



# **Estonian retrospective PLHIV cohort study**

Gleb Denissov

Head of Estonian Causes of Death Registry



## Study design

- Conducted by Liis Lemsalu, a PhD student based at NIHD
- Retrospective registry-based cohort study
- All HIV related (ICD-10 B20-B24, Z21, F02.4, O98.7, R75) national ID-code based healthcare data were collected from national databases since the database went electronic (Estonian Health Insurance fund since 2000, Health Board since 2010, Prisons' Healthcare since 2008)
- Linked to Estonian Causes of Death Registry
- Censored at the end of 2017

## Cohort under study

	<u>TOTAL</u>	<u>DEAD</u>		<i>p</i> ( $\chi^2$ )
	<i>N</i>	<i>n</i>	%	
<b>PLHIV</b>	7857	1851	23.6	
<b>Sex</b>				<0.001
- Male	4991	1387	27.8	
- Female	2866	464	16.2	
<b>Age at censoring or death</b>				<0.001
- 0 – 17	230	7	3.0	
- 18 – 30	1522	680	44.7	
- 31 – 45	4764	853	17.9	
- 46 – 60	1023	226	22.1	
- > 60	312	79	25.3	
<b>Followup in years since HIV presentation <sup>a</sup></b>				<0.001
- <1	711	472	66.4	
- 1 – 5	2418	865	35.8	
- 6 – 10	2891	435	15.0	
- > 10	1837	79	4.3	
<b>Clinical stage at HIV presentation <sup>b, c</sup></b>				<0.001
- Acute	227	31	13.7	
- Latency	5112	1169	22.9	
- AIDS	1782	518	29.1	
- Unknown	726	131	18.0	

## Results: causes of death

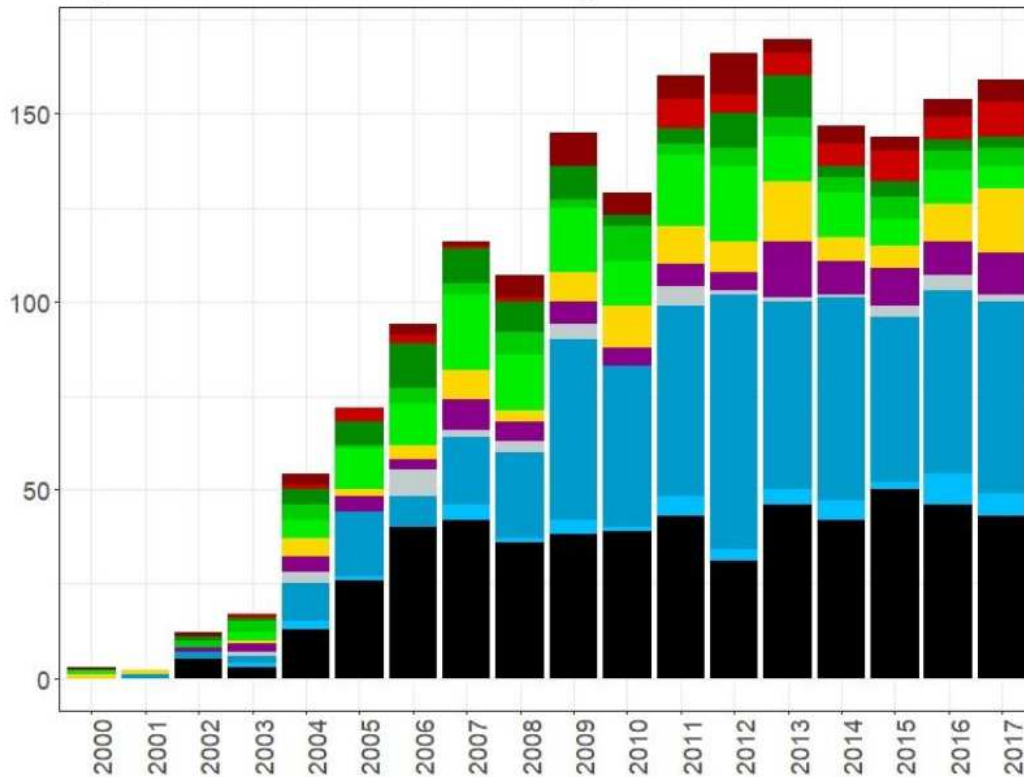
Main cause of death	ICD-10	Total		Increase <sup>a</sup>	Age at death		Followup in years	
		<i>n</i>	%	<i>n1/n</i>	median	IQR	median	IQR
<b>Cancers (HIV related)</b>	B21, C46, C53, C81 - C86	71	3.8	1.2	34	30 – 40	1.6	0.4 – 5.6
<b>Cancers (non-HIV)</b>	C00 – D48 (excl. C46, C53, C81 – C86)	58	3.1	1.3	51	42 – 61	2.9	1.4 – 6.5
<b>Tuberculosis</b>	A15 – A19, B20.0, B90	90	4.9	1.2	36	29 – 41	1.0	0.2 – 3.5
<b>Pneumonia</b>	B20.6, J12 – J18	67	3.6	3.1	33	29 – 42	2.5	0.3 – 6.0
<b>Other infectious and parasitic diseases</b>	A00 - B99 (excl. A15 – A19, B15 – B19, B20.0, B20.6, B21 – B24, B90, B94.2), J09 – J18	179	9.7	0.9 <sup>b</sup>	33	27 – 41	1.5	0.2 – 4.1
<b>Cardiovascular diseases</b>	I00 – I99	117	6.3	3.7	45	34 – 61	3.4	1.7 – 6.8
<b>Hepatitis and other liver</b>	B15 – B19, B94.2, K70 – K76	103	5.6	3.1	33	30 – 41	3.2	1.2 – 7.6
<b>Neurologic disorders</b>	G00 – G99, B22.0	37	2.0	3.3	33	27 – 40	3.2	1.0 – 6.6
<b>Overdose</b>	X40 – X49	539	29.1	1.0	31	27 – 35	4.1	2.1 – 7.0
<b>Suicide</b>	X60 – X84, Y87.0	47	2.5	1.0	31	28 – 39	3.7	1.8 – 7.2
<b>Other</b>	All not previously listed	543	29.3	0.5 <sup>c</sup>	34	29 – 41	3.1	0.8 – 6.3
<b>ALL</b>	A00 – Y98	1851	100		33	28 – 41	3.2	1.0 – 6.4

