



National dose register: status of development

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FANC AFCN

federaal agentschap voor nucleaire controle
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www.fanc.fgov.be

Objectives

To ensure radiological protection both to permanent workers and to outside workers in an more efficient way

- ❖ Dosimetric surveillance: verifying respect of dose limits
- ❖ Tool for ALARA dose optimisation
- ❖ Statistics and overviews
- ❖ Epidemiologic studies
- ❖ Centralized communication and support tool for the sector. E.g:
 - Communication operator/outside undertaking for outside workers
 - Radiological documents for cross-boundary outside workers
 - Dose validation by recognised occupational physicians
 - ...



Stakeholders consultation required from the beginning and during all key development stages !!!

Aspects of the project

1. Organisational and operational processes
2. Legislation framework:
 - ✓ Adaptation of the FANC Law (Law "exposure register")
 - ✓ Transfer of competence
 - ✓ Fields of application of exposure register
 - ✓ Type of content
 - ✓ Users and their rights
 - ✓ Sources of data
 - ✓ Royal Decree (RD "exposure register"):
 - ✓ Detailed content of the exposure register
 - ✓ Role of the different actors
 - ✓ Agency Decree :
 - ✓ Practical and technical modalities of use
 - ✓ Details over the data to be transmitted
3. Historical data/archives
4. ICT Development of the system

Scope

- **Occupationally exposed individuals** including:
 - Self-employed
 - Outside workers
 - Extended to all occupational activities with possible IR exposure (not necessarily due to human activity):
 - NORM
 - Aircrew
 - Intervention staff (radiological emergency)
 - ...
- Individuals exposed during **activities 'assimilated' to professional activities:**
 - Apprentices/students
 - Volunteers

➤ **"Individual subject to dosimetric follow up"**

Coherent with
new BSS!!!

Content and sources

- **General data:**

- ✓ Worker identification (including occ.category)
- ✓ Organisation identification (including activity sector, HPD, ADS, occupational physician, ...)
- ✓ Relation worker-employer

- **Occupational dose data:**

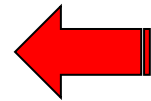
- ✓ Dose value
- ✓ Dose type
- ✓ Monitoring period
- ✓ ...

- **Medical surveillance data :**
medical fitness to work in presence of IR

- **Data on RP training** received by the worker

Stakeholders:

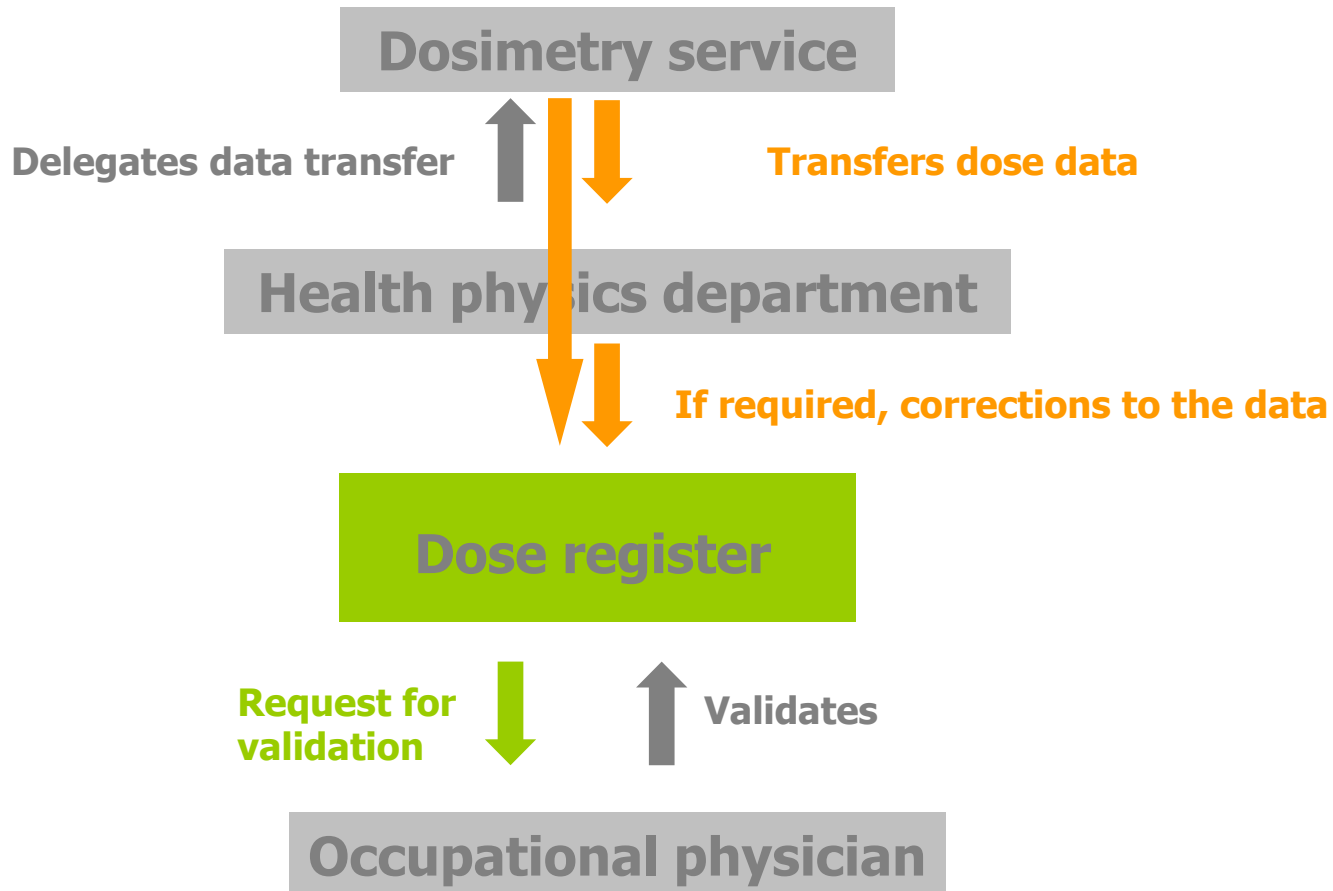
- ✓ Health physics departments
- ✓ Approved dosimetry services
- ✓ Occupational physicians
- ✓ Undertakings/employers of outside workers



