



Dose register and radiological passbook for external workers in Belgium

Dose register and radiological passbook

Objective :

Guarantee the radiological protection of permanent and outside workers

- Surveillance :
 - Respect the dose limits
 - Respect the regulatory requirements
 - Responsibilities of all the actors : operator, employer, Health physics service, occupational physician
- Optimisation : ALARA
- Statistics
- Epidemiology

Dose register and radiological passbook

1. Dose register

- Professionally exposed persons
- Students and apprentices
- NORM

“persons submitted to dosimetric surveillance”

- Employees of facilities situated in Belgium
- Employees of a Belgian employer, missions with risk of exposure in Belgium or abroad
- Independant workers submitted to the Belgian social security, missions with risk of exposure in Belgium or abroad

2. Radiological passbook

- Outside workers
 - In Belgium :
 - Data entirely integrated in the dose register
 - Missions with risk of exposure abroad
 - Register completed with (paper) radiological passbook = individual document

Dose register : contents

Worker
National nb
 Identity data
 Address
 Nationality
 Language
 Dose limits

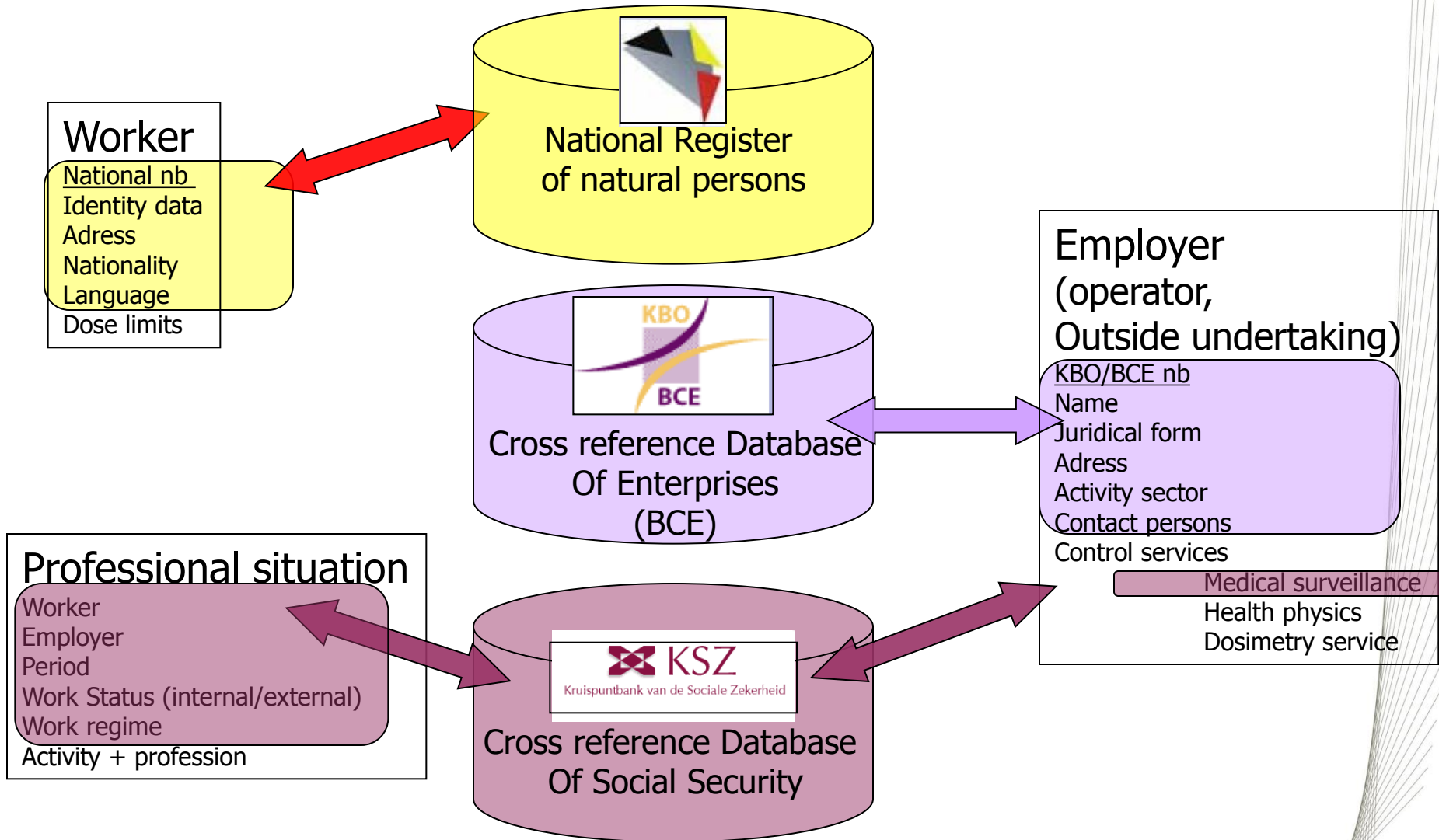
Professional situation
 Worker
 Employer
 Period
 Work status (internal/external)
 Work regime
 Activity and profession

