a delivery sheet and a set of procedures with the different stages to follow to test the software.

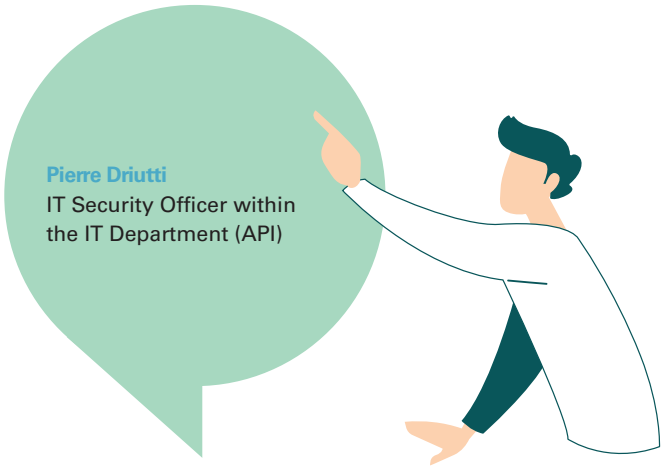
They report any anomalies encountered, that may be attributable to their environment, their operating system, incorrect use or a software error. We analyse the problems encountered.

If a bug is detected in the software, we seek to reproduce the anomaly by creating the required data set, so that the developers can effectively correct the anomaly. The trickiest thing is the correction of random anomalies,

which are difficult to reproduce.
Thus, our role is to save development time to search for these anomalies, and make them non-random through data sets and test scenarios, so they can systematically be reproduced.

What do you like in this new job?

The interest of this job is that it is highly varied, with very little routine work. It's a new challenge that requires a lot of rigour.
I've also learned new test-specific programming languages and discovered new tools: the Selenium framework which automates web application tests, WinAppDriver which automates user interface tests for PC applications, and the Squash tool suite to design, automate, perform and industrialise tests.
And, as all testers can confirm, despite all the tests, we are unfortunately unable to guarantee the absence of bugs in the software. However, we can guarantee that the software is operating properly and poses no risk for the user.



Pierre Driutti
IT Security Officer within the IT Department (API)

What is the role of an IT Security Officer (RSSI) at ATIH?

The RSSI is tasked with ensuring the security of the IT system, the availability of the data, their integrity (non-modifiable) and their confidentiality (access restricted to authorised persons).
To this effect, he/she ensures the conduct of regular assessments of the IT system to search for (and correct) any security flaws that could affect the system, and helps to choose future technologies.
The RSSI must also raise staff awareness on anything that could undermine the general IT system. This can be done through the presentation of concrete examples, and by organising "phishing" campaigns, i.e. sending a fraudulent e-mail to see if people reply to it.

Why was this position created?

This job is not new within the Agency. Before, it was handled by the Head of the "Systems and Networks Division". Today, I am exclusively assigned to that position and report directly to the Head of the IT department (API). I am thus independent and cover the entire department and Agency.
The Agency's security system is not so different from what it was before I arrived. Changes are made on a continuous basis, whenever flaws are detected, when new criteria or directives need to be taken into account, or when we want to introduce new functionalities. It's an ongoing process.

In concrete terms, how do you work?

Since my arrival in late March 2021, I've mainly been working with the Infrastructures department, with whom I hold weekly meetings to discuss the Agency's current security policy and reflect on what could be done in the future to be proactive.

With the developers, I conduct a review of the current situation. Numerous applications are published. I try to review them to detect any security flaws. When I identify a problem, I try to give pointers on how to solve it, even though I don't always have the solution.

My goal is to increase the developers' awareness of good practices and make them understand that security is not a separate aspect, but one that must be taken into account from the very first phases of the development of the software.

Security is part and parcel of the "quality" of the software. Ideally, I'd like to be involved in the earlier stages of development (and before the rollout) to be able to suggest a particular action and avoid certain problems afterwards.

In the Software Factory, we use a statistical analysis tool called "Kiuwan" – which is integrated in the continuous development chain – to detect any security flaws, based on how the code was written. This tool rates vulnerabilities by severity level (Very High, High, Normal, Low). In the future, the goal would firstly be not to produce an application with vulnerabilities rated "Very High".

Several times a week, I also check the vulnerability notifications published, focusing in particular on those that could affect our products. My sources are CERT-FR (Computer Emergency Response Team) from the French National IT Security Agency (ANSSI), communications issued by the SANS Institute (a globally recognised cybersecurity training organisation) and specialised sites like "The Hacker News".

What topics are you working on at the moment?

