HelmholtzZentrum münchen
German Research Center for Environmental Health

Department of Radiation Sciences, Institute of Radiation Protection
Research Group “Radiation risk”

Comparison of ProZES and IREP

Alexander Ulanovsky, Elena Shemiakina

Appendix 3 of the final ProZES report (edited in April 2016)

HELMHOLTZ
ASSOCIATION

Details on the program comparison

IREP

NCI version 5.6.1 (run in July 2015 – April 2016)

ProZES

version 2—2.3 (run in May 2015 – April 2016)

Comparison scenarios:

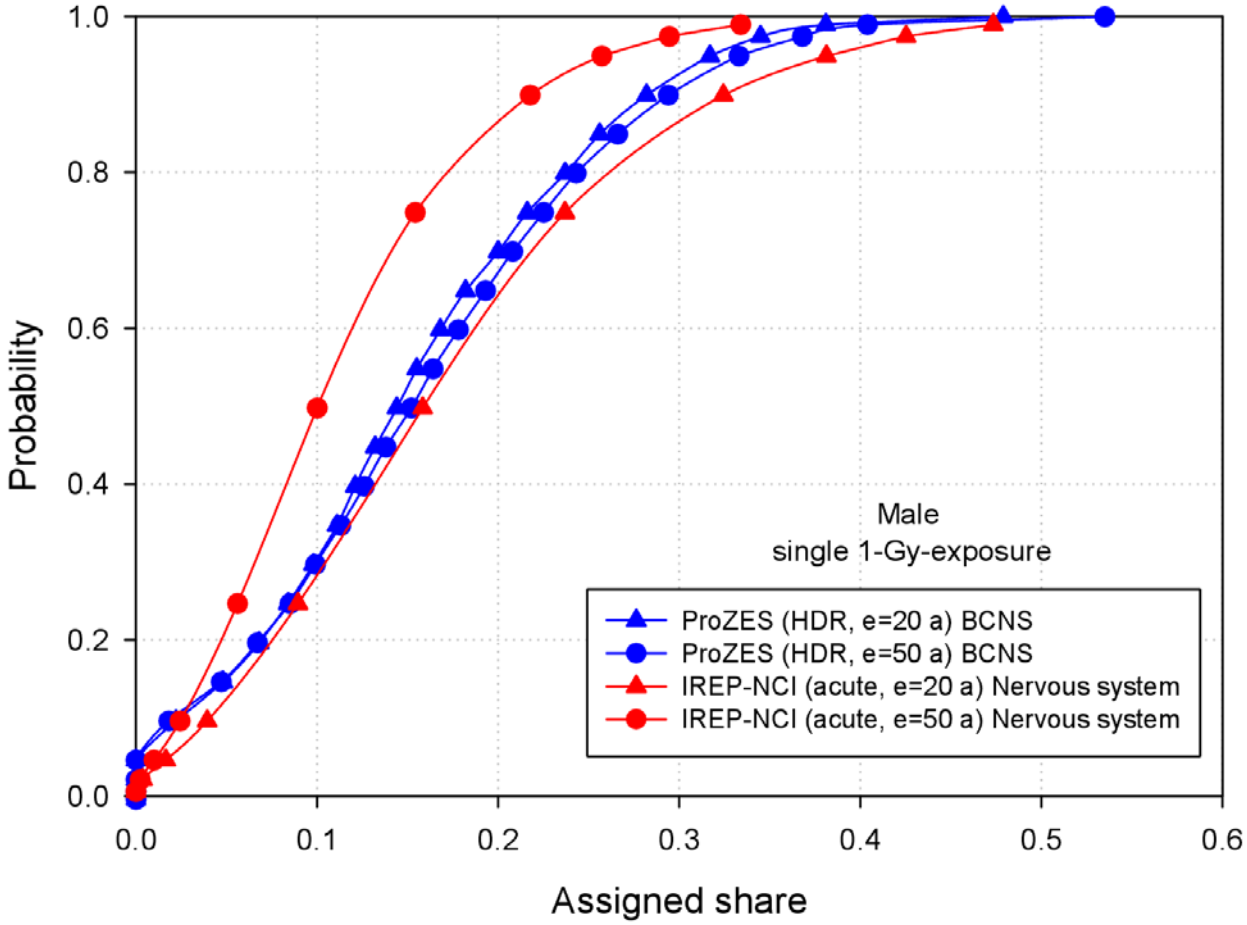
- Diagnose groups in ProZES and matching diagnoses in IREP
- Attained age 70
- Males and females
- Single acute 1-Sv-exposure (low-LET) at ages 20 and 50
- 30 × 33-mSv-exposures (low-LET) at ages 20…49
- 100-, 300-, 700-WLM-exposures to radon at ages 20, 40 , and 60

Statistical support for modelling radiation risk of cancer

- BCNS group – 281 cases (5% attr.)
- DIG group – 4083 cases (2.8% attr.)
- GNF1 group (cervical) – 978 cases (0.45% attr.)
- GNF2 group (other female genital) – 479 cases (2.7%)
- GNM group – 403 cases (1.1—1.6% attr.)
- Leukemia L1 (ALL and other) – 39 cases
- Leukemia L2 group (CLL+lymphomas) – 448 cases
- Leukemia L3 group (AML and related) – 173 cases
- Leukemia L4 group (CML) – 73 cases
- Leukemia L5 group (MM) – 136 cases
- SKIN group (non-melanoma) – 330 cases (11.7% attr.)
- Thyroid – 471 cases
- URI group – 741 cases (7.9%)

BCNS – eye, brain and central nervous system (ICD10:C69-C72)

Male, single 1-Sv-exposure at ages 20 or 50



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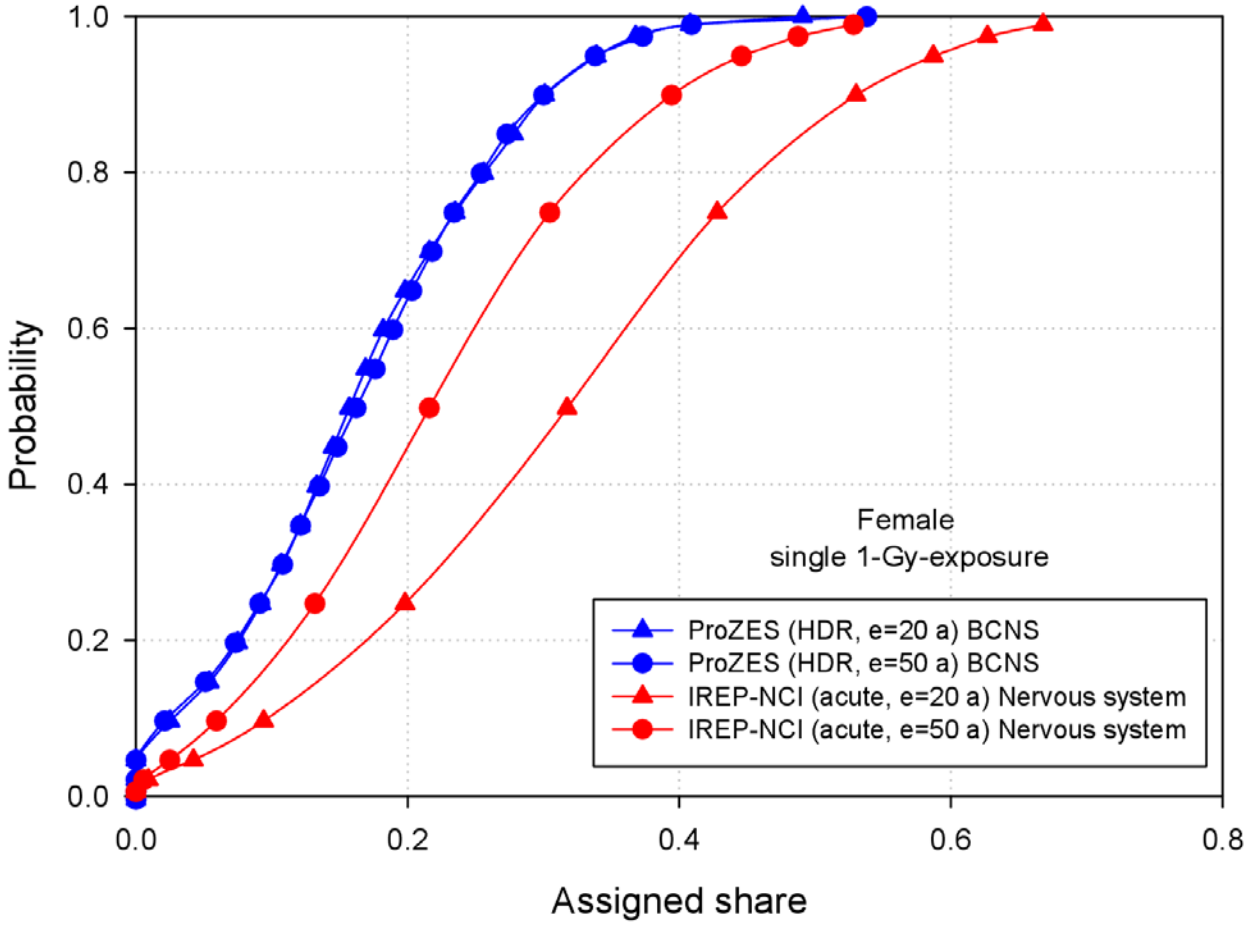

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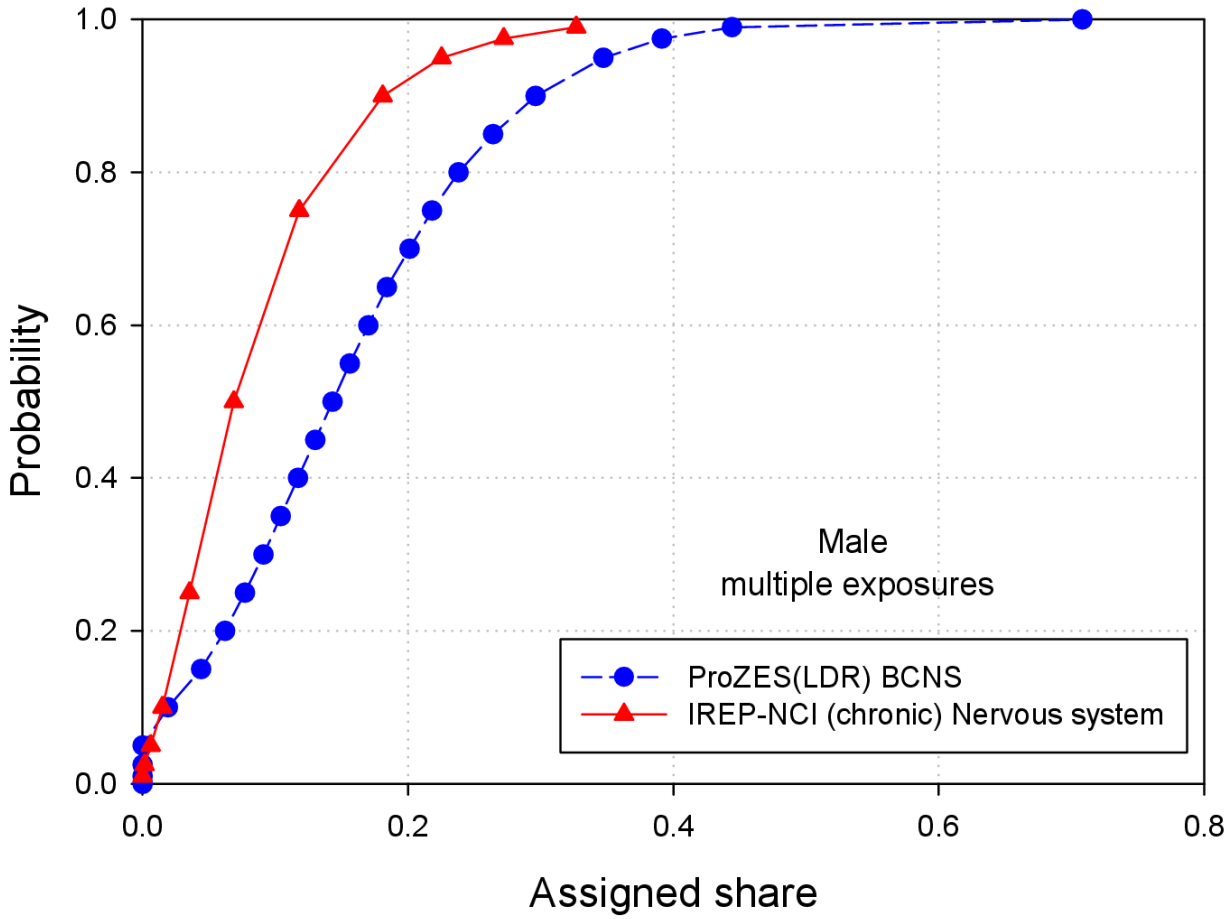