**Employer
 (operator,
 outside undertaking)**
KBO/BCE nb
 Name
 Juridical form
 Address
 Activity sector
 Contact Persons
 Control services
 medical surveillance
 health physics
 dosimetry service

Exposure file
 Worker
 Employer
 Operator
 Dose
 Employer
 Operator
 Period
 Dose type and subtype
 Dose
 Medical surveillance
 date
 medical fitness
 restrictions
 Training
 Basic training
 Specific training

Dose type
 ...
 H_p(10) individual dose equivalent
 H_p(0.07) skin dose
 H_p(0.07) extremity dose
 E₅₀ internal dose
 E calculated
 ...

Basic data



Identification & Authentication by e-ID (or Federal Token)

- *e-ID*

- Identification : certificate +
pincode



- *Federal token*

- Fed-ICT
- Identification : login + password
+ token



Actual status

- Round table (May 2009)
 - Pilot version of the system
 - First version of the regulation
- Test of pilot system with limited number of users (nov 2009 – feb 2010)
 - Feedback
- Electronic transfer of doses of 2009 + 2010 by the Health Physics services



Feedback, modifications

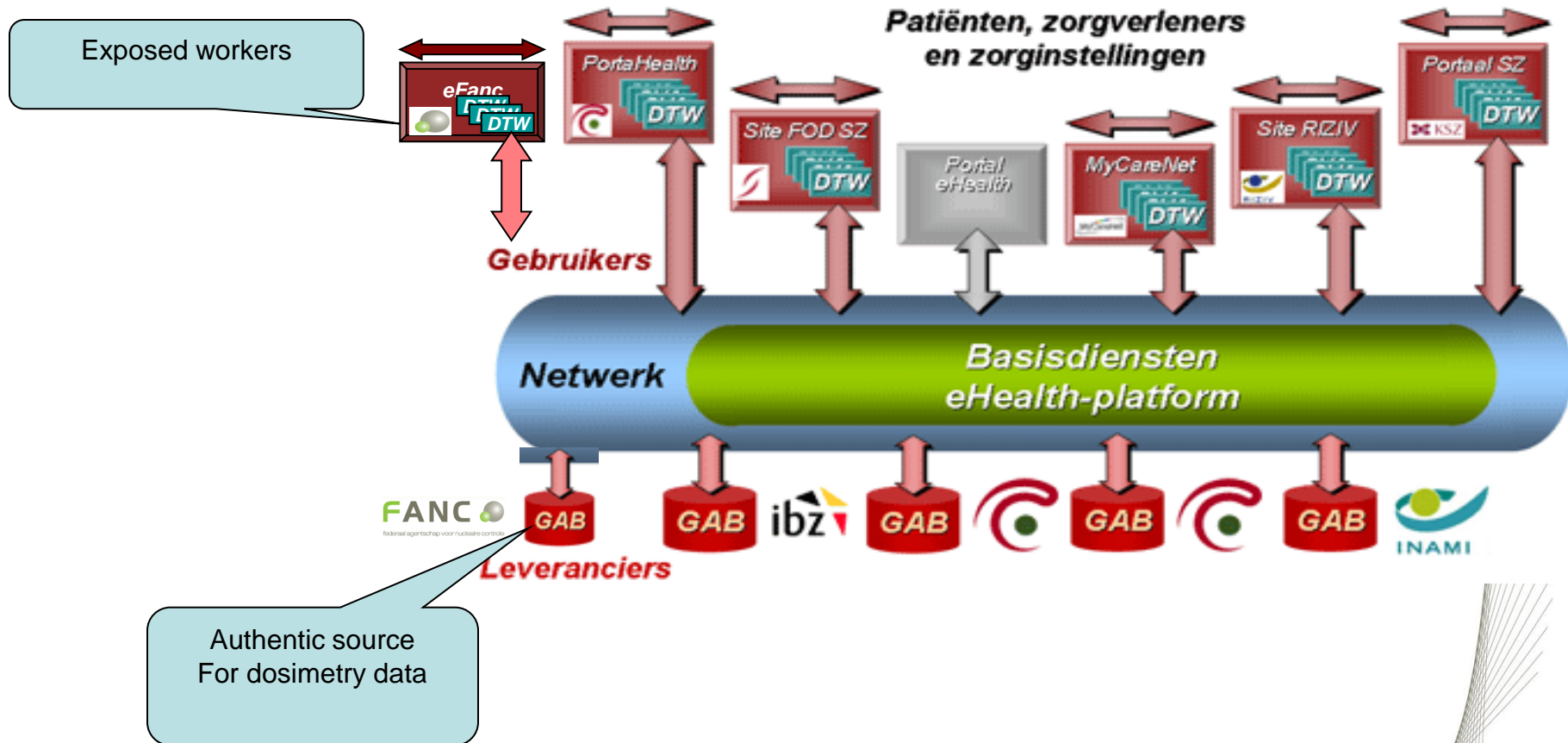
Problems identified

Robustness
Delegation model
Missing Information
Information origin ?
Integration CIS1