<sup>a</sup> *n1*=number of times listed anywhere on the death certificate; the ratio shows whether it is more frequently a contributing factor or the main cause of death  
<sup>b</sup> Had tuberculosis and/or pneumonia as a co-morbidity; <sup>c</sup> Had at least one of the listed causes as a co-morbidity

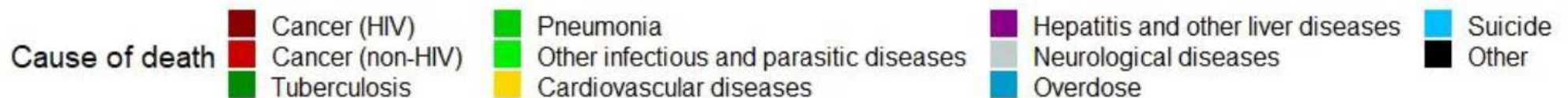
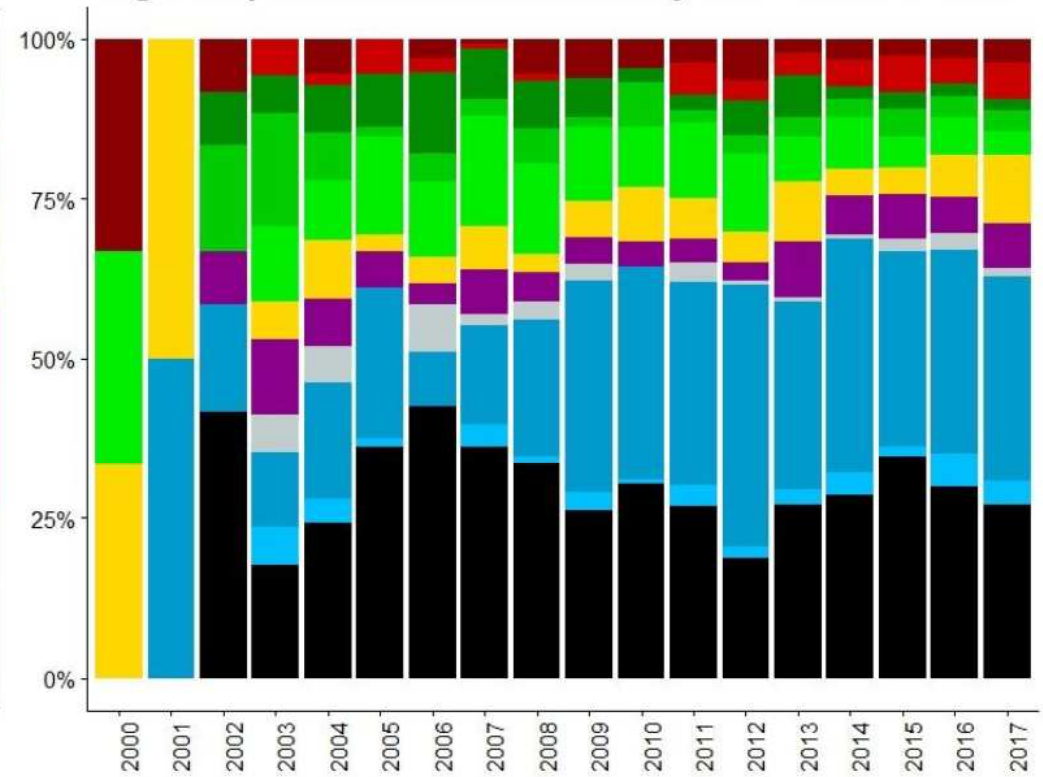


# Results: causes of death by year

**Fig1. Number of annual deaths by main cause of death**



**Fig2. Proportion of annual deaths by main cause of death**





## Conclusions

Accidental poisoning, mainly drug overdose has caused 29% deaths in the cohort

47% of DRD in 2017 were in the PLHIV cohort

Injecting drug use and HIV in Estonia are closely connected