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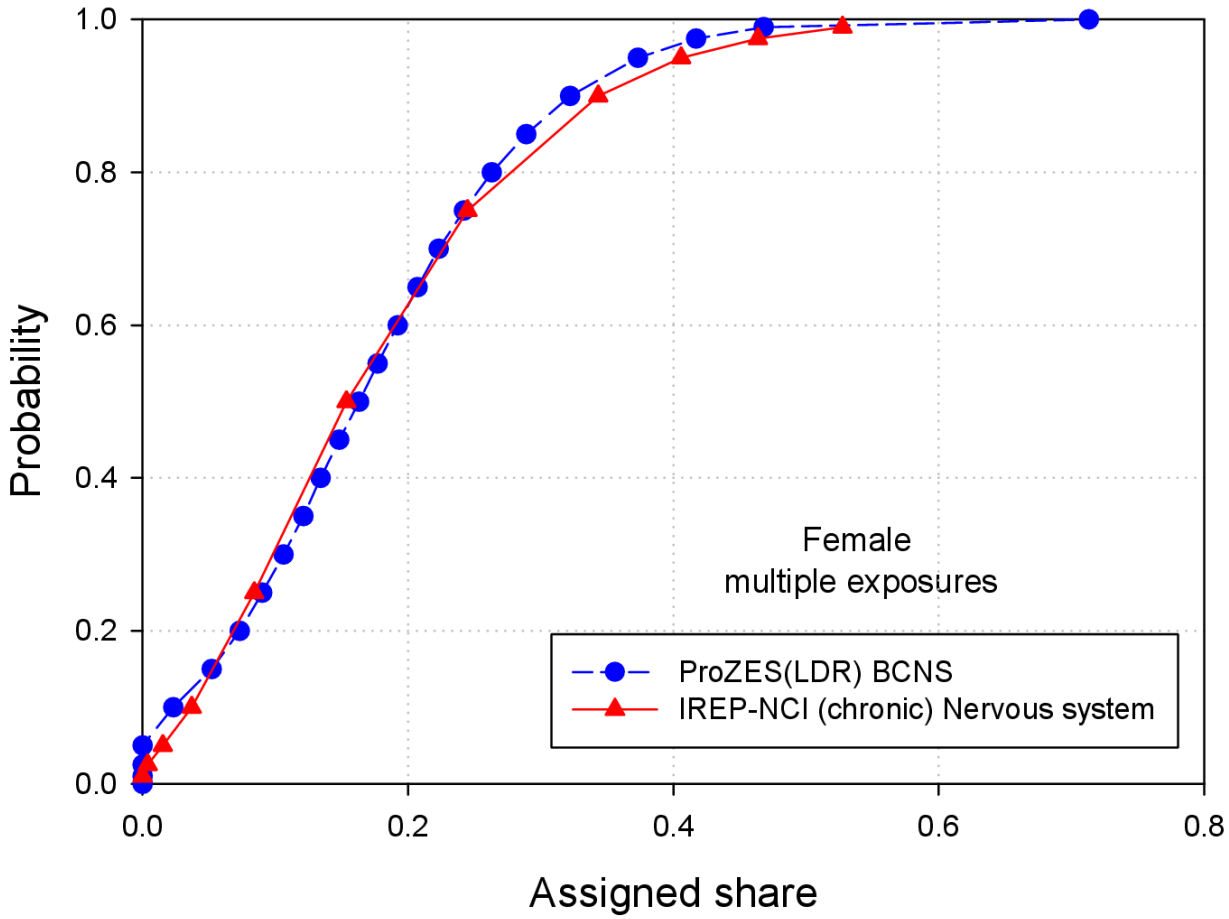
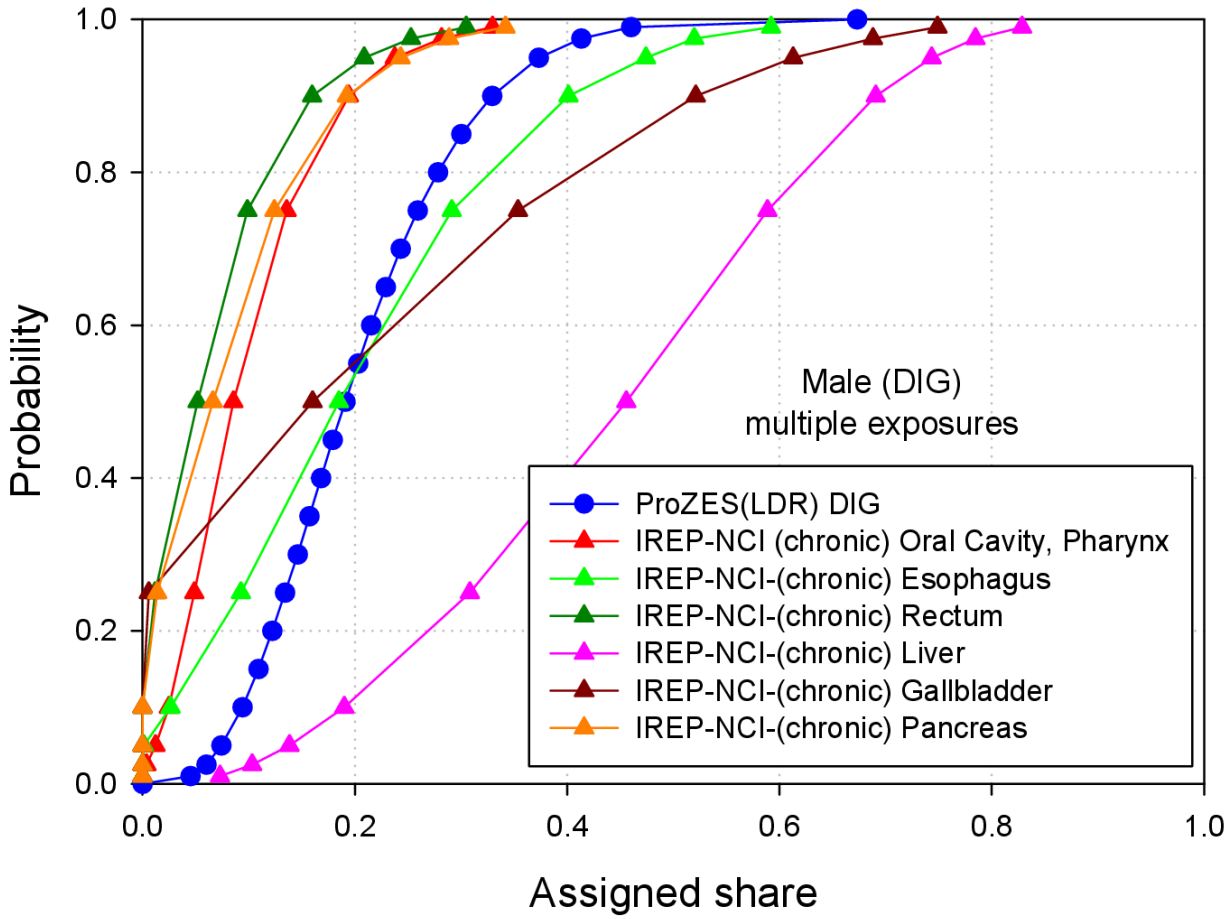


DIG – organs of digestive tract (C00-C14, C15, C17, C19-C26)

Male, 30 × 33-mSv-exposures at ages 20…49



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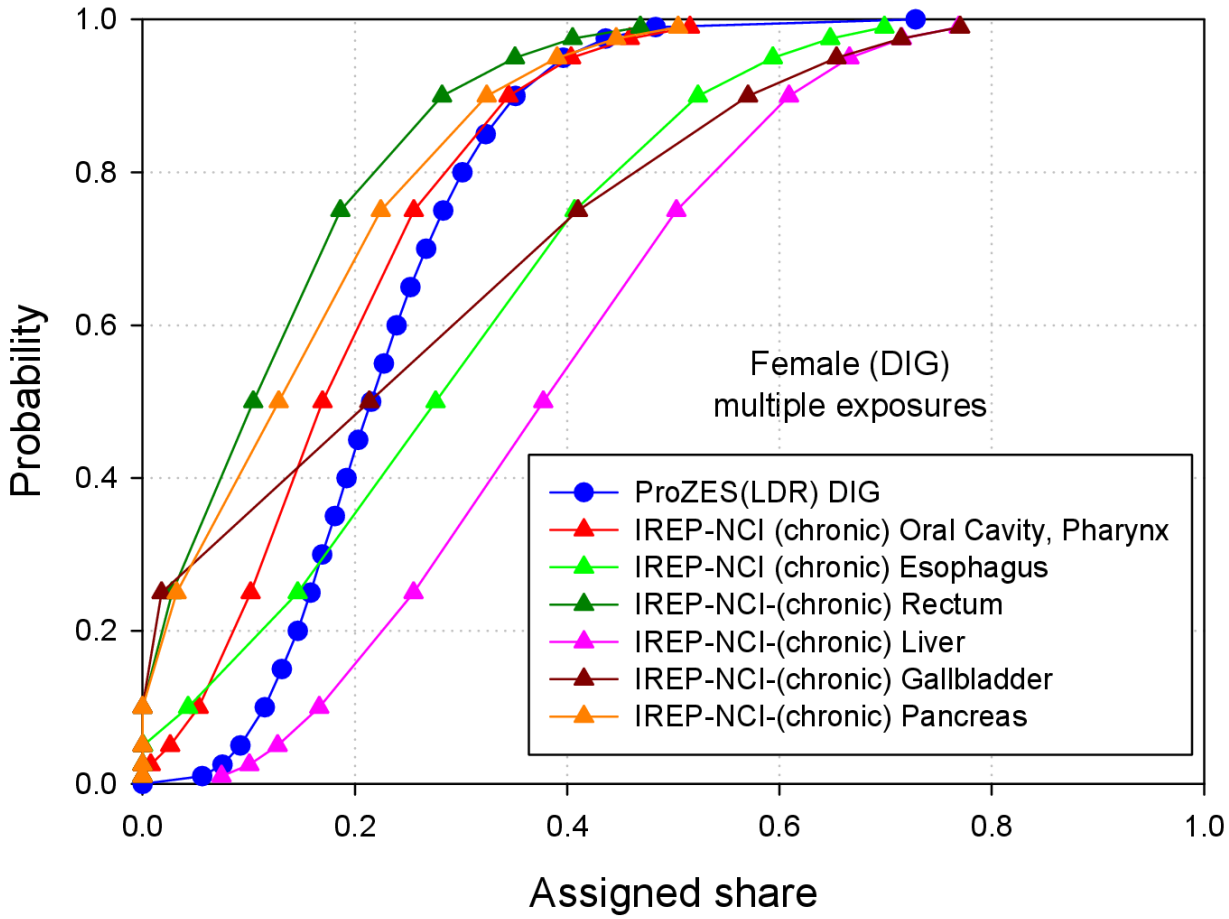
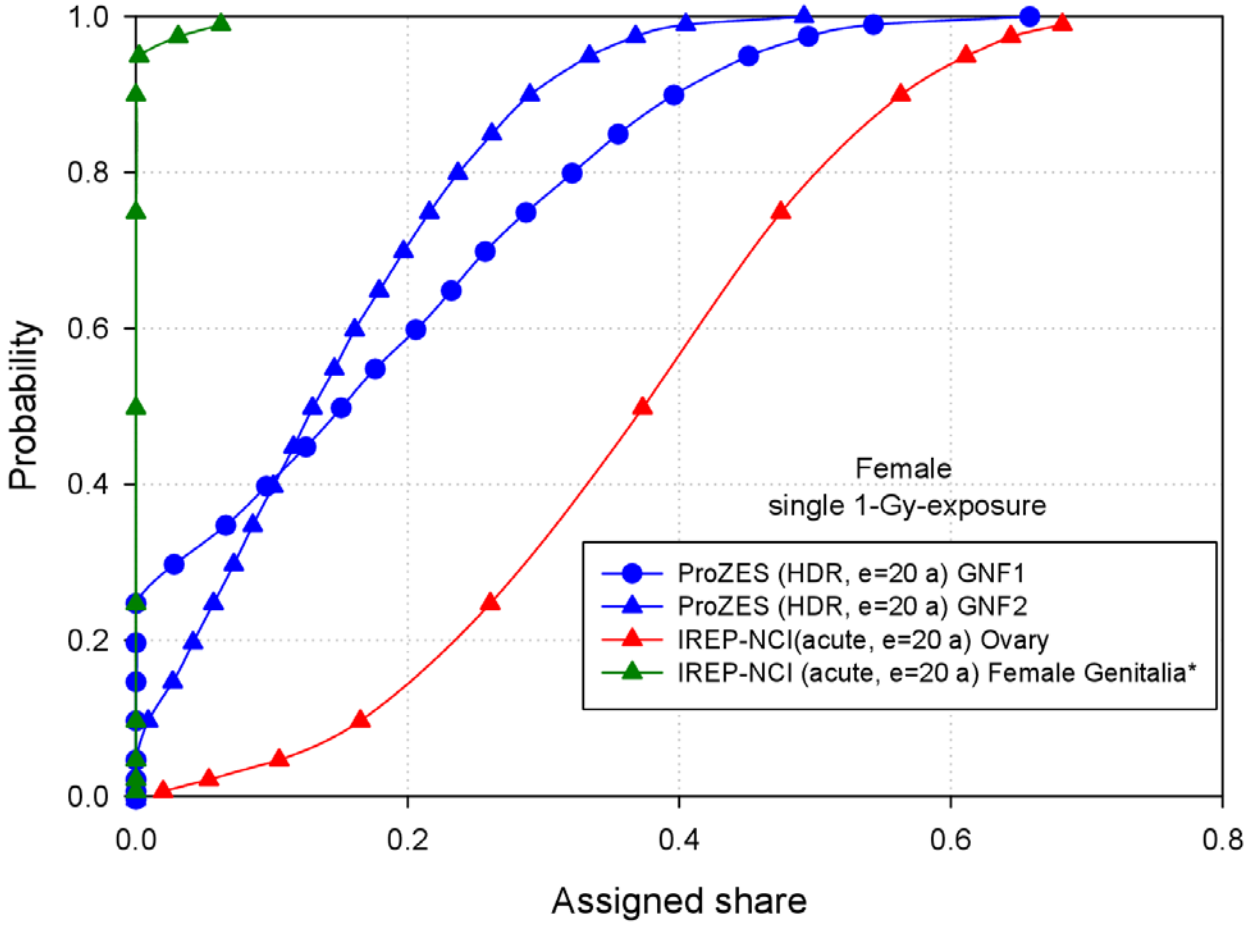


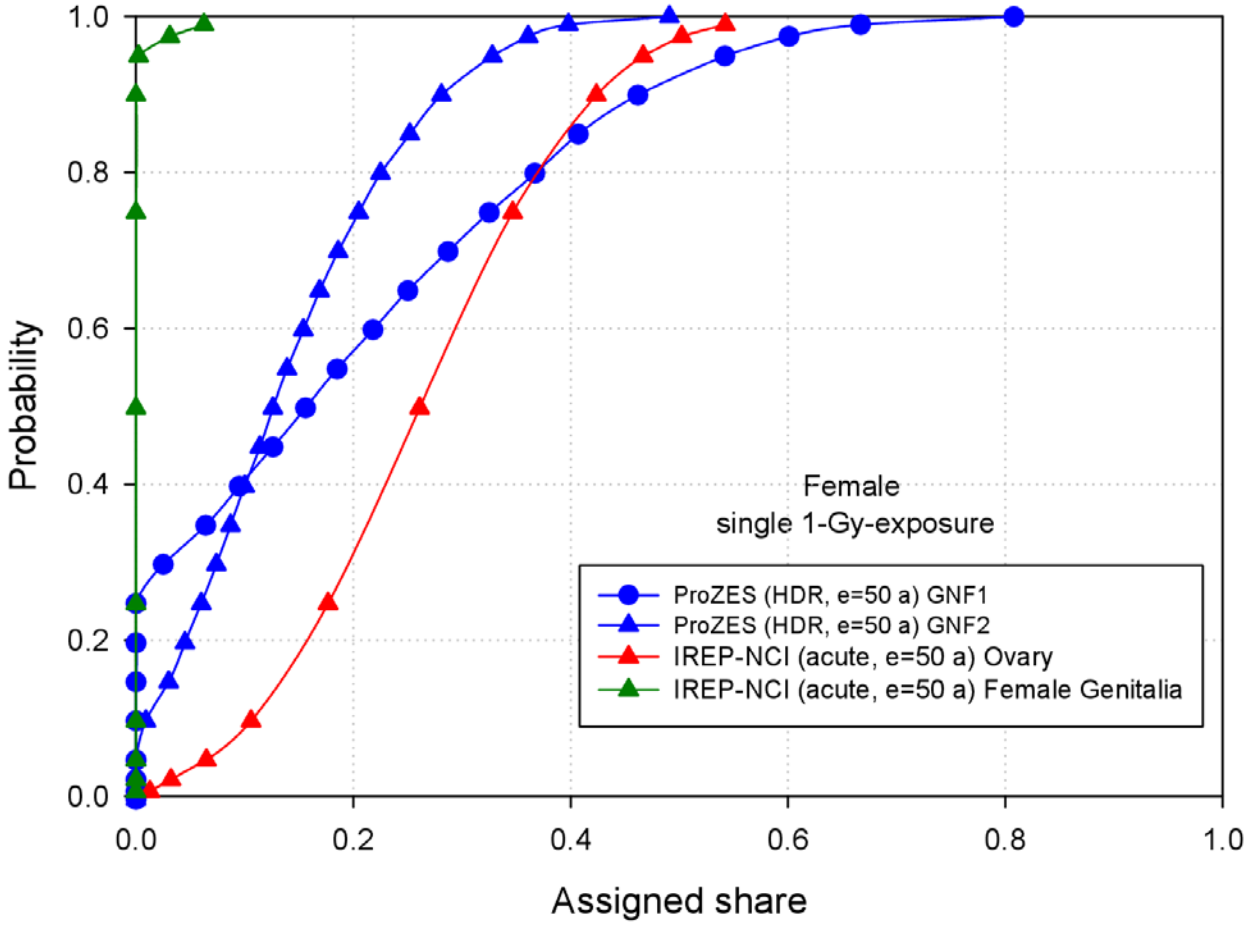
GNF1, GNF2 – female genital organs, excl. breast (ICD10:C51-C58)