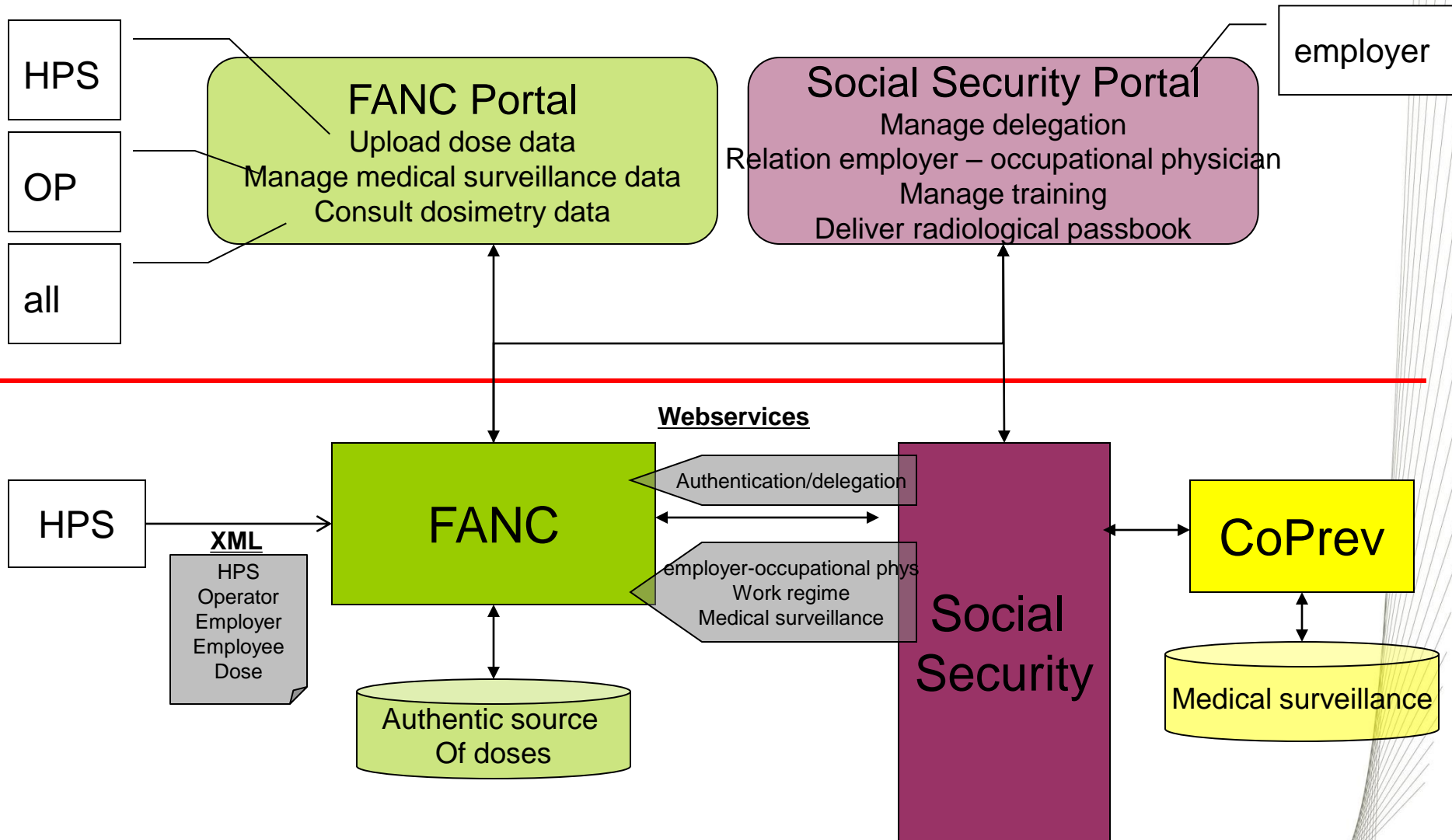
Proposed solutions

Different technology
Integration of delegation model of Social Security
Proposal of classification
Less information by employers, more via the HPS (XML)
Integration in new project CIS2

