Multi Indicator Model:
DRD and cross validation with opioid indicators

Sabrina Molinaro, *National Research Council of Italy*
Patrizia Coda *Central Directorate for the Antidrug Services*

SOURCE OF DRD ESTIMATION

Special Registry data are referred to deaths due to direct drug abuse, and not to indirect causes (e.g., road accidents caused by driving while intoxicated, or drug-related diseases).
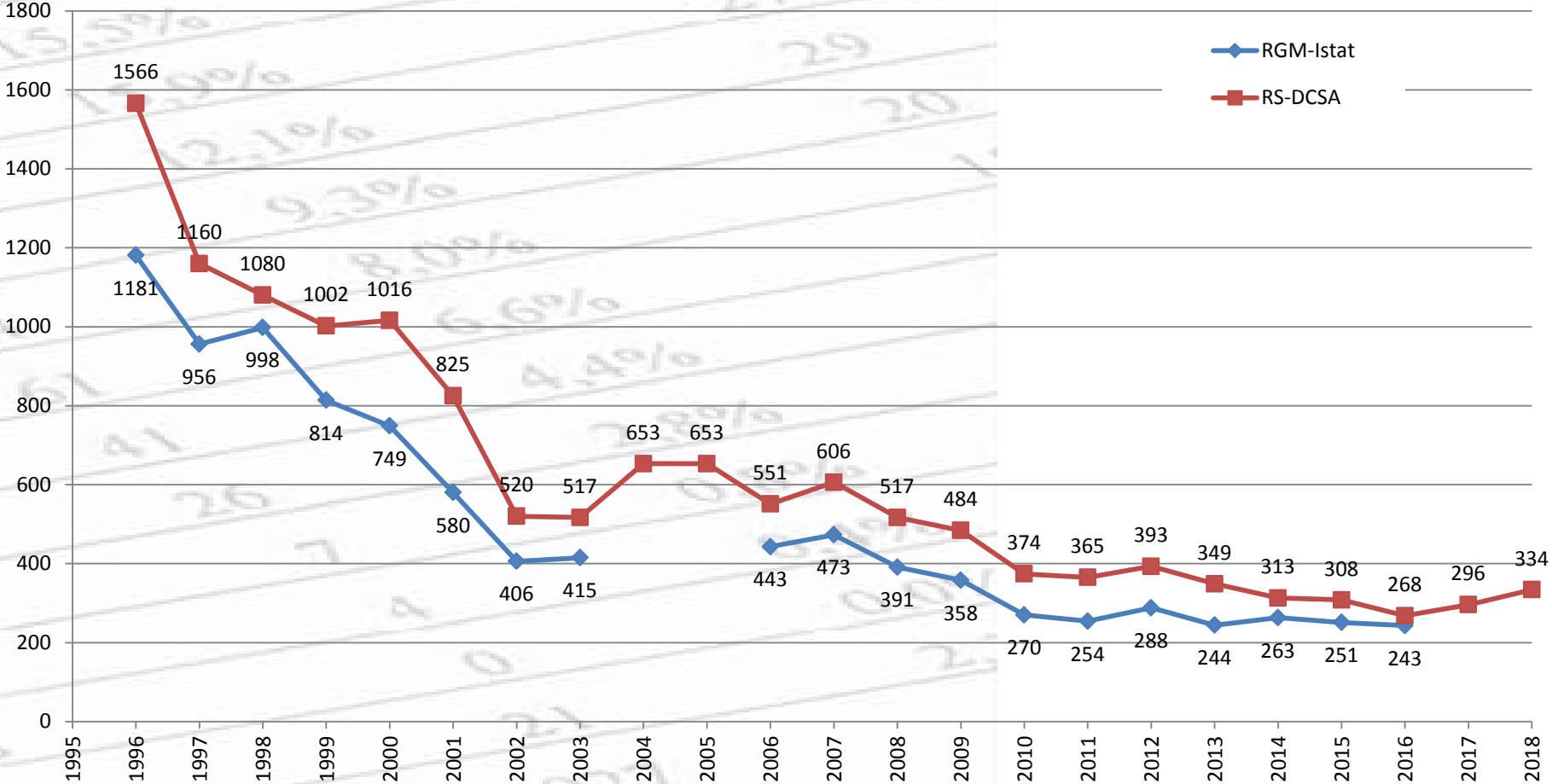
Moreover, the data do not refer also to those deaths that were not reported to the police authorities. It must be stressed that the drug abuse death documentation sent by the police authorities to the DCSA are not always completed by toxicological and postmortem examinations, that are usually ordered by the Judicial Authority.

General Mortality Register (GMR), managed by the Istat.

The selection of ICD codes used for the analysis follows the definition of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA – selection B): Group 1: Mental and behavioral disorders due to psychoactive substance use (Icd10: F10-F19); Group 2: Poisoning and exposure to harmful substances (Icd10: X42, X41, X62, X61, Y11, Y12).