At the end of 2021, upon the discovery of the critical "log4shell" vulnerability affecting the "log4j" libraries used in most Java applications deployed worldwide (and thus at ATIH), I was asked to work on this issue. This flaw could allow an external non-authenticated hacker to take control of the underlying server. It was therefore necessary to take stock of the applications using those libraries, apply the corrective measures if needed, and check that the risk had actually diminished for the Agency.

I'm also working on the new pseudonymisation system for sensitive data. After the CNIL's formal demand to CNAM to change its aging pseudonymisation process, ATIH was, by extension, required to change its own process. I am providing general assistance and participating in the management of this project.

With respect to the certification of the PLAGE/PASREL authentication and user identification framework, I've been studying the flaws of the system on a regular basis before the launch, in the first half of 2022, of an audit for the certification of this framework.

With respect to the hospital data platform, I have to ensure that the SNDS security standards are complied with. With our Data Protection Officer (DPO), we check that personal health data is only accessible via this certified environment and that no such data gets out of that environment.

Still with our DPO, we are working on the set-up of tools to facilitate work within the Agency. Complying with security standards is sometimes a major constraint for our developers who may be hindered by a lack of access to data. We therefore help to put in place tools (in particular with the help of the DATA department and API) to create fictitious data sets that can be used without restriction.

With the DATA department and our DPO, at the end of March 2022, we will be presenting a reminder to all personnel concerning the rules to be complied with during the handling of personal health data. The goal is to specify the legal requirements and what staff members are allowed to do.

What type of relations do you have with external users?

For the moment, I have few interactions with external users. From time to time, I ask institutions to check whether certain accounts have been usurped. I may also contact institutions if users are using our tools in a non-compliant way.

What obstacles did you encounter on your arrival at the Agency?

There is little documentation on the IT system. There is a large variety of different servers. Consequently, it's not always easy to find the information you need. Thought should be given to the creation of a centralised system.
Moreover, the topic of security is still not fully grasped by certain staff members. Since they are very busy on their daily tasks, they don't always have time to focus on it. It's a culture change. It'll take time for security to become second nature for everyone. In the meantime, I have to remind them again and again.
In addition, I arrived during the health crisis, a period in which teleworking was the norm. This didn't help to speed up my onboarding.

What about facilities?

The Agency has good working conditions. Even though we can be overloaded with work, we have the proper equipment to move forward. I have the required trust and free rein to act. For instance, I've already had access cut off to certain pages of sites that did not comply with security requirements.
Being an IT Security Officer (RSSI) is interesting and stimulating, especially given the variety of facilities and diversity of subjects dealt with.
Everything is done in a friendly atmosphere, even though the pace is not always what I would like!

The ENC department becomes the Collige department

Over recent years, the missions of the National Cost Study (ENC) department were gradually extended. The name of the department no longer reflected all of its activities and was somewhat misleading for health players.

The name ENC was no longer consistent with the department's missions. The scope of its activities has expanded. In addition to national cost studies – which are still managed by the department – the activities now include:

- the accounting adjustment (RTC) campaign
- cost surveys in the health sector (A&E, Psychiatry) and medico-social sector (SSIAD/SPASAD, PH, EHPAD)
- national data collection in the medico-social sector (SSIAD/SPASAD and PH)
- the performance dashboard campaign of medico-social institutions and services (ESMSs)
- financial campaigns in the healthcare sector (EPRD/PGFP, RIA, financial accounts, etc.).

The department's new name will improve its external visibility. It is important for the name of the department to explicitly refer to the activities it performs and properly reflect the Agency's missions and organisation.

The ENC department is in contact with numerous players of the health ecosystem: national partners (DGOS, DGCS, CNSA, CNAM, ANAP, federations representing the different sectors, etc.) and local partners (ARS, healthcare institutions, ESMS, etc.).

Within the Agency, the department's main focus is the collection of data, their control and compiling, as well as the provision of assistance to institutions during the various data collection campaigns, whether mandatory or optional.

The ENC department has thus become the COLLIGE (acronym of *COLLecte des Informations de Gestion* – Management Data Collection) department, indicating that the department's scope of action goes beyond costs and covers other information (financial information, description of the facilities involved, etc.).

What's more, the French verb "*colliger*" (compile) accurately reflects the department's missions, which are to collect and compile data to allow their processing.