Other data sources:

- ✓ National (or BIS) register
- ✓ Database of Belgian companies
- ✓ Social security database
- ✓ Database of the external medical services (Co-Prev)

Dose data flow



Consultation rights of the users

- FANC and FPS Employment **All data**
 - Undertakings/employers of outside workers
 - Health physics departments (HPD's)
 - Approved dosimetry services (ADS)
 - Recognised occupational physicians
 - Workers **Their own data**
- Data for the workers they are responsible for/follow/monitor**

History and important steps

- Initiated in 2007

- Active phase between 2007 et december2010:

- Needs analysis
- Business analysis
- Pilot version + tests
- Establishment of the annual electronic data transfer to FANC (via HPD or ADS) according to a format and a model of data fixed by the Agency (in // to the reporting by exposure tables to the FPS Employment)
- Draft of regulation texts

***In close
collaboration with
stakeholders***

History and important steps

- **December 2010:** decision to develop the dose register as a module of the new general FANC DB (=> pilot version abandoned)
 - **Development of the new general DB was a priority**
 - **Forced latency for** ICT development until the launching of the new FANC general DB in **June 2014**
- Despite this latency period:
 - **January 2011:** Workshop with HPD's & ADS on the file content and the data channels (get more data via the HPD's and avoid making links with authentic sources)
 - **In 2013 :** Transfer of the paper archives from the FPS Employment →FANC (Gosselies)
 - **Januari 2014:** Publication of the **"Dose register law"**

Restart of the system development (since June 2014)

According to a phased approach

Phase 1: development of the dosimetry DB and associated upload application

Phase 2:

- implementation of a revised data model in the database
- progressive implementation of overviews and analysis functionalities

Phase 3:

- progressive opening of the system to other actors and implementation of consultation functionalities
- implementation of the **validation of the doses by the occupational physician** and of the production of **radiological passeports**

Phase 4: other types of radiological data: medical fitness, RP training



System development (since june 2014)

Database and associated upload application

- ❑ The application is accessible from a web platform and includes :
 - **automatic check of the structure and content** of the datafiles with **production of reports of warnings and errors**. Examples:
 - Dubious dose values-> **warning**
 - Overlapping of dose periods -> **warning**
 - Missing identification number for a worker-> **error**
 - functionalities for treating warnings and viewing uploaded data
 - secured access: personal username and password

- ❑ In march 2016:
 - creation of the accounts (data providers)
 - application and user manual accessible to data providers

=> annual data transfer 2016 (doses 2015) via the application!