Drug-related deaths for multiple and initial causes. Percentage distribution for groups of substances (%)
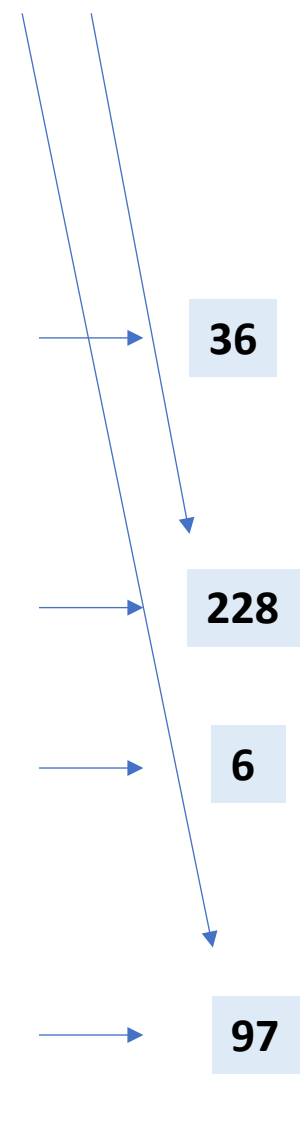

230

Overdose deaths.
Percentage distribution for substances

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Opiate/opioid (total)	50.4	43.6	52.2	43.6	46.2	50.2	34.1	108	54.8	51.2
Heroin / morphine	48.8	41.2	48.1	41.8	42.4	47.0	33.1	37.4	50.3	46.4
Methadone	1.7	2.4	4.1	1.8	3.8	3.2	1.0	3.4	4.4	4.8
Substance unspecified	39.9	44.4	38.4	45.1	43.0	42.2	52.5	58	25.5	28.1
Total	484	374	362	390	344	313	305	265	294	334

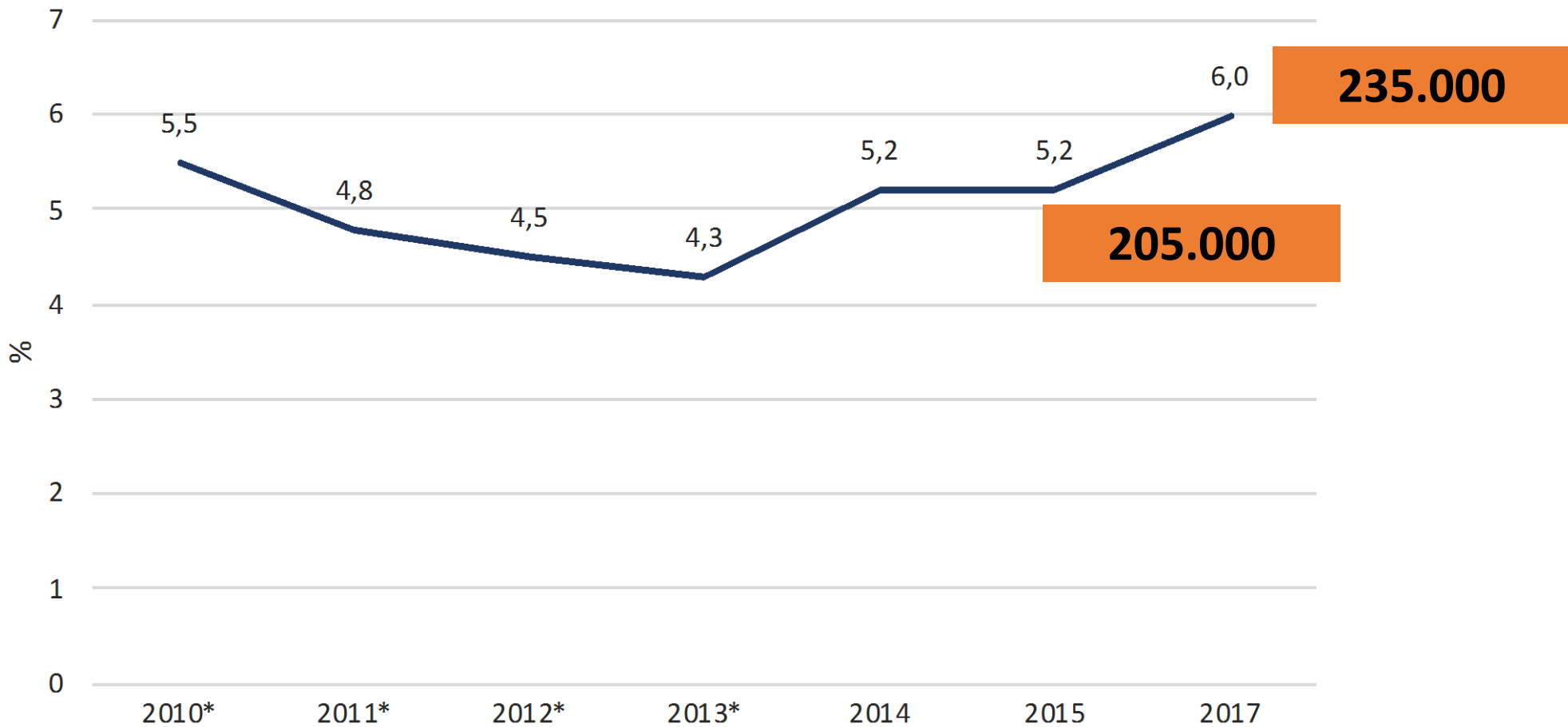# Drug-related deaths for multiple and initial causes. Percentage distribution for groups of substances (%)