Female, single 1-Sv-exposure at age 20



GNF1, GNF2 – female genital organs, excl. breast (ICD10:C51-C58)

Female, single 1-Sv-exposure at age 50



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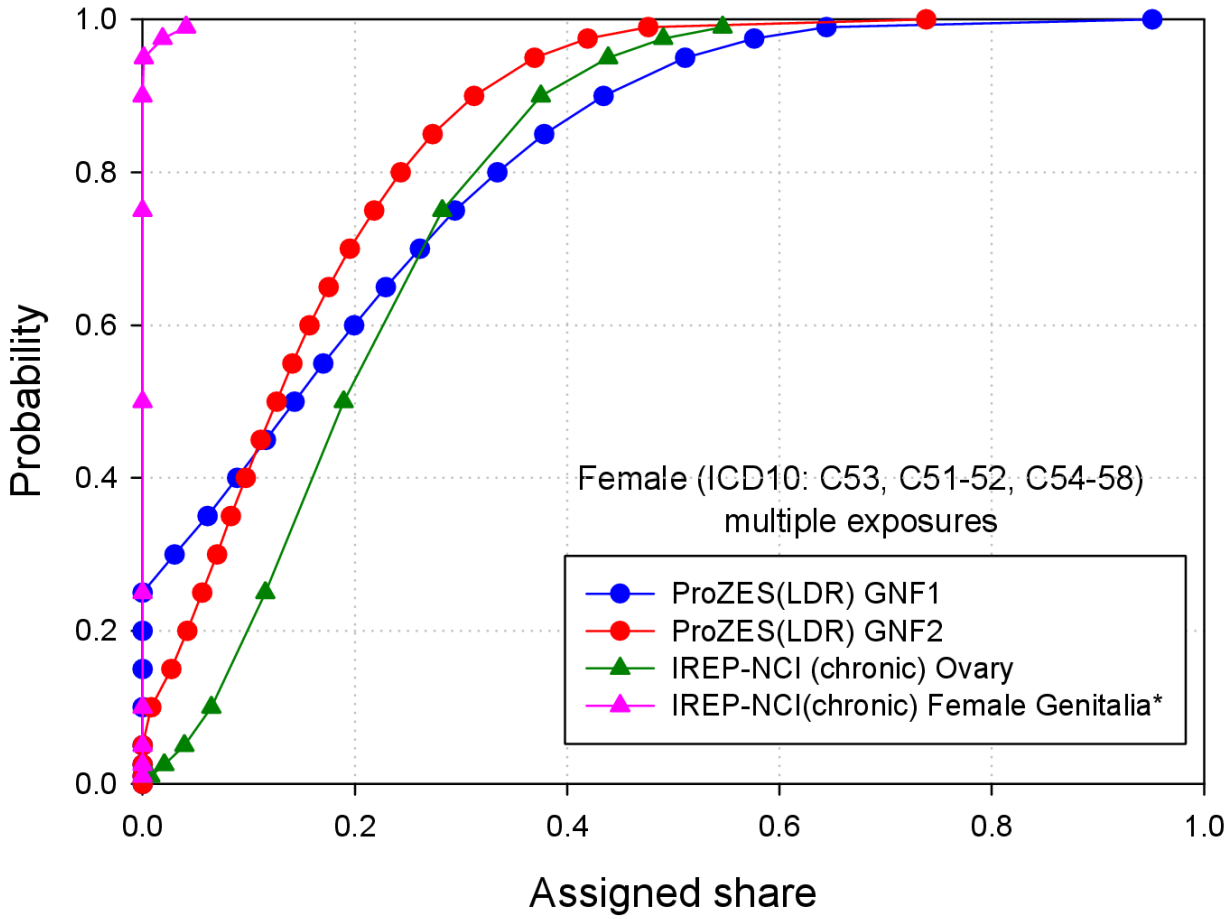
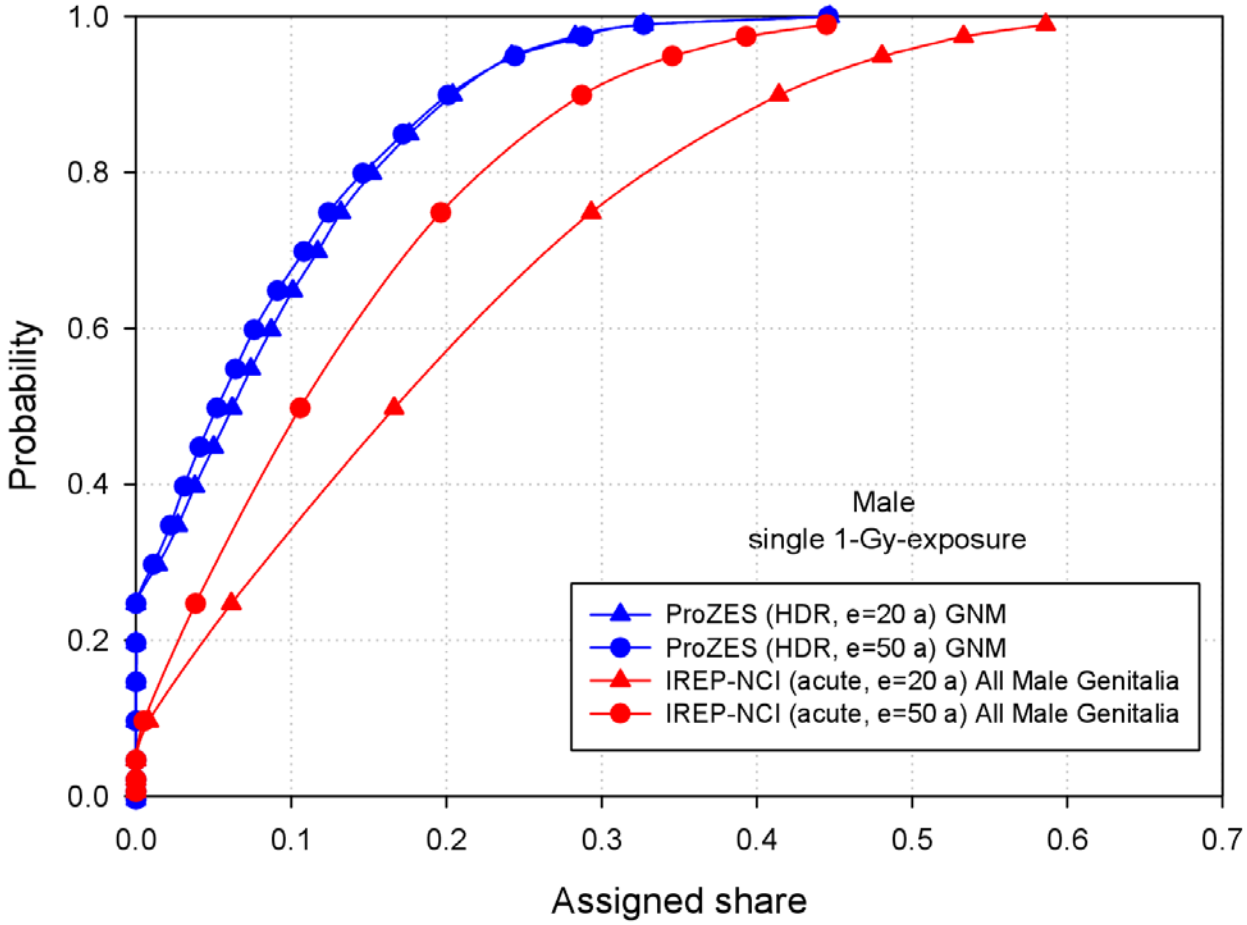


GNM – male genital organs, excl. testes (ICD10:C60, C61, C63)

Male, Single 1-Sv-exposure at ages 20 or 50



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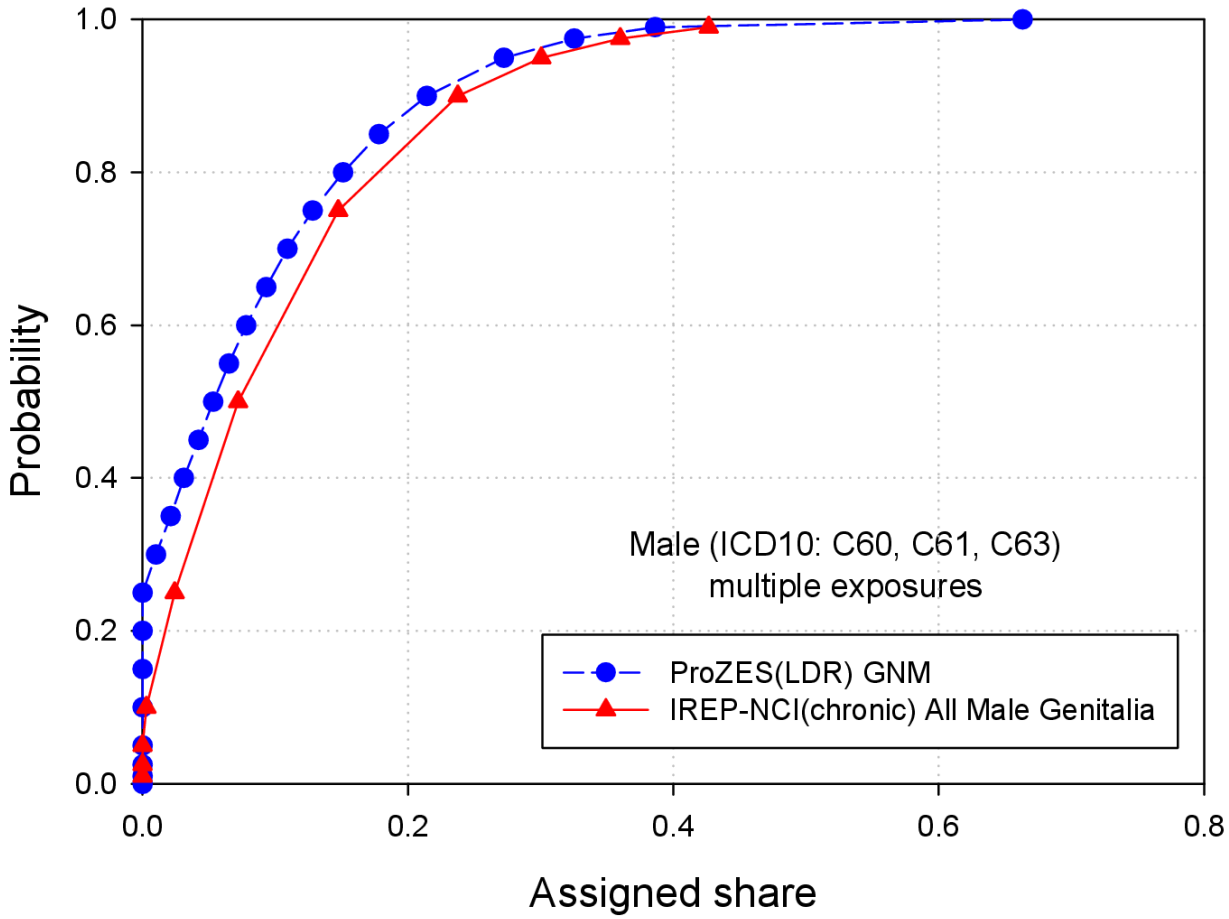
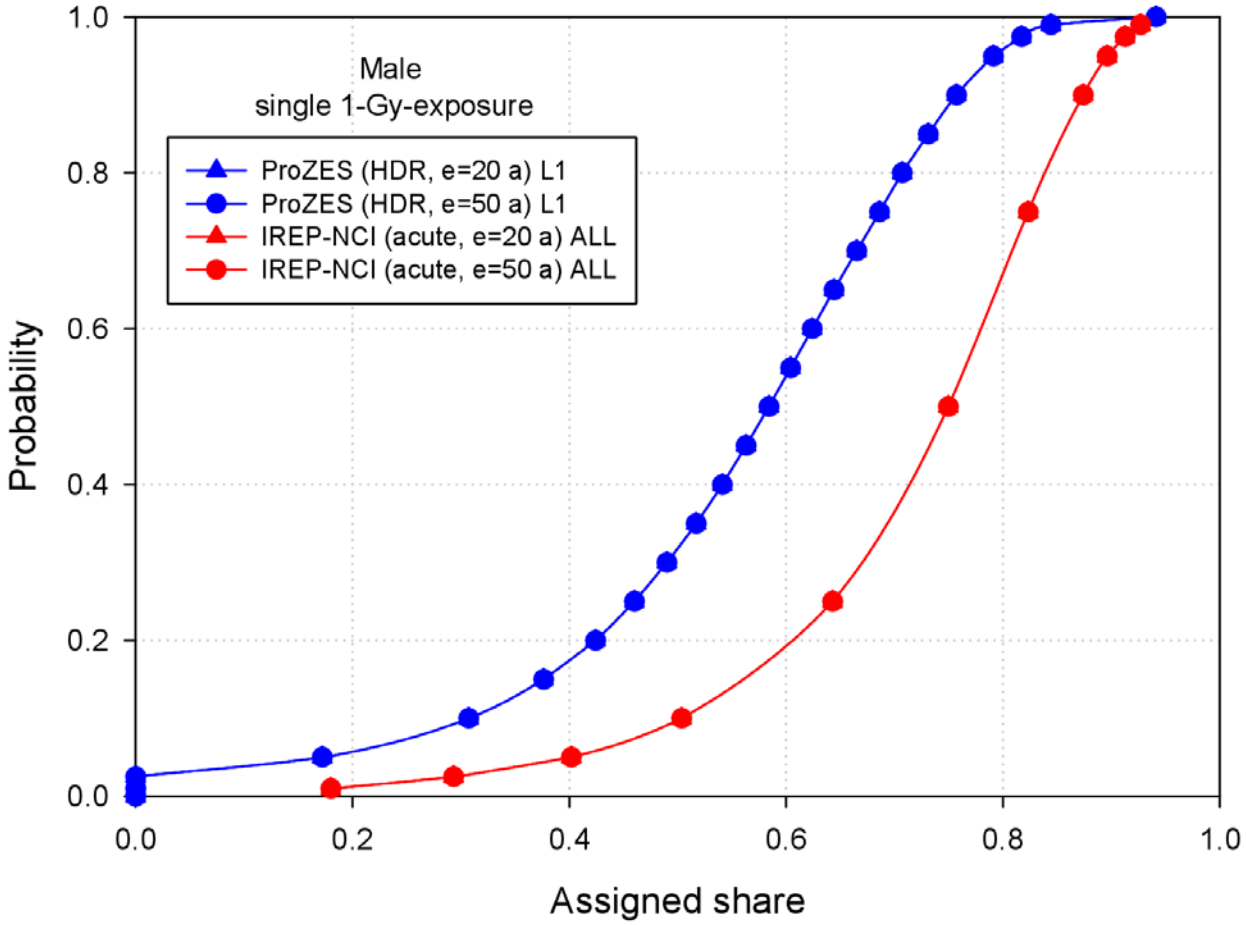