GLOSSARY

ABM
Agence de la biomédecine – Biomedicine Agency

ANAP
Agence nationale d'appui à la perfromance – National support agency for the performance of healthcare institutions

ANS
Agence du numérique en santé – Health-related digital technology agency

AP-HP
Assistance publique hôpitaux de Paris – Public assistance, Paris hospitals

ARS
Agence régionale de santé – Regional Health Agency

CMA
Complication ou morbidité associé – Associated complication or comorbidity

CMD
Catégorie majeure de diagnostic – Major category of diagnosis

CNAM
Caisse nationale d'assurance maladie – National Health Insurance Fund

CNIL
Commission nationale de l'informatique et des libertés – French Data Protection Authority

CNSA
Caisse nationale de solidarité pour l'autonomie – National Solidarity Fund for Autonomy

COP
Contrat d'objectifs et de performance – Objectives and Performance Contract

CRD
Chronic Renal Disease

CSARR
Catalogue spécifique des actes de rééducation et réadaptation – Specific catalogue of rehabilitation procedures

DAF
Direction des affaires financières – Financial Affairs Department

DG
Dotation globale – Total allocation

DGS
Direction générale de la santé – General Directorate of Public Health

DGCS
Direction générale de la cohésion sociale – General Directorate of Social Cohesion

DGFIP
Direction générale des finances publiques – General Directorate of Public Finance

DGOS
Direction générale de l'offre de soin – General Directorate of Healthcare Services

DIM
Département d'information médicale – Department of Medical Information

DMA
Dotation modulée à l'activité – Activity-based allocation

DNS
Délégation du numérique en santé – Health-related digital technology delegation

DREES
Direction de la recherche, des études, de l'évaluation et des statistiques – Directorate of Research, Studies, Evaluation and Statistics

DRUIDES
Dispositif de remontée unifié et intégré des données des établissements de santé – Unified and integrated healthcare institution data reporting mechanism

DSS
Direction de la sécurité sociale – Directorate of Social Security

EDS
Épisode de soins – Care episode

EHPAD
Établissement d'hébergement pour personnes âgées dépendantes – Residential care institutions for dependent elderly people

ENC
Étude nationale de coûts – National cost study

ESMS
Etablissements de santé et médico-sociaux – Healthcare and medico-social institutions

GDPR
General Data Protection Regulation

GHM
Groupe homogène de malades – Homogeneous patient group

GHS
Groupe homogène de séjours – Homogeneous stay group

GME
Groupe médico-économique – Medico-economic group

HAD
Hospitalisation at home

HAS
Haute autorité de santé – French Health Authority

ICD
International Classification of Diseases

IFAQ
Incitation financière pour l'amélioration de la qualité – Financial incentive to improve quality

IMD
Implantable medical devices

INCA
Institut national de lutte contre le cancer – National Cancer Institute

INSERM
Institut national de la santé et de la recherche médicale – National institute for health and medical research

IPEP
Incitation à la prise en charge partagée – Shared care incentive

LYSARC
Lymphoma Academic Research Organisation

LFSS
Loi de financement de la sécurité sociale – Social Security Funding Act
de la sécurité sociale

MCO
Médecine, chirurgie, obstétrique et odontologie – Medicine, surgery, obstetrics and dentistry

ONDAM
Objectif national des dépenses d'assurance maladie – National objective for healthcare spending

OQN
Objectif quantifié national – National quantified objective

PEPS
Paiement forfaitaire en équipe de professionnels de santé en ville – Flat-rate payment per team of non-hospital healthcare professionals

PH
Personnes handicapées – People with disabilities

PMSI
Programme de médicalisation des systèmes d'information – Programme for Medicalisation of Information Systems

RAAC
Réhabilitation améliorée après chirurgie – Improved post-surgery rehabilitation

REIN
Réseau épidémiologique et information en néphrologie – Nephrology information and epidemiology networks

RIA
Relevé infra annuel – Infra-annual statement

RIM-P
Recueil des informations médicales en psychiatrie – Collection of medical information in psychiatry

RPU
Résumé des passages aux urgences – A&E care summary

RTC
Retraitement comptable – Accounting adjustment

SAE
Statistique annuelle des établissements de santé – Annual statistics of healthcare institutions

SERAFIN-PH
Services et établissements : Services et établissements : réforme pour une adéquation des financements aux parcours des personnes handicapées – Services and institutions: reform to adapt funding to the pathways of people with disabilities

SIIPS
Soins infirmiers individualisés à la personne soignée – Nursing care tailored to the person receiving care

SNDS
Système national des données de santé – National Health Data System

SPASAD
Services polyvalents d'aide et de soins à domicile – Multidisciplinary home aid and care services

SPF
Santé publique France – French Public Health

STSS
Stratégie de transformation du système de santé – Health system transformation strategy

SSIAD
Service de soins infirmiers à domicile – Home nursing services

SSR
Soins de suite et de réadaptation – Post-acute care and rehabilitation
UO – Unité d'œuvre – Work unit

WHO
World Health Organization

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Graphic design Anne Fraysse - mai 2022