Integration in Social Security Service Bus

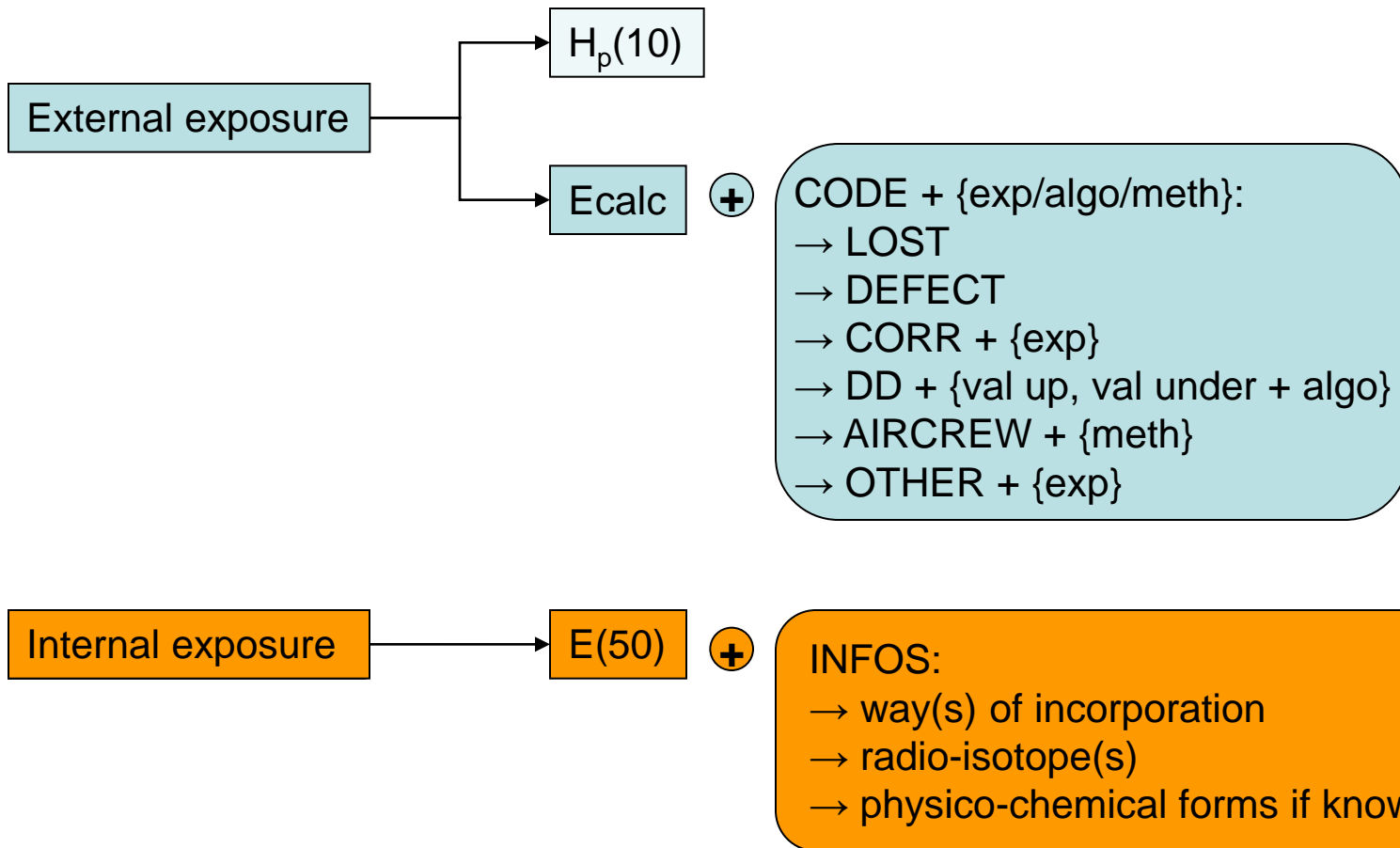


Interaction



Classification of dose subtypes

- For the effective dose E



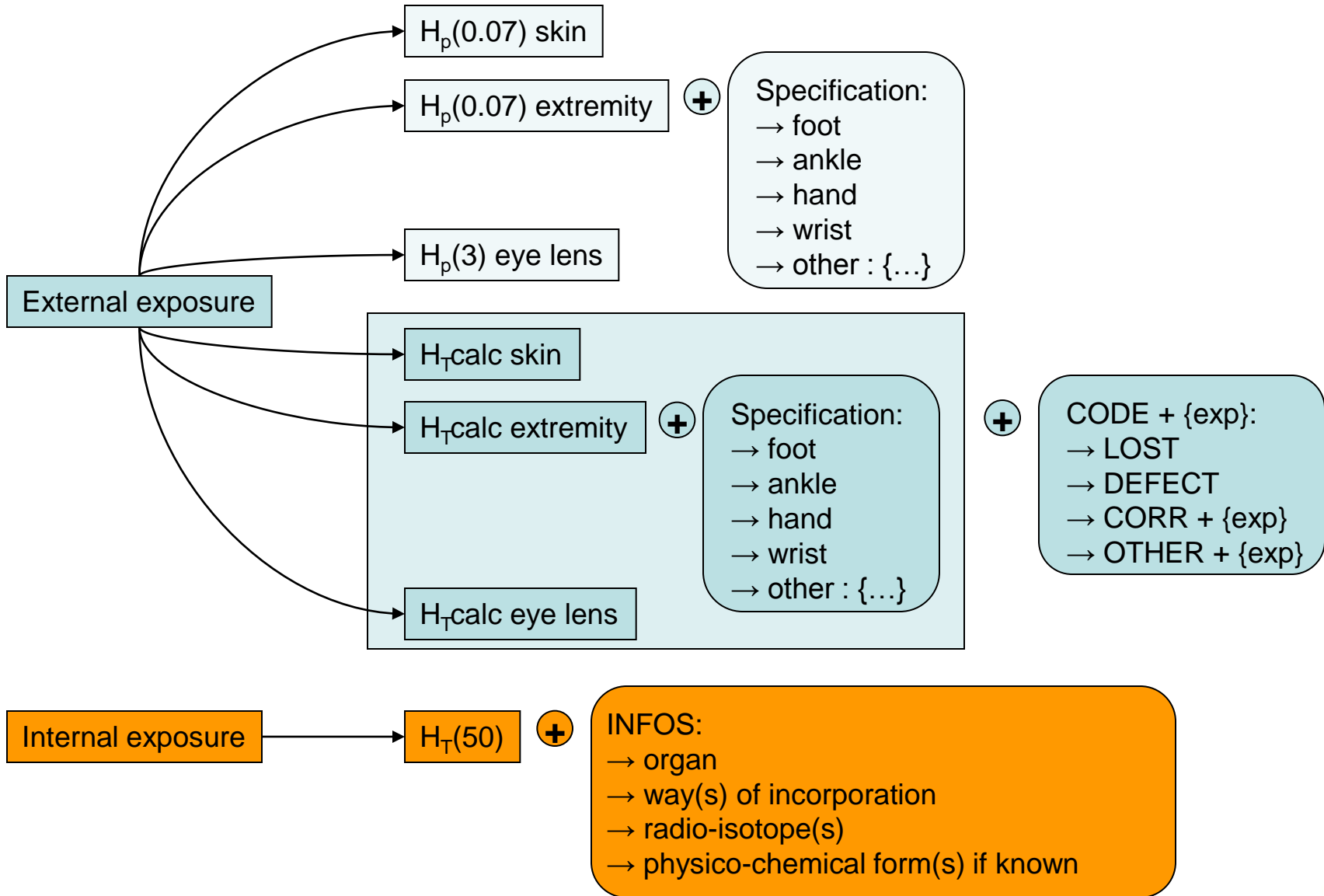
Classification of dose subtypes

▪ Meaning of the codes

- LOST: dosimeter lost or not returned
- DEFECT: dosimeter defect
- CORR + {expl} : the measured value is corrected taking into account the local characteristics of the radiation field. In this case, an explanation is given
- DD + {val up, val under, algo}: double dosimetry. In this case, the algorithm must be specified as well as the values measured under and above lead apron
- AIRCREW + {meth}: calculated dose for an aircrew member, with the aid of a numerical model. In this case, the calculation method should be specified.
- OTHER + {expl}: for example when a high dose value read on a dosimeter, that cannot be attributed to the person (dosimeter left in proximity of a source), a hypothetical dose is attributed to the person.