Leukemia group L1

ALL, prolymphocytic leukemia of B-cell type, lymphoid leukemia

Male, single acute 1-Sv-exposure at ages 20 or 50



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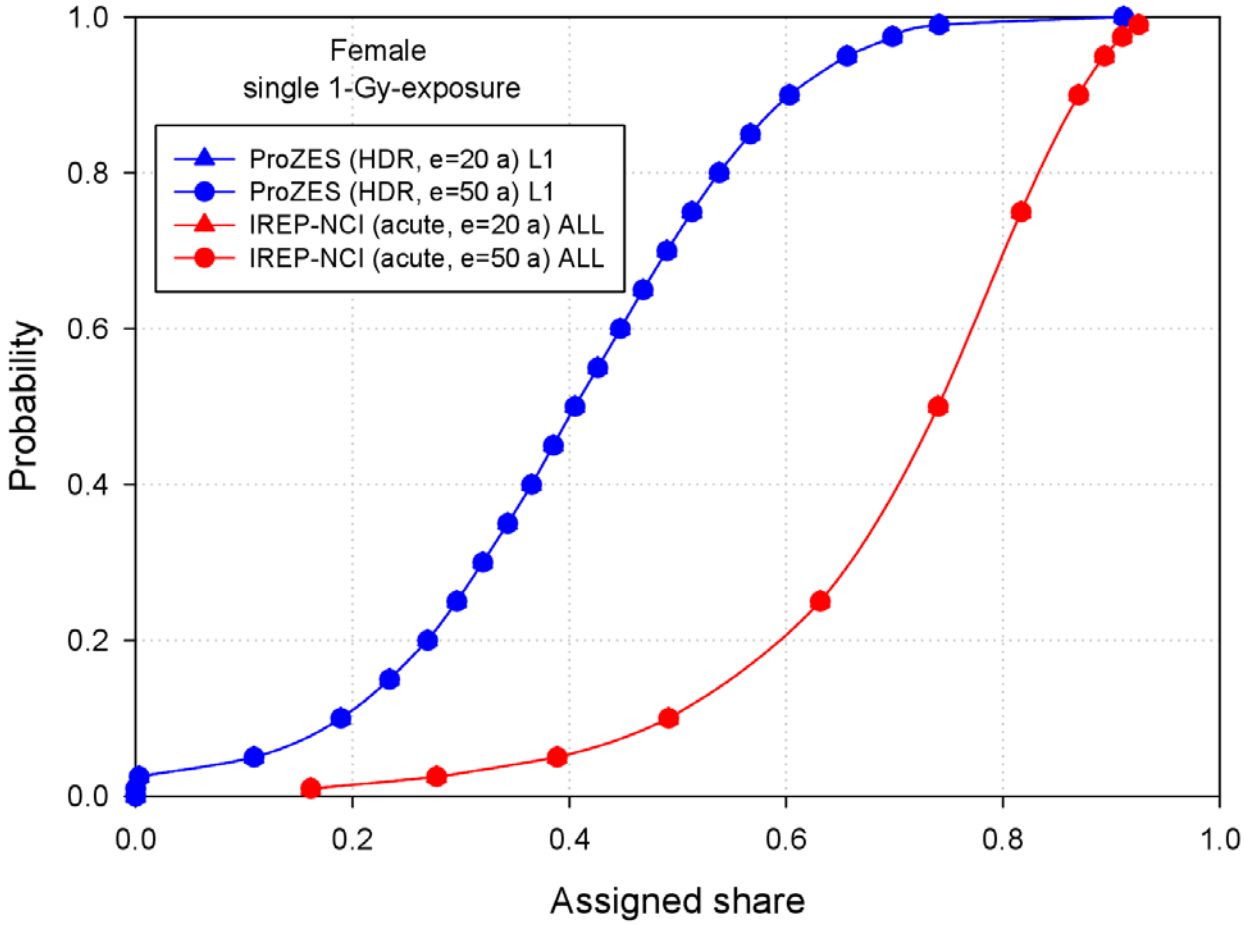

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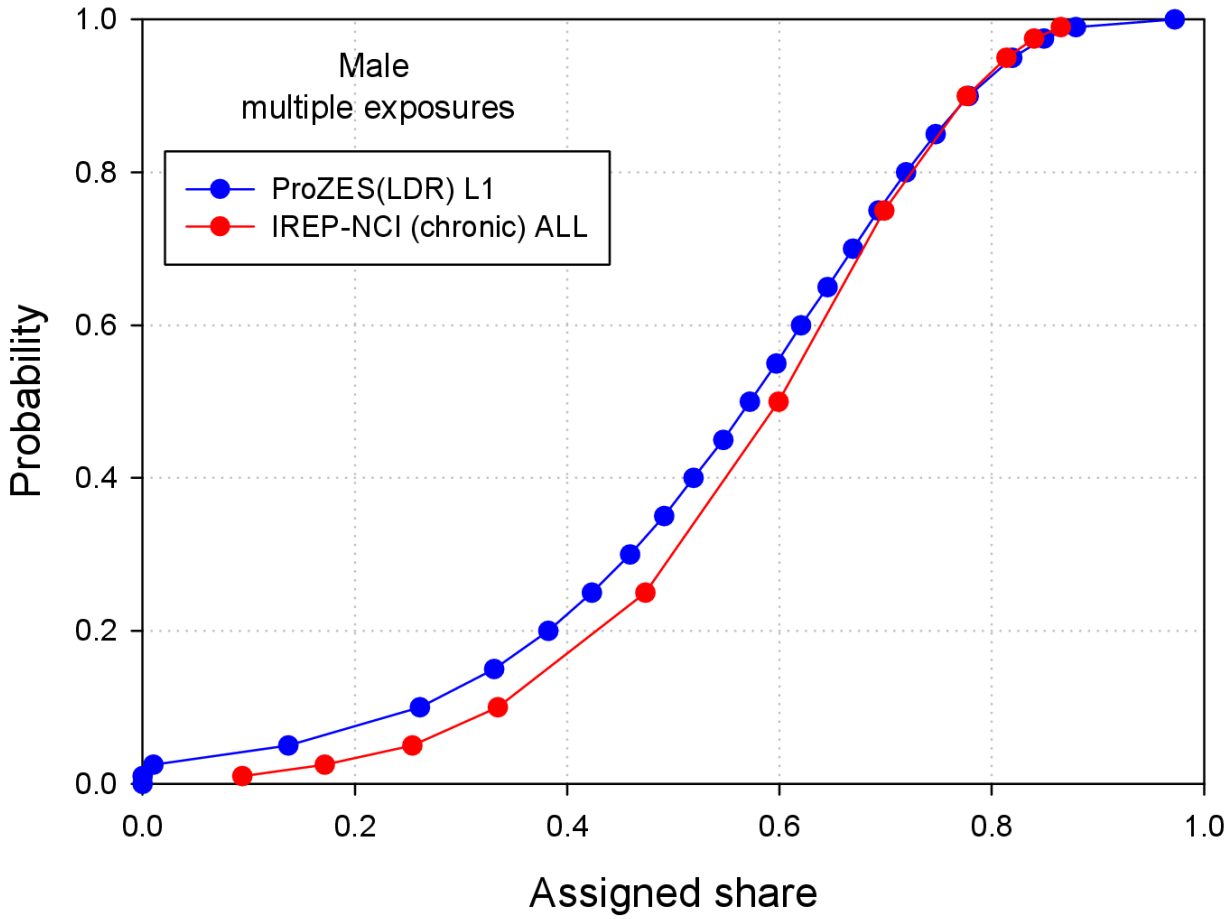

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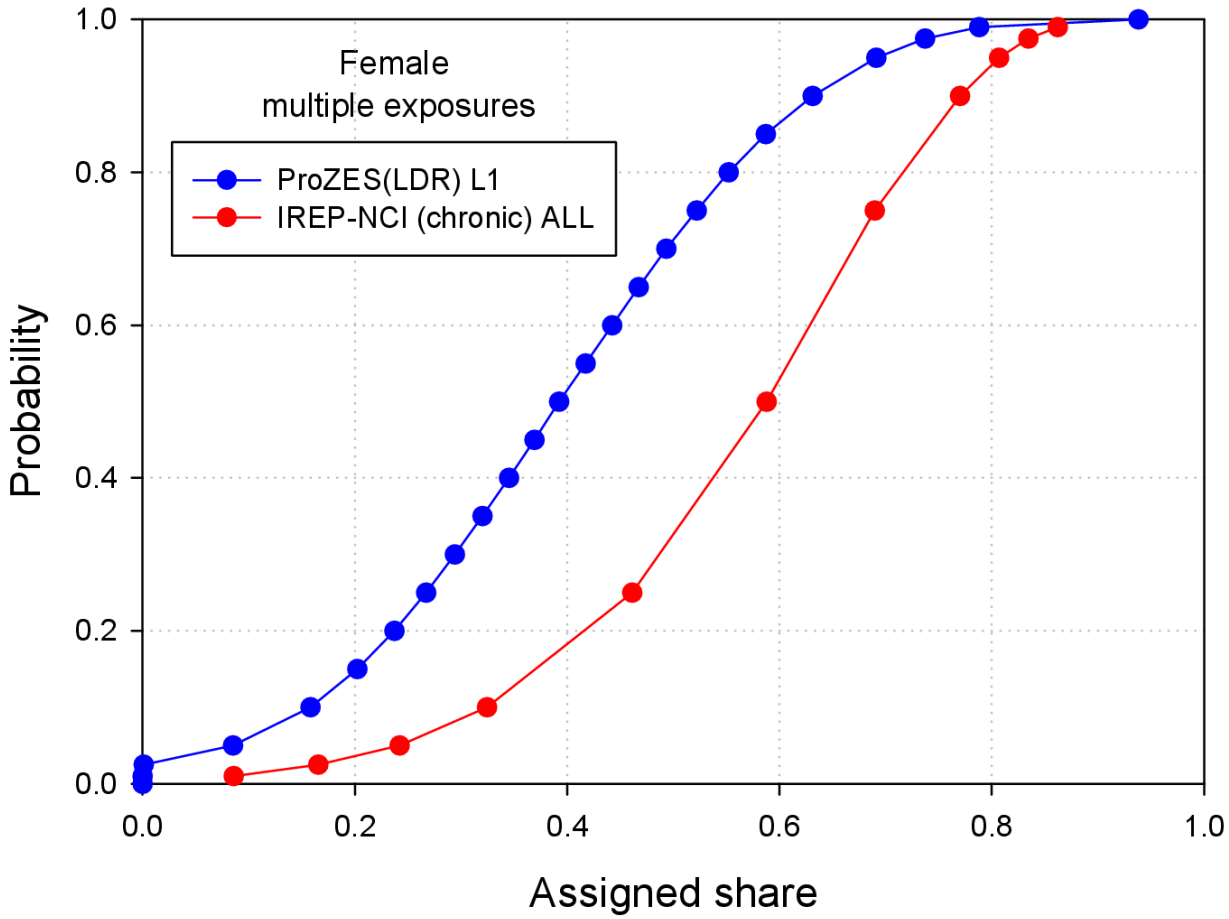
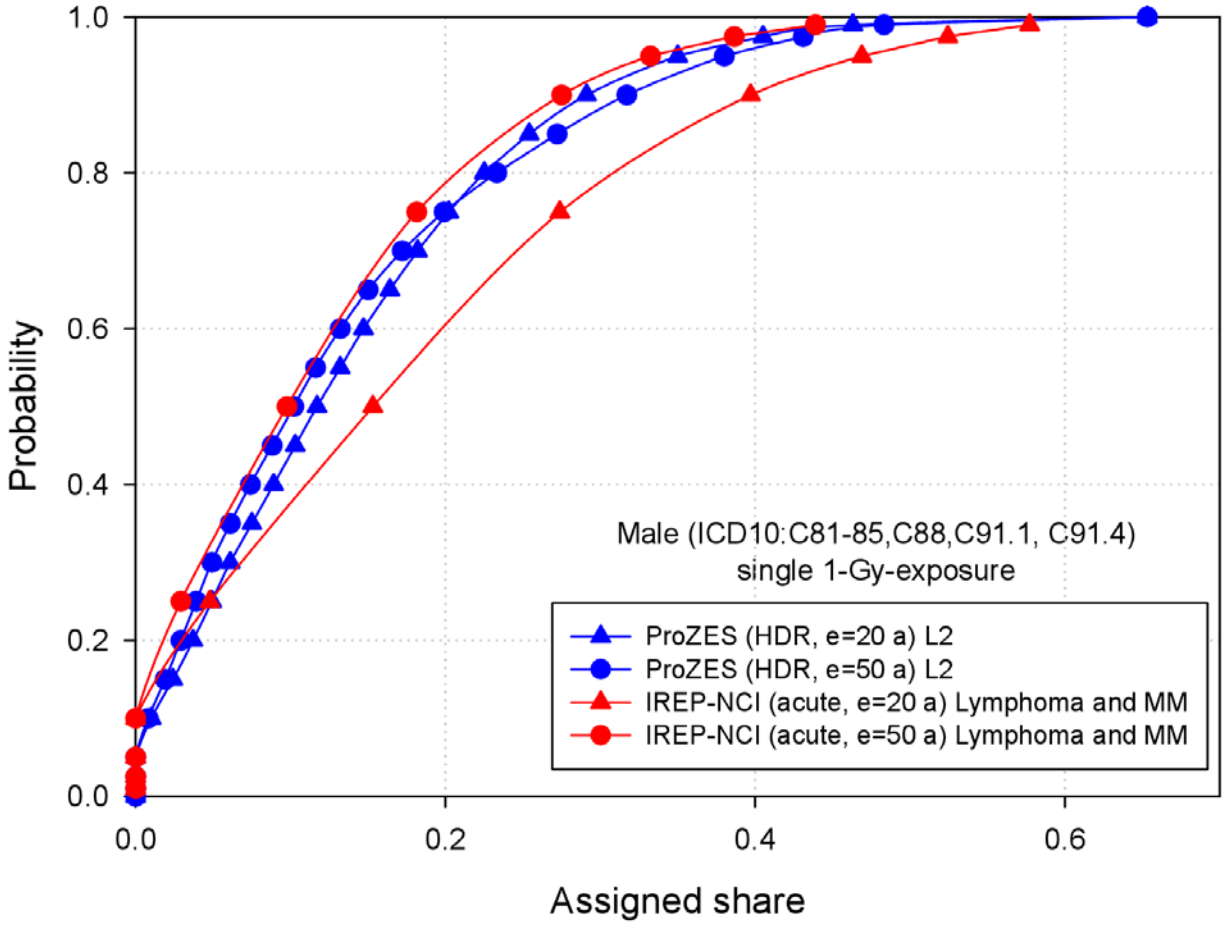