<https://dxp.fanc.be>



federal agency for nuclear control

Data Exchange Platform

Log In

User Name

Password

Log in

[Forgot your password?](#)

Data Submission

Data Provider

FANC

Upload New File(s)

Color codes: **Successfully processed** // **Warnings during processing** // **Errors during processing**

Refresh Grid

	File Number	Date Submitted	File Name	Size	Status	Status Date	
▶	DF201600115	14/03/2016 14:45:13	TestFileForValidation.xml	45.17 kB	Processing finished	14/03/2016 14:46:17	🔒
▶	DF201600107	11/03/2016 15:43:07	TestFile6_v0_2.xml	697.85 kB	Processing finished	11/03/2016 15:44:36	🔒
▶	DF201600113	14/03/2016 11:18:27	Test_Dosimetry_FANC_FANC.xml	1.29 kB	Processing finished	14/03/2016 11:19:24	🔒
▶	DF201600114	14/03/2016 12:04:51	DP001_DemoFile_1_Jan15_Correct.xml	3.14 kB	Processing finished	14/03/2016 12:05:06	🔒

100 items per page

1 - 4 of 4 items

Processing results

Processing Results

SysAdmin

Datafile format: NDR_XML_v0_2

Click the button below to download a ZIP archive containing your submitted file and processing result and log files:

[Download file package](#)

Click the button below to navigate to the data validation interface for this file:

[Validate imported data](#)

If you wish to delete the dose data that was imported in the NDR from this file, click the button below:

[Delete imported data](#)**Processing messages:**

Date	Type	Message
14/03/2016 11:19:21	Info	Parsing started
14/03/2016 11:19:22	Info	Schema validation successfully passed.
14/03/2016 11:19:22	Info	No issues detected during parsing.
14/03/2016 11:19:22	Info	Parsing finished
14/03/2016 11:19:22	Info	Importing started
14/03/2016 11:19:22	Info	Organisations imported successfully
14/03/2016 11:19:23	Info	People imported successfully
14/03/2016 11:19:23	Info	Doses imported successfully
14/03/2016 11:19:24	Info	Post import tasks completed successfully
14/03/2016 11:19:24	Info	No issues detected during import
14/03/2016 11:19:24	Info	Importing finished

Statistics:

Description	Value
Organisations	1
Workers	1
Dose Records	1

DF201600136_Results [Read-Only] - Micros...

File Home Insert Page L Formu Data Review View Develk

Clipboard Font Alignment Number Styles Cells Editing

L2 fx

	A	B	C	D
1	File information valid	Yes		
2	Organisations with issues	1		
3	Workers with issues	1		
4	Occupational dose records with issues	1		
5				
6				

Summary Organisations Workers OccupationalDoses

Ready 100%

DF201600136_Results [Read-Only] - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Developer

Normal Page Layout Show Zoom New Window Arrange All Freeze Panes Window Save Workspace Switch Windows Macros

E2 fx

	A	B	C
1	RowNumber	Errors	Warnings
2		24 Identifier BE_NR_Number/87032323747 could not be validated	
3			
4			
5			
6			

Summary Organisations Workers OccupationalDoses

Ready 100%

Processing Results

SysAdmin

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Statistics:

Description	Value
Organisations	1
Workers	1
Dose Records	1

With selected: Accept

First Name	Last Name	Sub Type	Radiation Type	Begin Date	End Date	Value (mSv)	Status	Reason	Status Date	<input type="checkbox"/>
Thibault	Vanaudenhove	HP10		01/01/2016 00:00:00	31/01/2016 23:59:59	50.00	ManValReq	HighDose	19/02/2016 15:58:00	<input checked="" type="checkbox"/>

									With selected: (Select an action) ▾		Apply
	First Name ▾	Last Name ▾	Sub Type ▾	Radiation Type ▾	Begin Date ▾	End Date ▾	Value (mSv) ▾	Status ▾	(Select an action)		<input type="checkbox"/>
▶	Thibault	Vanaudenhove	HP10		01/01/2016 00:00:00	31/01/2016 23:59:59	50.00	ManValReq	Accept		<input checked="" type="checkbox"/>
					01/01/2016	31/01/2016			Reject		
									To Validate		