Classification of dose subtypes

- For the equivalent dose (H_T) in a part of the body



Feedback electronic transfer of data of 2009-2010

Most frequently observed problems

- XML file structure not conform with the specified structure
- Most frequently observed
 - Separate files (f.ex: per month/ service / ...). - 1 file for the concerned period is recommended
 - Unique numbers missing : BCE/national register
 - Non-conform date format
 - Correct :
 - YYYY-MM-DD for Date type (f.ex: 2011-01-31)
 - YYYY-MM-DDThh:mm:ss for DateTime type (f.ex: 2011-01-31T09:00:00)

Data fields XML (1)

Originator

OriginatorType
CompanyNumber
ResponsibleName
ResponsibleEmail

Employer

Country (list)
CompanyNumber
Name
OccupationalService (list)
OccupationalPhysician (list)
DosimetryService (list)
RecordType (start/stop/update)

Operator

Country (list)
CompanyNumber
Name
ActivitySector (list)
Facility (list)
OccupationalService (list)
OccupationalPhysician (list)
DosimetryService (list)
HealthPhysicsService (list)
RecordType (start/stop/update)

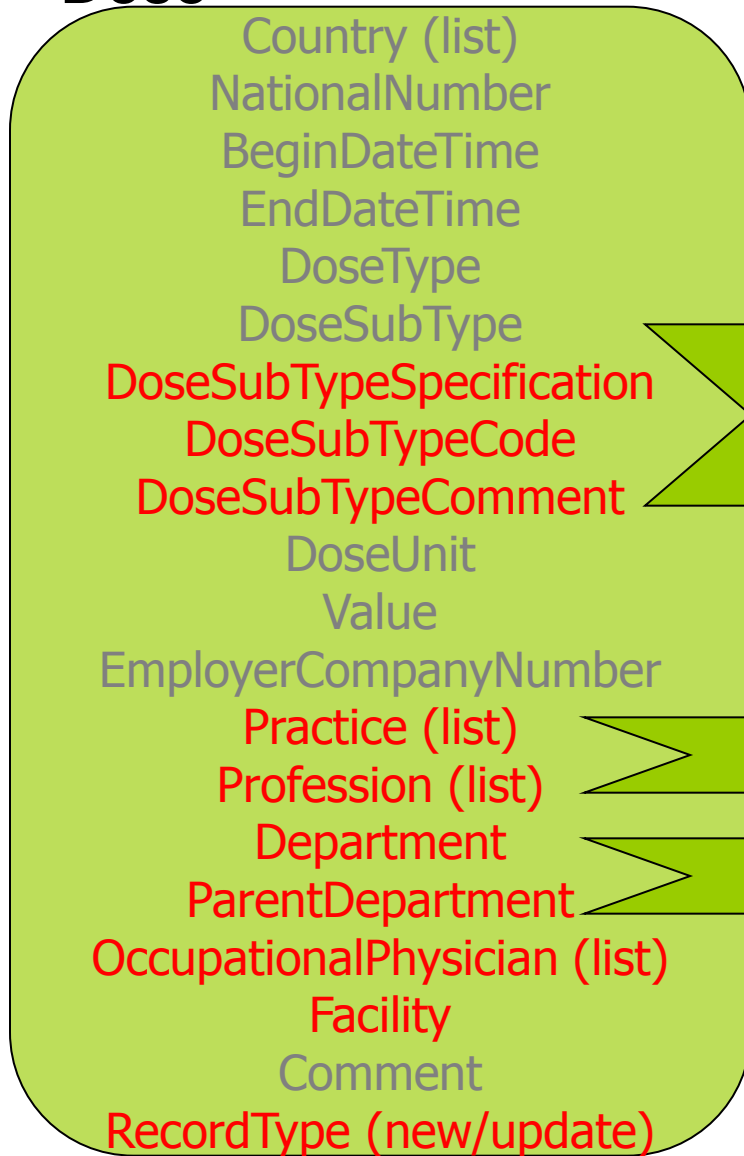
Data fields XML (2)

Worker

Country (list)
NationalNumber
FirstName
LastName
BirthDate
Gender
RecordType (start/stop/update)

Data fields XML (3)

Dose



Dose Subtypes + Specifications + Codes for calculated dose

Worker (main) activity

Employer internal structure