	2009	2010	2011	2012	2013	2014	2015	2016	
MULTIPLE CAUSE									
Number with opiates (+ any drug)	22.1	8.9	14.1	8.9	9.6	11.5	4.0	6.5	**36**
Number with any drug without opiates	2.6	3.8	2.1	3.6	3.4	2.8	12.2	11.0	
Other/mixed/unspecified	75.3	87.3	83.9	87.5	87.0	85.7	83.7	82.6	**228**
INITIAL CAUSE								**557**	
Number with opiates (+ any drug)	22.1	4.4	8.3	6.6	8.2	8.0	7.2	7.0	**6**
Number with any drug without opiates	5.3	7.0	7.5	8.4	3.7	2.7	9.6	11.1	
Other/mixed/unspecified	72.6	88.5	84.3	85.0	88.1	89.4	83.3	81.9	**97**
								243	

264

HROU ESTIMATION:

Standardized rates (per 1.000.000 residents in Italy)

SOME COUNTRY SPECIFIC CONSIDERATION

HERE PROBABLY WE ALSO NEED TO CONSIDER ALSO THE Opioid users NON IN OST: but in TREATMENT (INPATIENT or PRISONER) (24.000)

HROU ESTIMATE: 205.000

Opioid users in OST: 62,868 (assumed not injectors) → opioid users not in OST - 142,332

	1. never injected	2. ever injected (1)	2.1 injected, but not in the last 12 months	2.2 injected in the last 12 months, but not in the last 30 days	2.3 currently injecting (2)	3. don't want to answer	99. not known / missing	Total
Opioids (Total)	5151	7674	789	1796	5089	348	3272	16445
1.1 heroin	4730	7485	766	1748	4971	320	3122	15657
1.2 methadone misused	112	72	12	19	41	10	36	230
1.3 buprenorphine misused	37	17	3	8	6	2	19	75
1.4 fentanils misused								
1.5 other opioids (1)	272	100	8	21	71	16	95	483

IFC

SOME COUNTRY SPECIFIC CONSIDERATION

% injectors among HROU entering treatment (TDI): **47%** - usual route of administration (2016)

Considering Currently injecting 31%   **Considering Currently injecting + LY + LT 47%**

	1. never injected	2. ever injected (1)	2.1 injected, but not in the last 12 months	2.2 injected in the last 12 months, but not in the last 30 days	2.3 currently injecting (2)	3. don't want to answer	99. not known / missing	Total
Opioids (Total)	5151	7674	789	1796	5089	348	3272	16445
1.1 heroin	4730	7485	766	1748	4971	320	3122	15657
1.2 methadone misused	112	72	12	19	41	10	36	230
1.3 buprenorphine misused	37	17	3	8	6	2	19	75
1.4 fentanils misused								
1.5 other opioids (1)	272	100	8	21	71	16	95	483

IFC

Multi Indicator Model :

ITALY	Mortality risk - estimated	Expected deaths	Reported deaths "with opioids"
62,868 in OST	2.6/1000	163,5	
74,734 not in OST, not injectors	4.3/1000	321.3	
67,598 non in OST, injectors	14.5/1000	971.5	
Total: 205,200		**1456 (?)**	**193**

Multi Indicator Model with some adjustment :

ITALY	Mortality risk - estimated	Expected deaths	Reported deaths "with opioids"	
62,868 in OST	2.6/1000	163,5		
74,734 not in OST, not injectors	4.3/1000	321.3		
104.734 considering in patient		450.3		
67,598 non in OST, injectors	14.5/1000	971.5		
37.598 considering in patient		545,1		
Total: 205,200		1456 (?)	193	264
		1.158		457

DRD UNDERESTIMATION:

DRD UNDERESTIMATION:

WHAT DO WE KNOW ?

THE NUMBER OF DEATH IS UNDERREPORTED:
- SR is only partially informative
- GMR is affected by many information bias (underreporting by MD ; Codification of death certificate [ministry of health] on the basis of existing information, etc)

% OF INJECTORS REPORTED IN TDI SEEMS TO BE HIGHER OF ALL OTHER COUNTRY,
THAT COULD BE COUNTRY SPECIFIC TREATMENT SYSTEM IUSSUE

WHAT ARE WE DOING?

- Currently CNR is developing a protocol for cohort study among patients of a sample of public services for addictions. The study will be carried out in 2020.
This study will give us information about overdose mortality but also about quality of reporting (waiting for the Ethic Comitee)

- We will run a capture-recapture estimation using two different sources of DRD

- We will start a project with a sample of Emergency Department

IFC

Thanks

@EpidemiologiaRicercaCNR