Leukemia group L2

CLL, Hodgkin- and non-Hodgkin lymphomas, hairy cell leukemia

Male, single acute 1-Sv-exposure at ages 20 or 50



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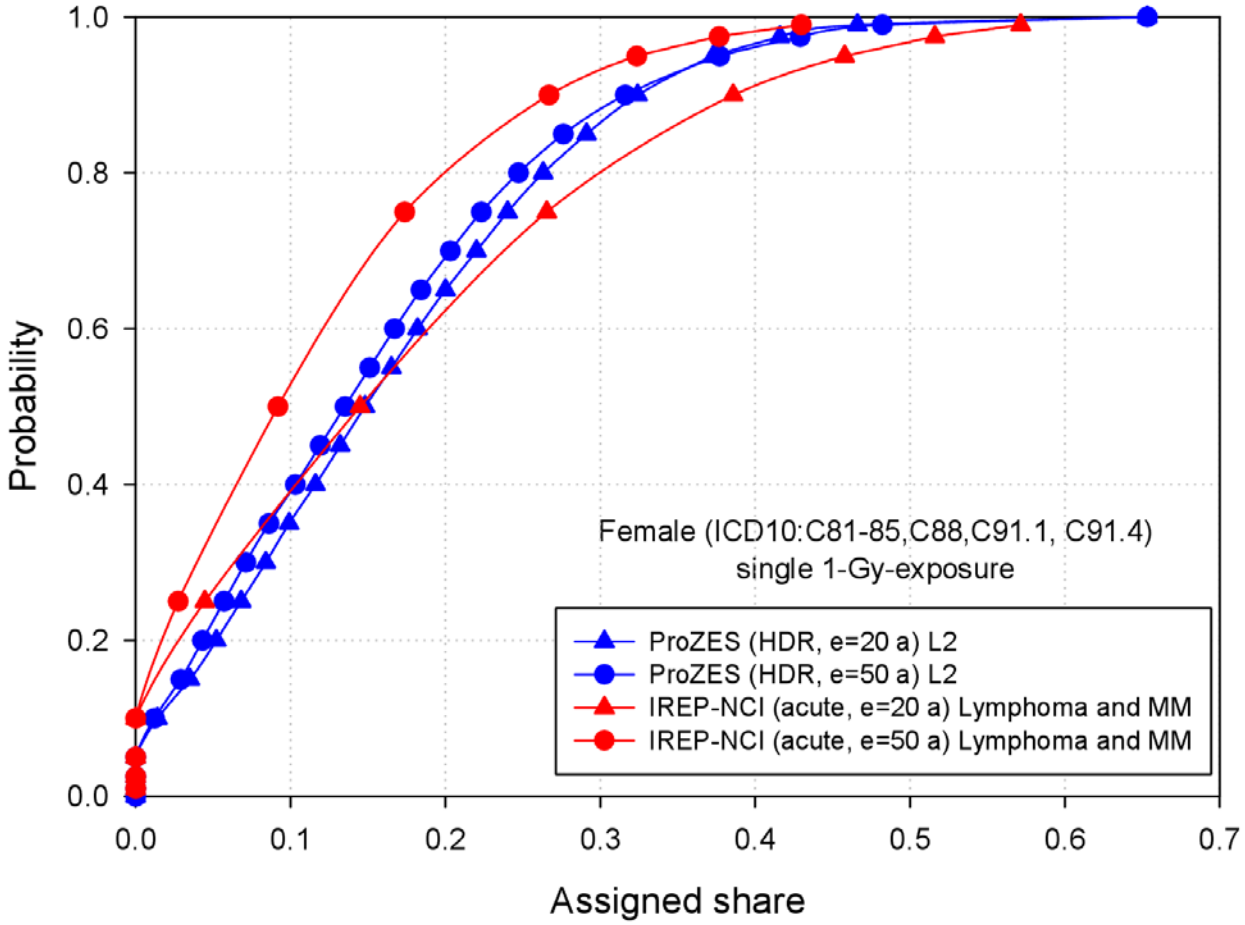

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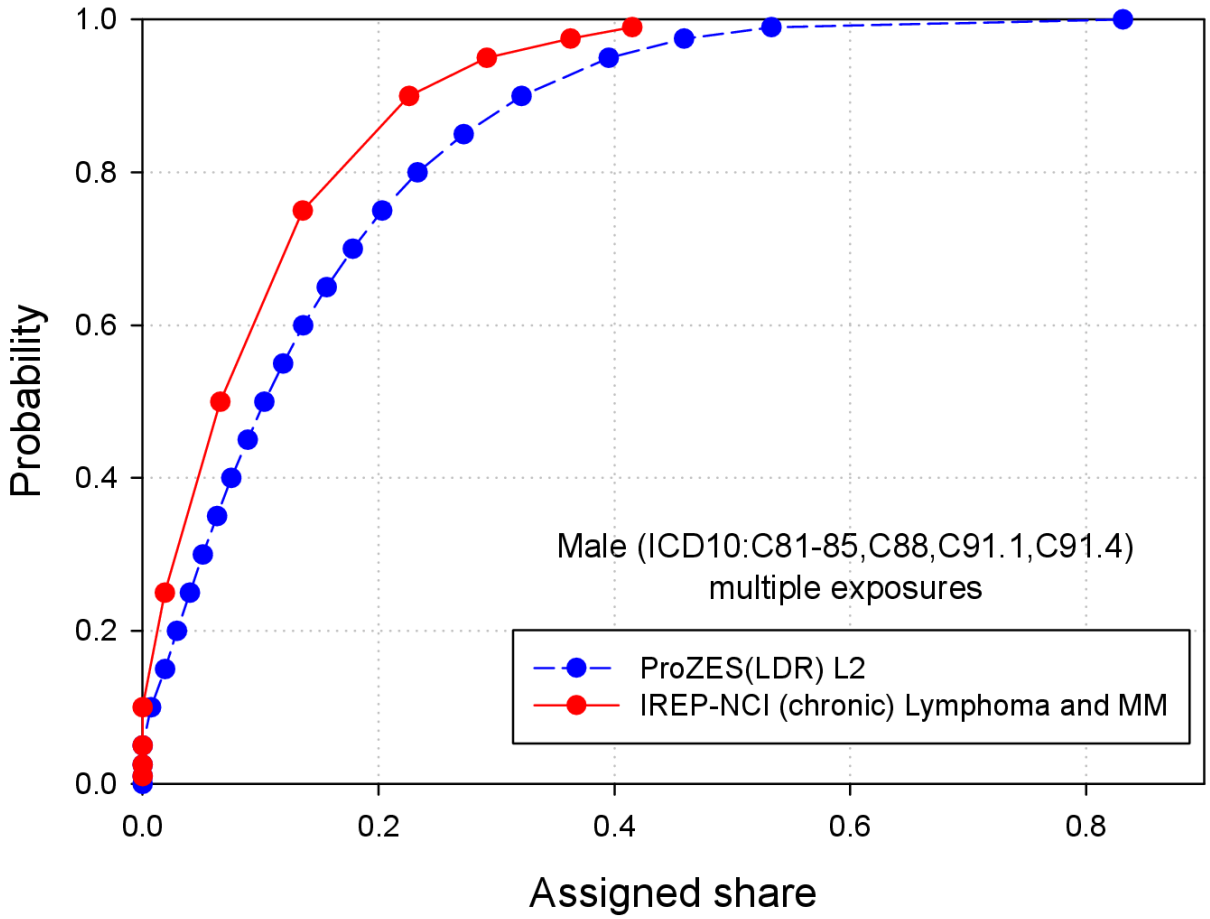

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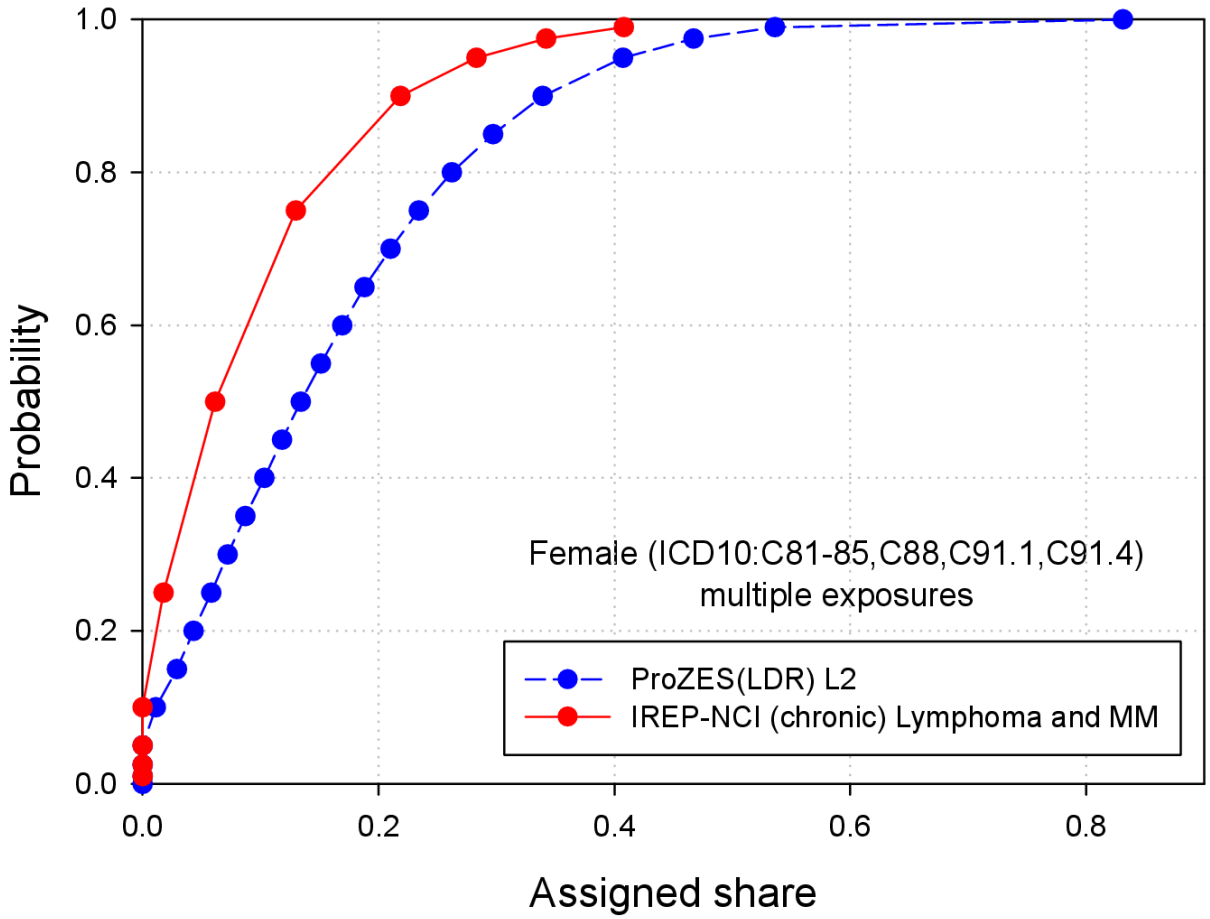
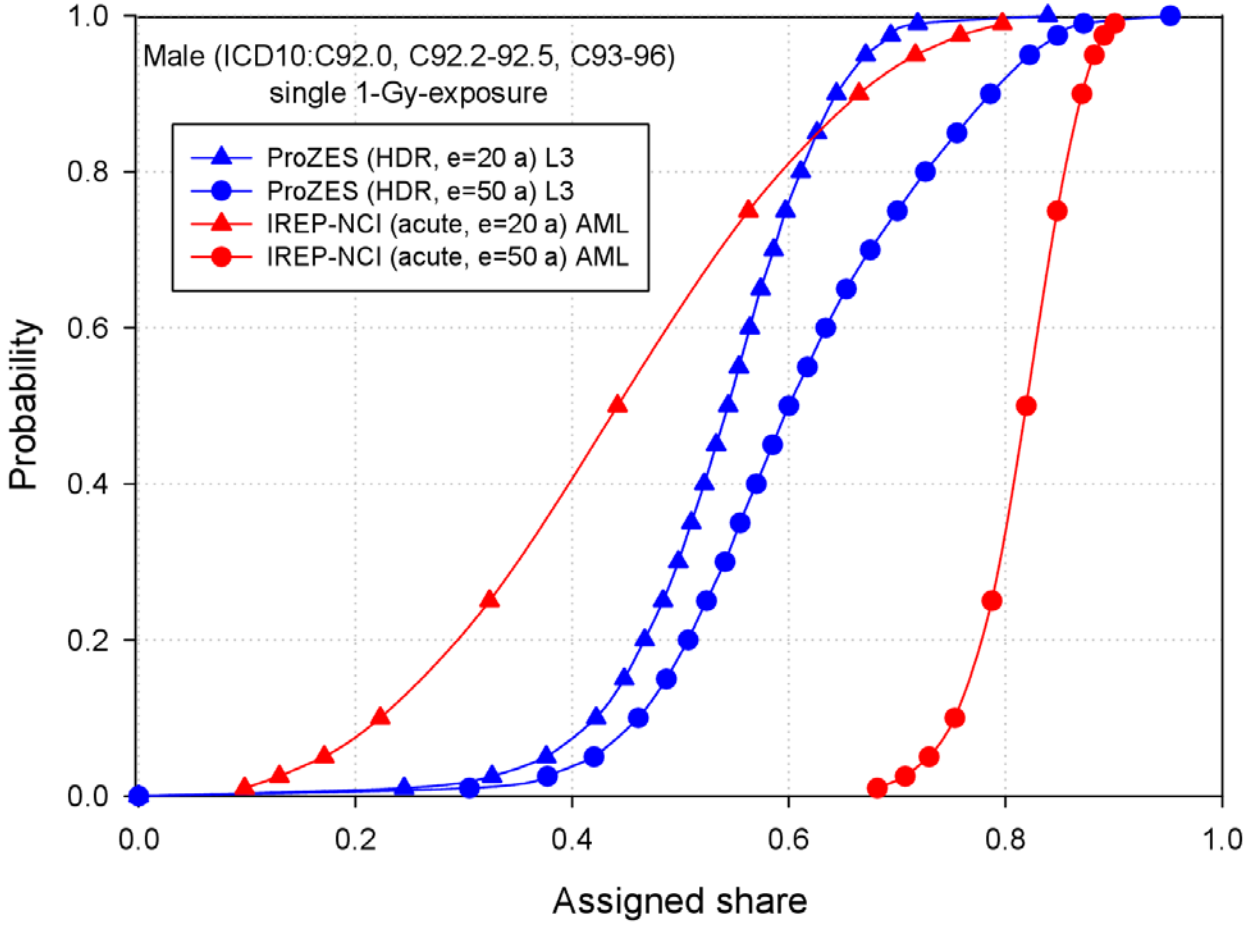