With selected: **Accept**

Apply

First Name	Last Name	Sub Type	Radiation Type	Begin Date	End Date	Value (mSv)	Status	Reason	Status Date	
Thibault	Vanaudenhove	HP10		01/01/2016 00:00:00	31/01/2016 23:59:59	50.00	ManValReq	HighDose	19/02/2016 15:58:00	<input checked="" type="checkbox"/>

System development (since june 2014)

Revision of the content of the data files

- Aim: get the link between a dose and the occupational physician, get additional data to be able to make interesting overviews/statistics (e.g: official reports, ESOREX, ...), ...
- Examples of additional datafields :
 - Occupational physician/medical service
 - Activity sector
 - Worker practice
 - Worker profession
 - If dose to an extremity => specific extremity
 - If internal dose => specific radioisotopes and incorporation channel
 - If dose to an organ => specific organ
 - If calculated dose => reason for the calculation (specific code)
 - ...
- Additional data block: employment contracts and status of the worker with respect to the employer

System development (since june 2014)

Revision of the content of the data files

- Revised data model submitted to the HPDs and ADS in june 2015
- Feedback received and analysed + actions to be taken identified:
 - ❖ A lot of questions
 - ❖ Some minor modifications required
 - ❖ The channel of the “authentic sources” had to be (re)investigated. Difficult for the external services to provide and maintain :
 - ✓ data concerning the employment status
 - ✓ and identification data for **outside undertakings**, in particular the indication of their **occupational physician/medical service**

Développement du système (since june 2014)

Revision of the content of the data files

- Contacts with authentic sources have been (re)activated:
 - Crossroads bank for Social Security (CBSS)
 - National Social Security Office (NSSO)
 - National Institute for the Social Security of the Self-employed (NISSE)
 - Association of occupational health and safety services (Co-Prev)

→ access request to employment data through the CBSS officially accepted on 6 september!
- The revised data model for the datafiles can now be:
 - fixed and communicated to the external services -> *by the end of november 2016*
 - implemented in the application -> *by the end of 2016*

System development (since june 2014)

Listing of the typical desired statistical and overview possibilities (progressive implementation)

Overviews:

- Doses of a given worker on a given period and according to a given dose type
- Exceedings of a dose limit/threshold for a given worker on a given period
- List of workers for a given employer
- Annual doses (of a given dose type) for a given group of workers
- Doses details for a given group of workers on a given period
- ...

Statistics:

1) Selection of group of workers according to a combination of filters (employer, activity sector, gender, age, professional practice, ...)

2) Selection of a dose type to observe

⇒ Possible statistics on these individual results (ex: mean, max, nb of doses $\in [x1;x2]$)

Regulatory framework: status of development

- Law “dose register” published on 26 january 2014
- Draft of RD “dose register” including modifications to the RD 20/07/2001:
 - Detailed content of the dose register
 - Duties of the different actors
- Draft of Agency Decree: practical and technical modalities concerning
 - Data transfers (frequency, deadlines, datafile content)
 - Data corrections
 - Overview and analysis fonctionnalités (*according to progress*)
 - Validation by the occupational physician(*according to progress*)
 - The radiation passport (*according to progress*)

Being finalized according to:

- *The revision of the data model*
- *The possibility of obtaining data from authentic sources*
 - ⇒ *should be ready for internal consultation by november 2016*
 - ⇒ *should be in the regulatory pipeline in the 1st quarter of 2017*

Regulatory framework: status of development

- The **frequency of submission** of the dose data file should increase progressively to finally reach the **frequency of the monitoring cycles**



Transitory regime over 3 years in the regulation from the date of entry into force

Regulatory framework: status of development

Formalization of the annual electronic dose reporting to the FANC in replacement of the submission of exposure tables to the FPS Employment

- RD modifying art 24 of RD 20/07/2001 (ARBIS-RGPRI) + art 27-28 of RD 25/04/1997 (FPS Employment)
- **For the reporting by the HPD's to other actors on the ground: everything keeps unchanged!**
 - ✓ Communication of the results without delay after each monitoring period
 - ✓ Production and transmission of the exposure tables
- **The exposures tables should still be signed** by the employer and the occupational physician and **kept** at the 2 levels!
- Project submitted in march 2014 -> refused by the Council of State in nov 2014
- Revised project submitted in **march 2015**:
 - ✓ Higher Council for prevention and protection at work-> ok
 - ✓ Superior Health Council-> ok
 - ✓ Council of Ministers -> at the agenda of 7/10/2016 -> ????
 - ✓ Council of State - > to be submitted

Thank you for your attention!!!