Leukemia group L3

AML and related

Male, single 1-Sv-exposure at ages 20 or 50



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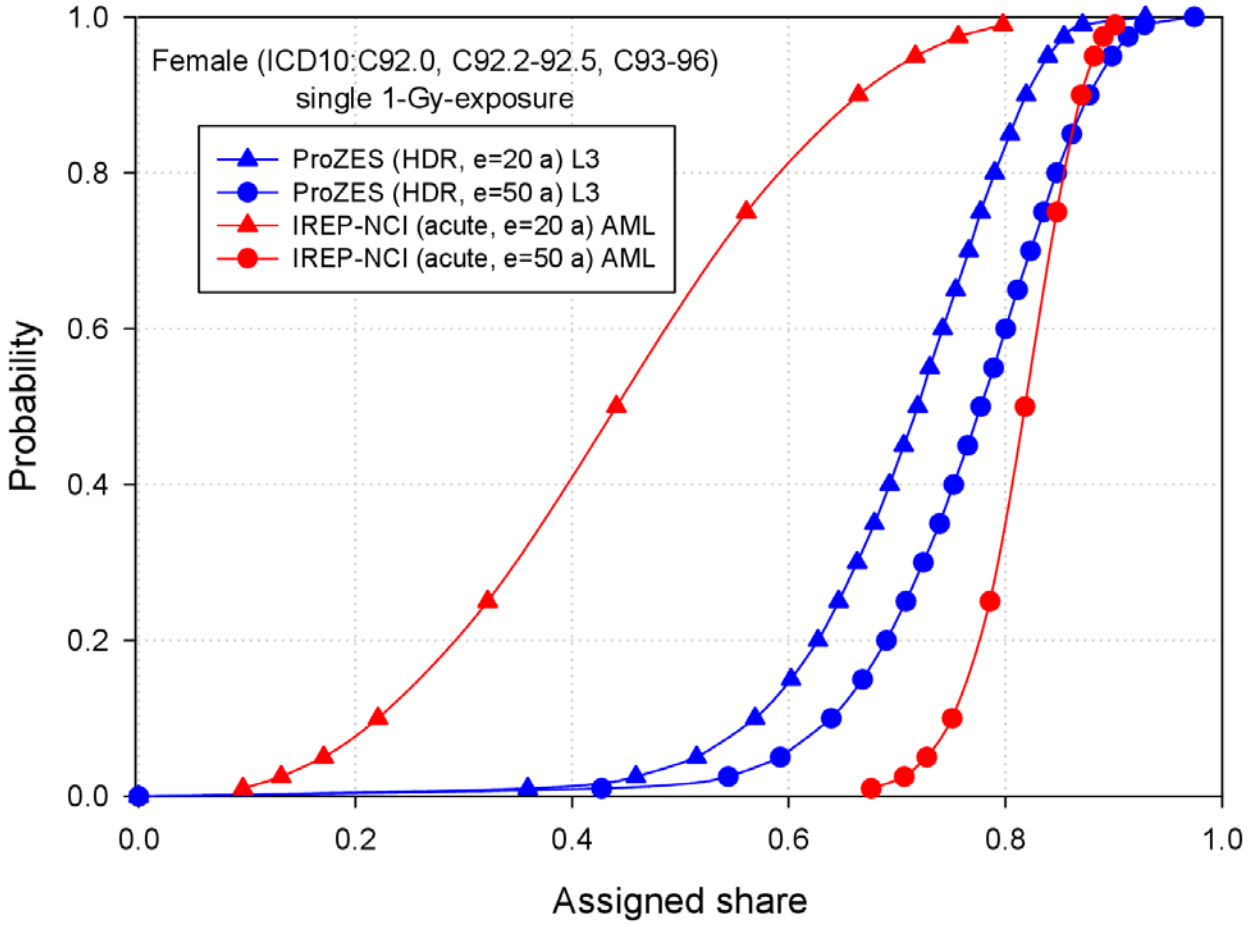
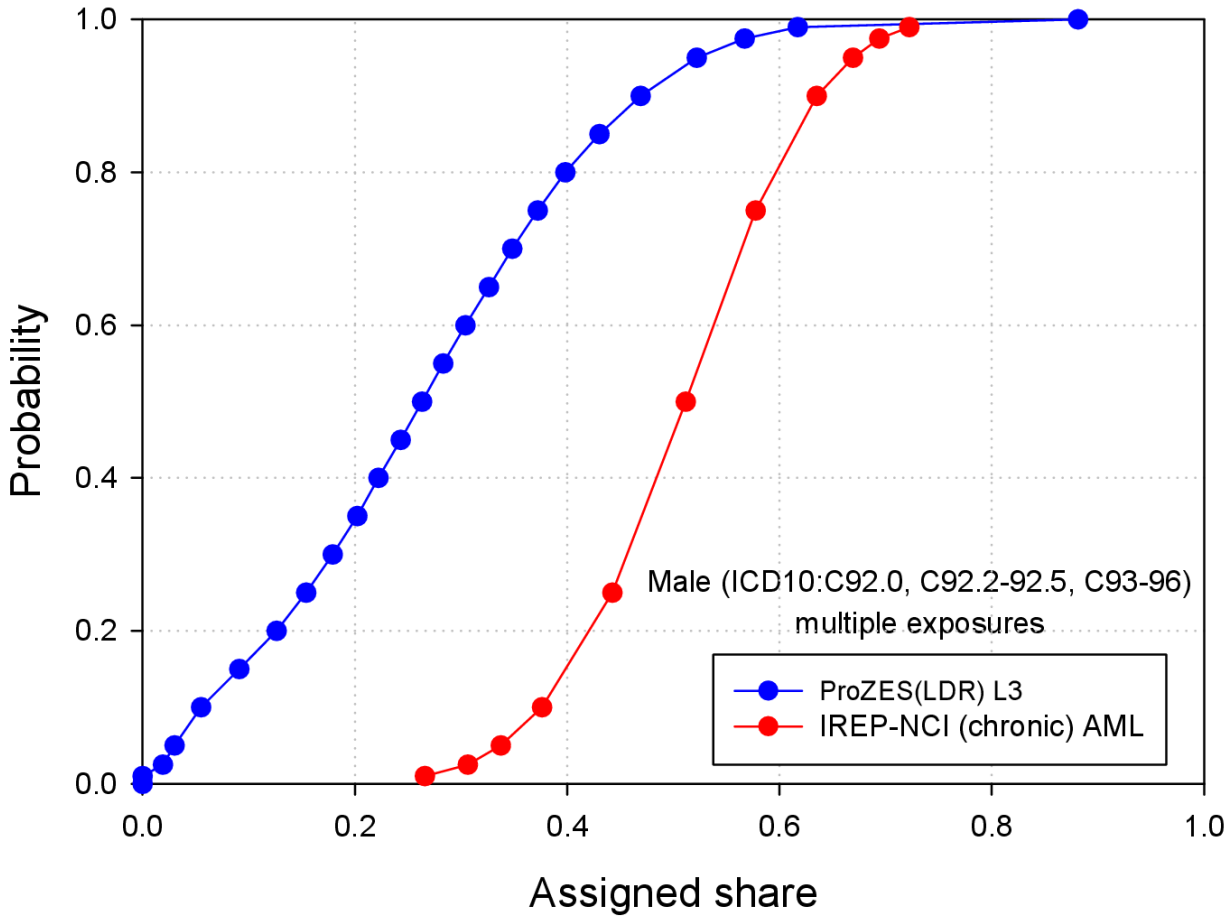


Leukemia group L3

AML and related

Male, 30 × 33-mSv-exposures at ages 20…49



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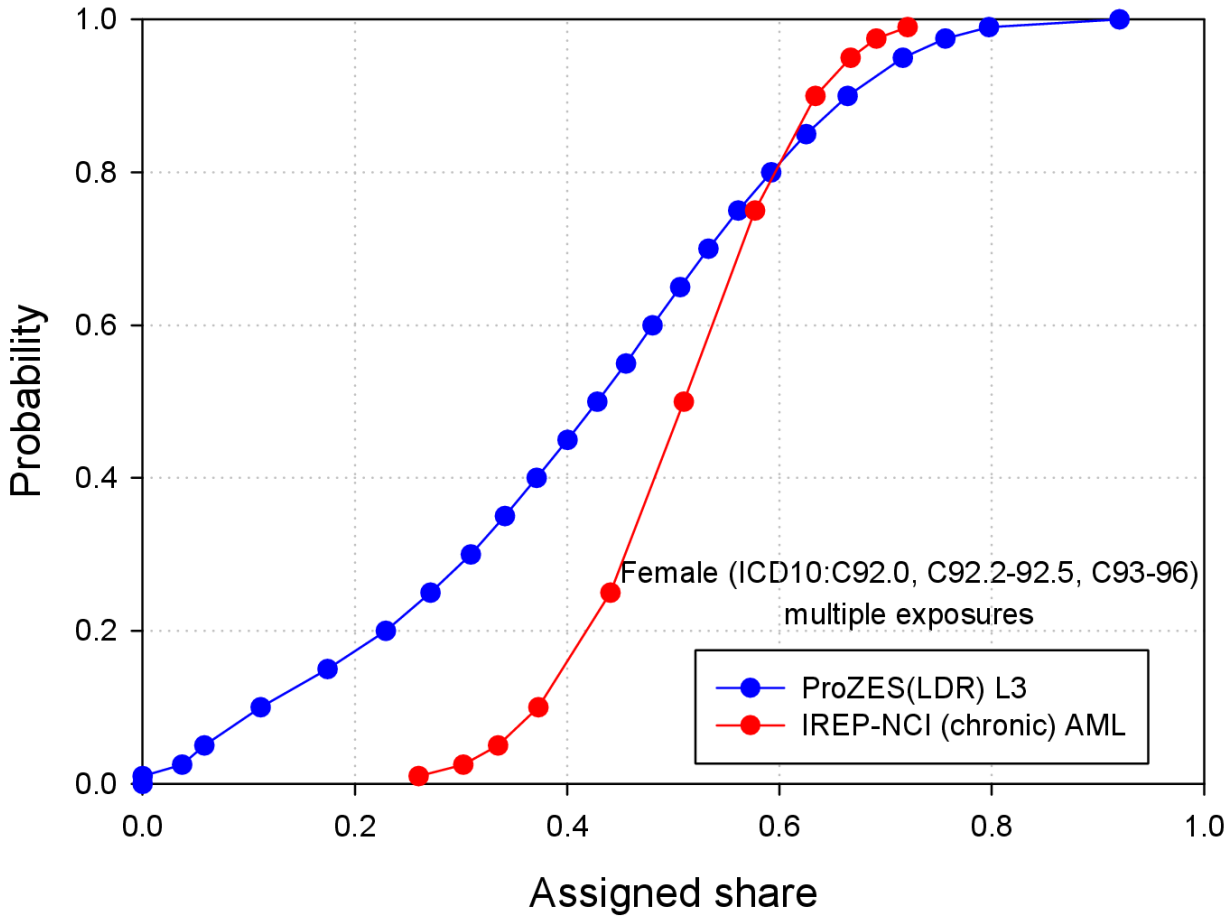
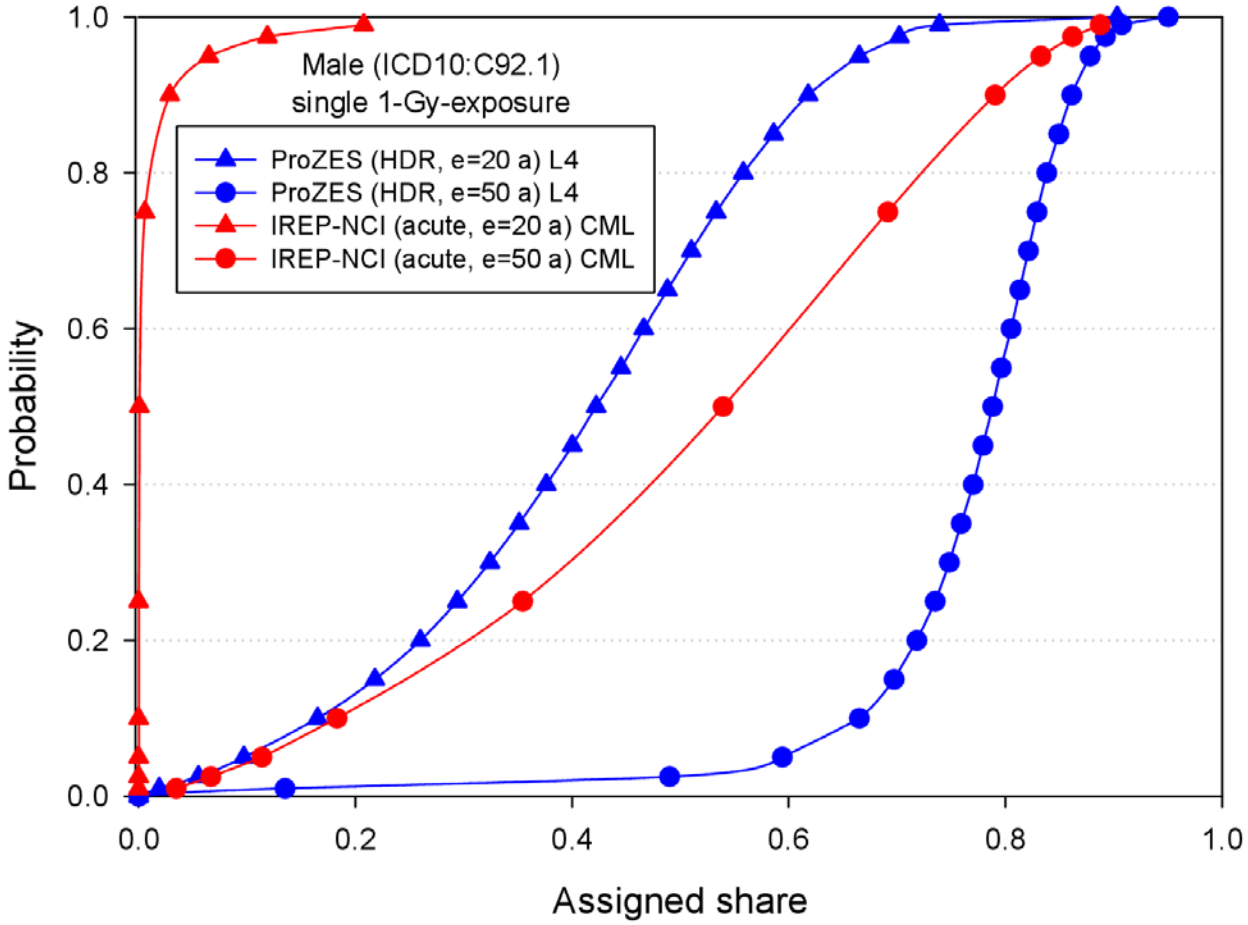
Female, 30 × 33-mSv-exposures at ages 20…49



Leukemia group L4

CML

Male, single 1-Sv-exposure at ages 20 or 50



Leukemia group L4

CML

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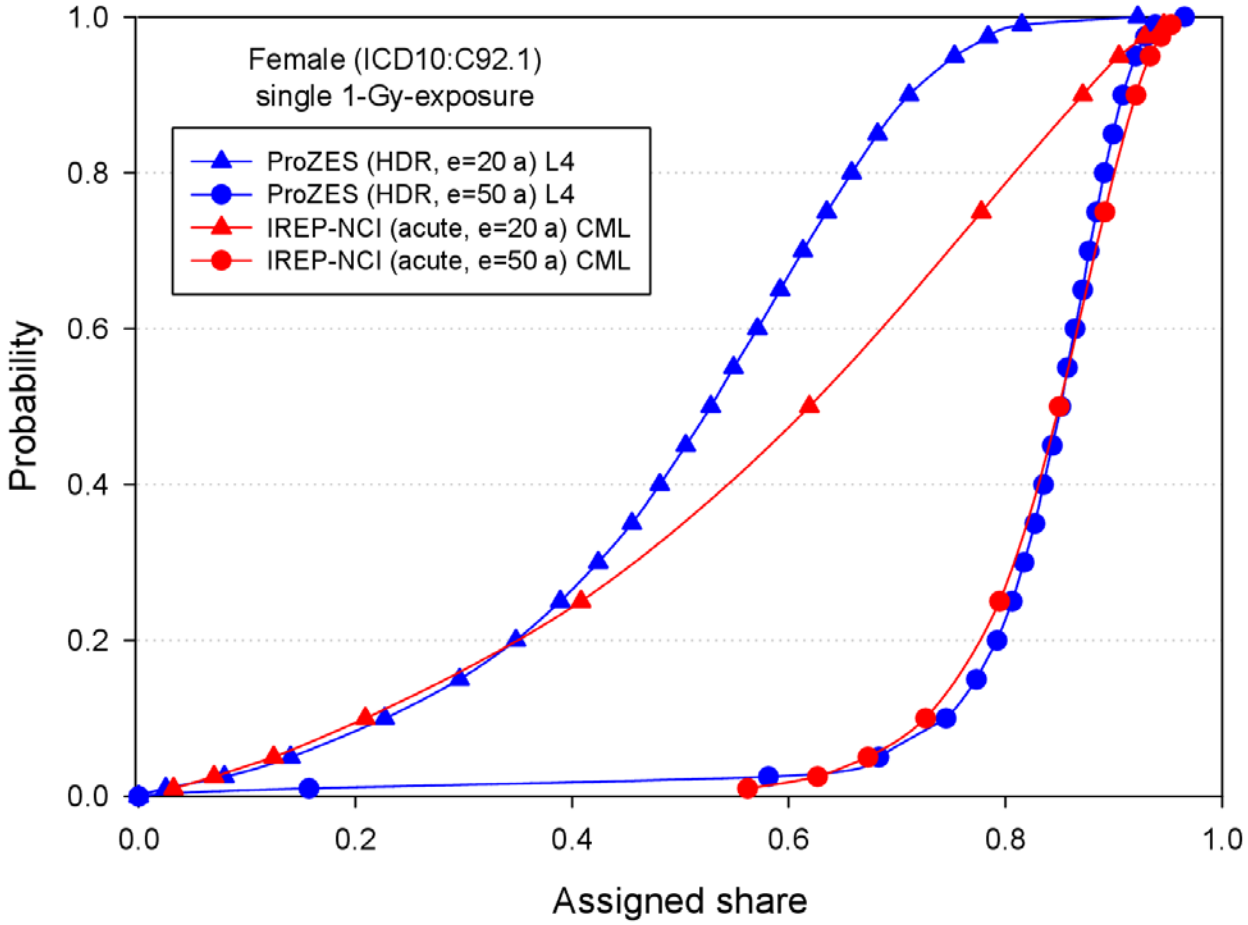
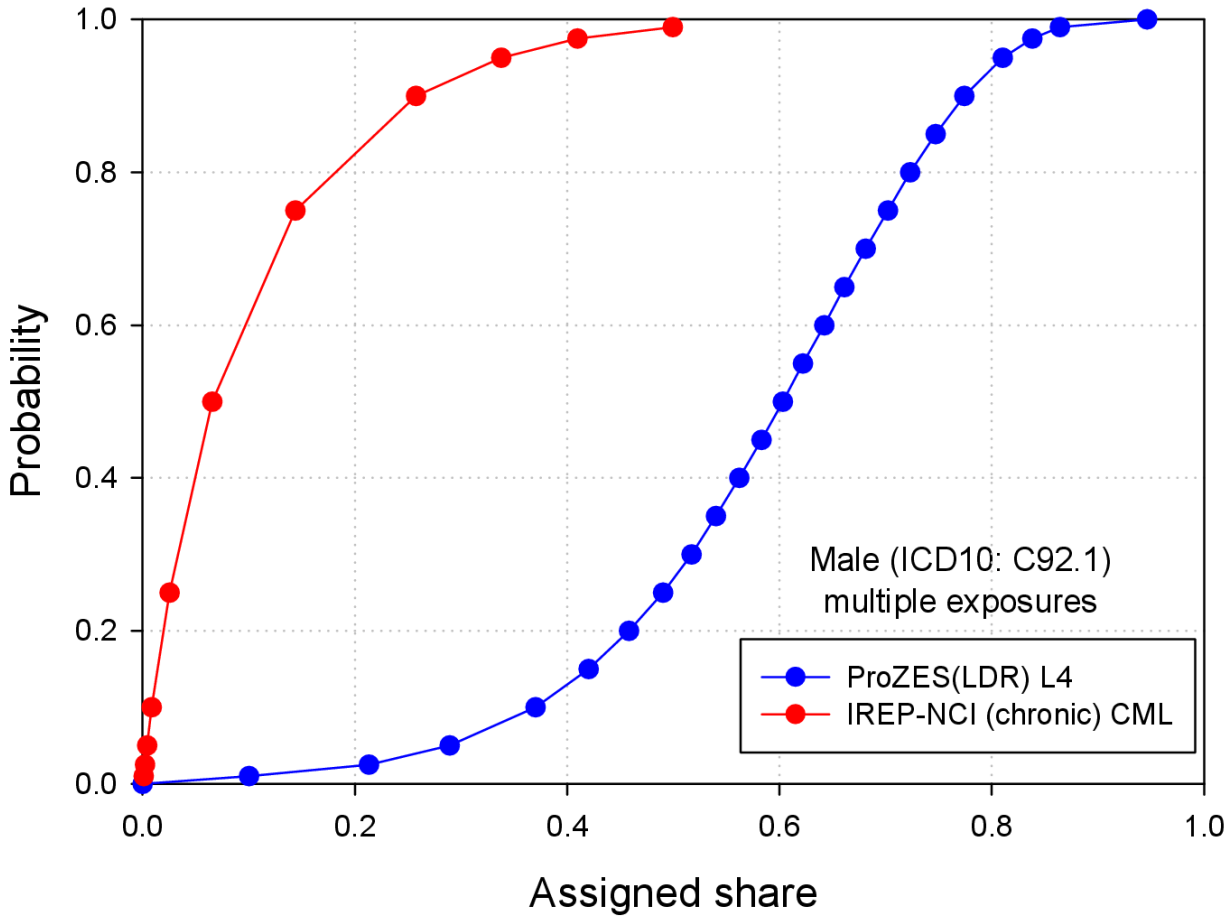


Leukemia group L4

CML

Male, 30 33-mSv-exposures at ages 20…49



Leukemia group L4

CML

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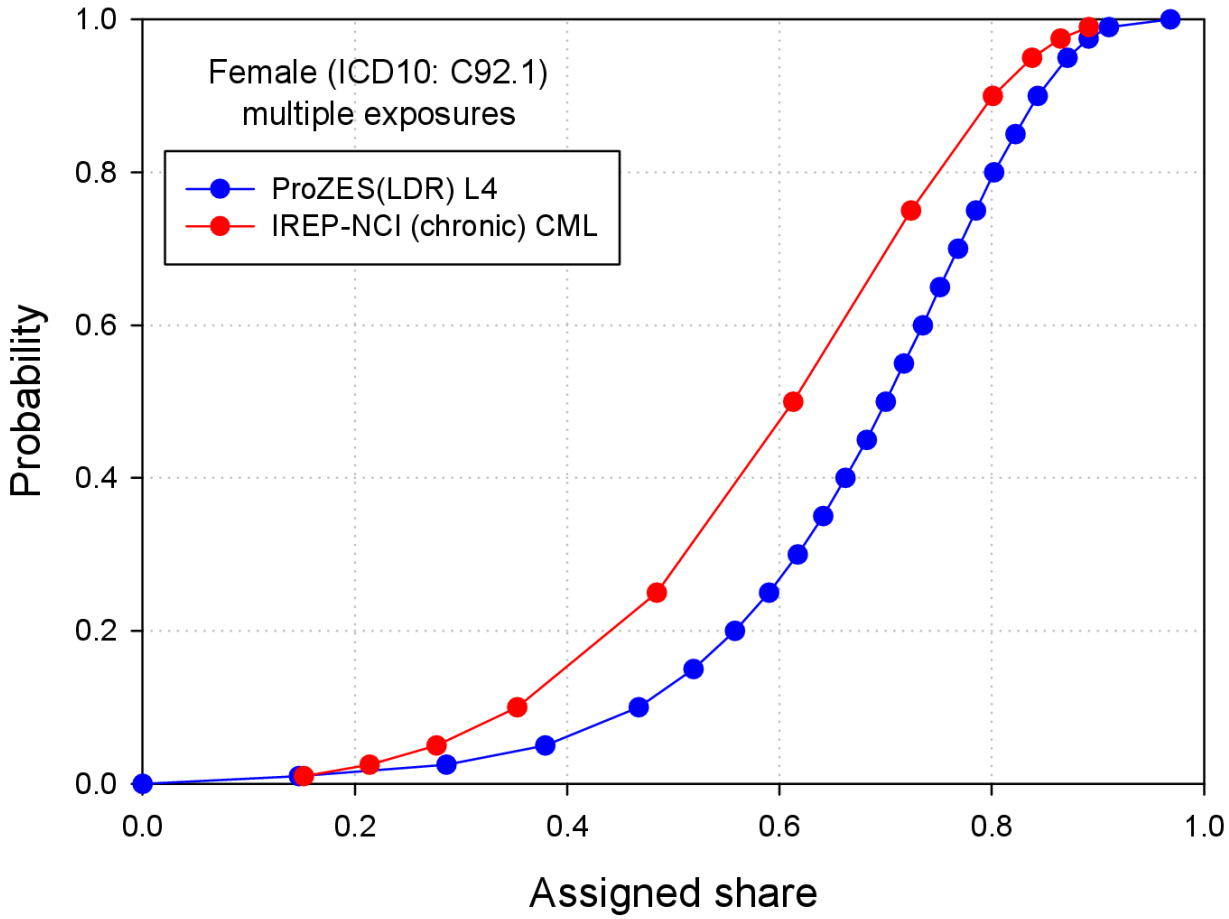
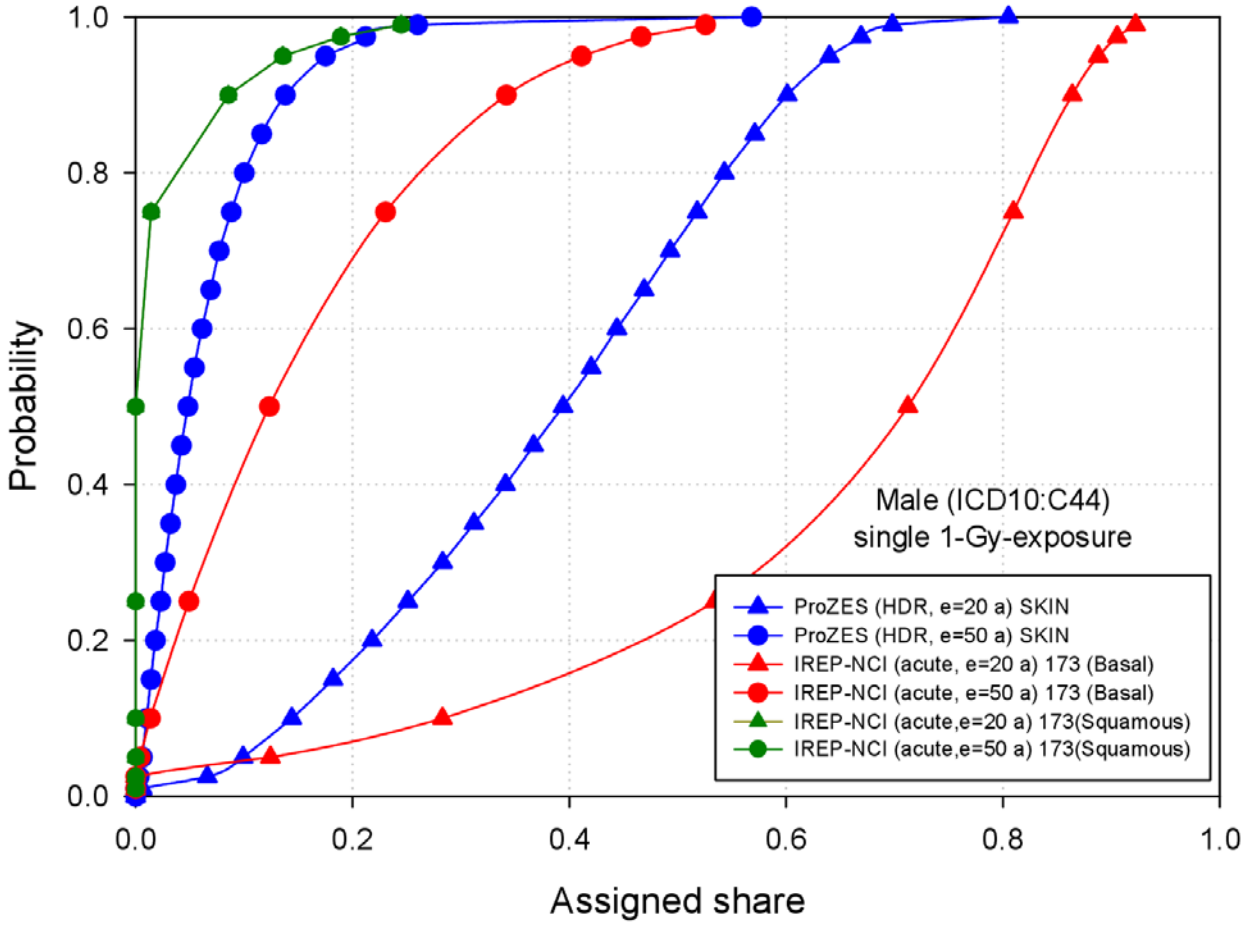


SKIN – non-melanoma skin cancer (ICD10:C44)

Male, single 1-Sv-exposure at ages 20 or 50



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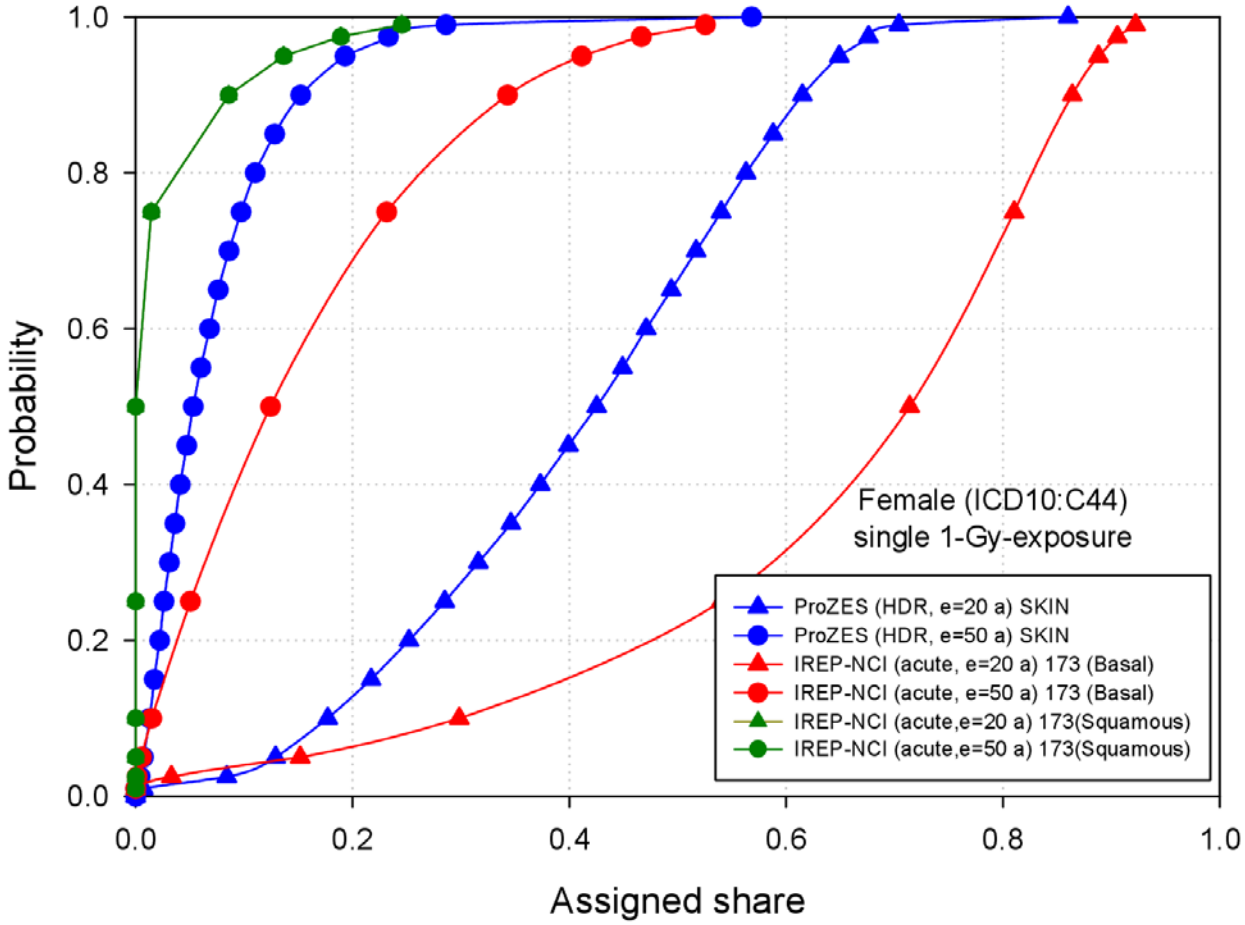

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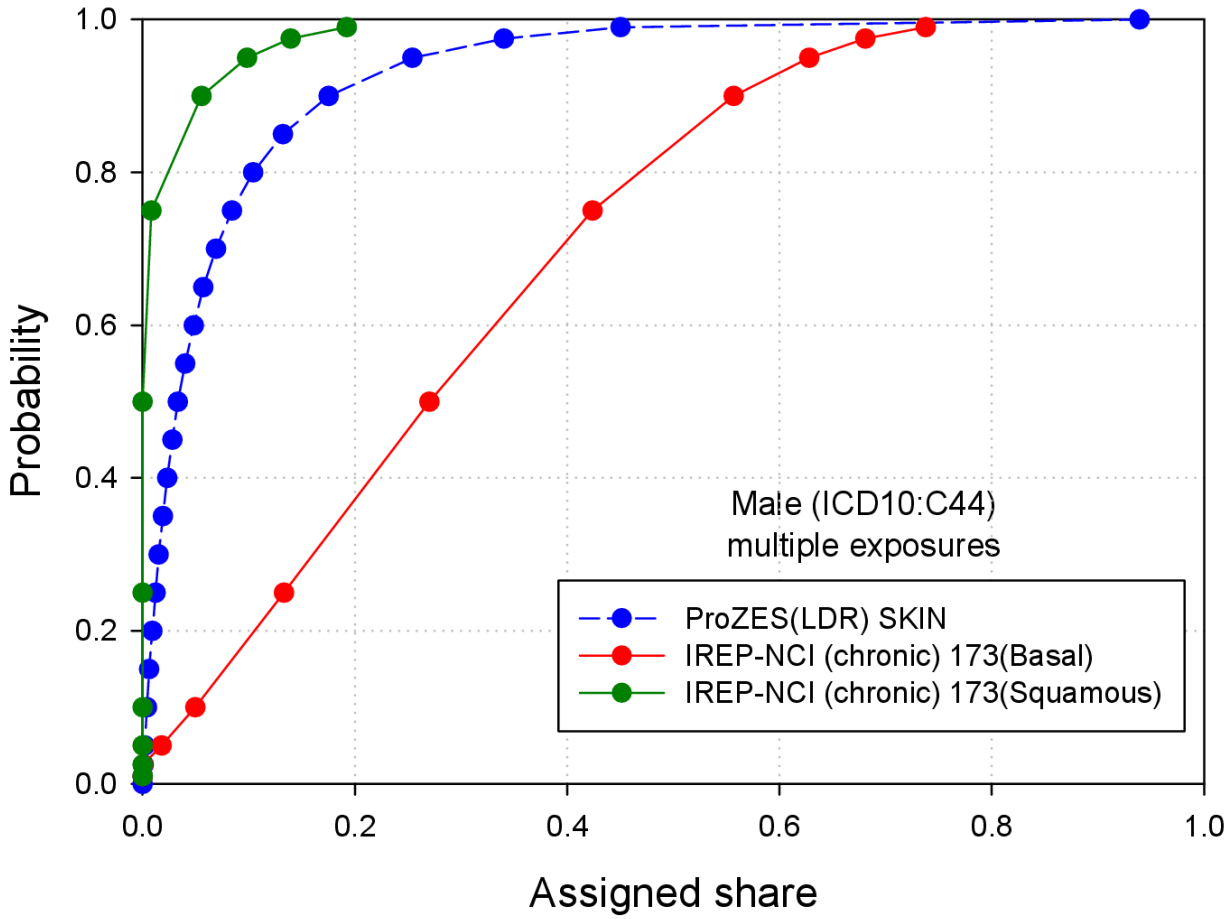

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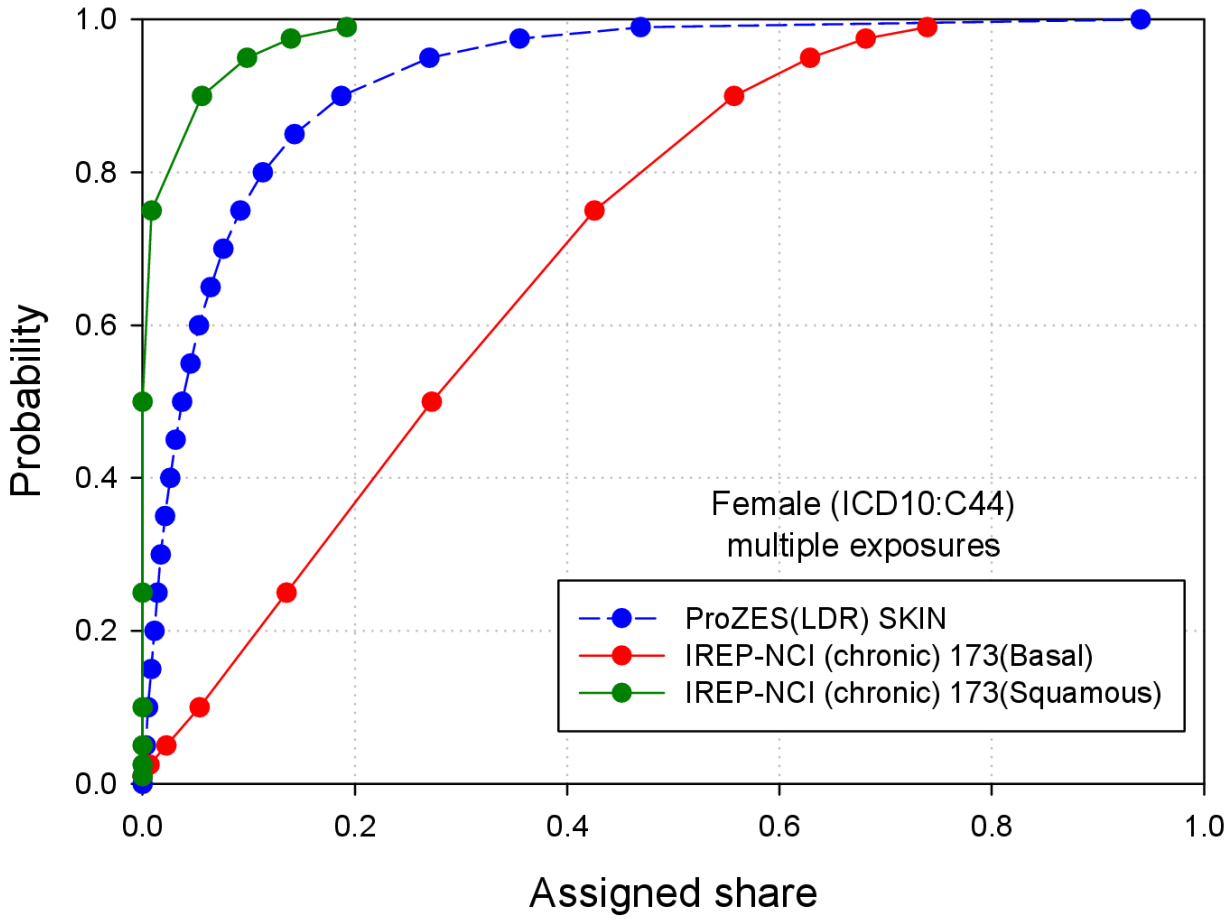
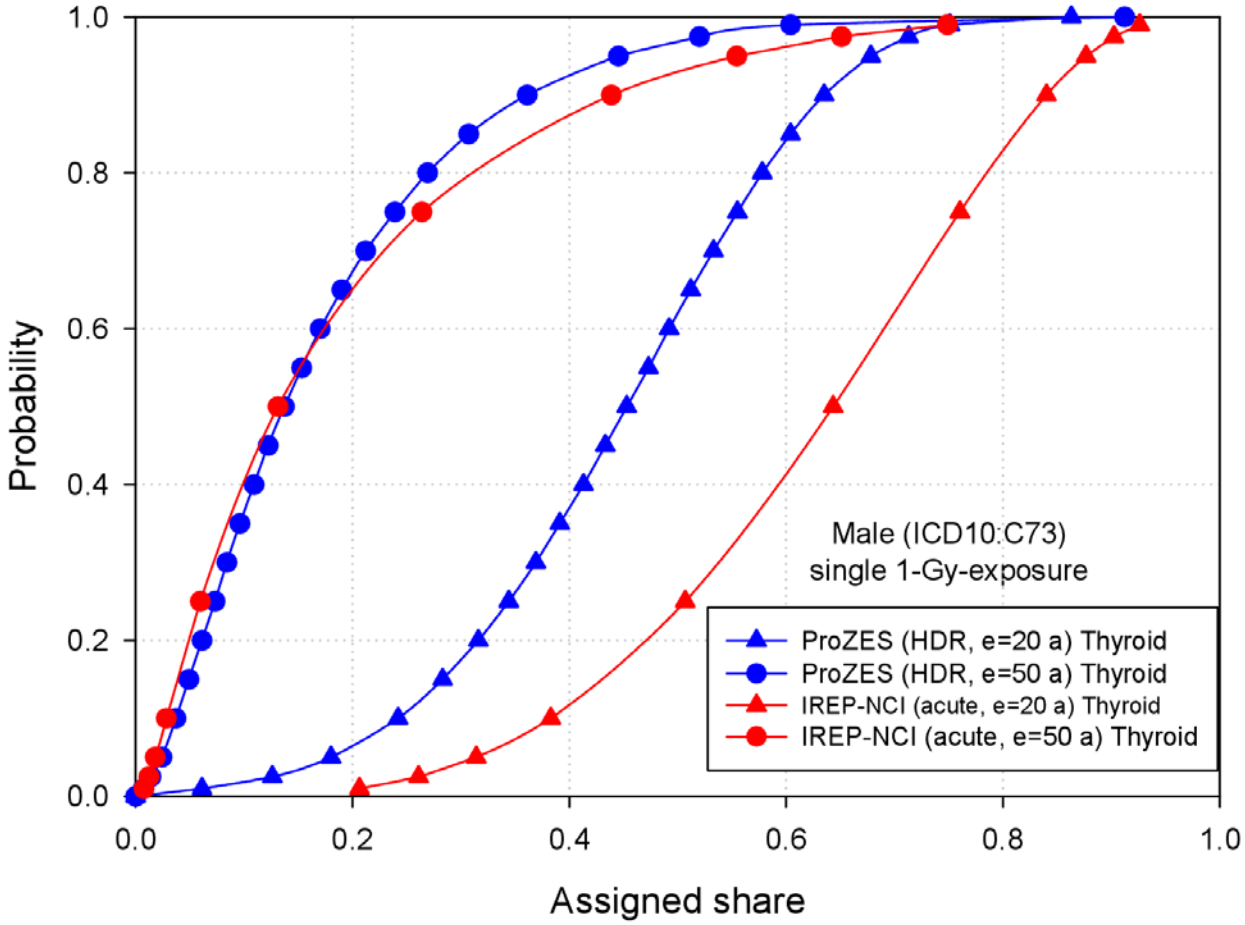


Thyroid (ICD10:C73)

Male, single 1-Sv-exposure at ages 20 or 50



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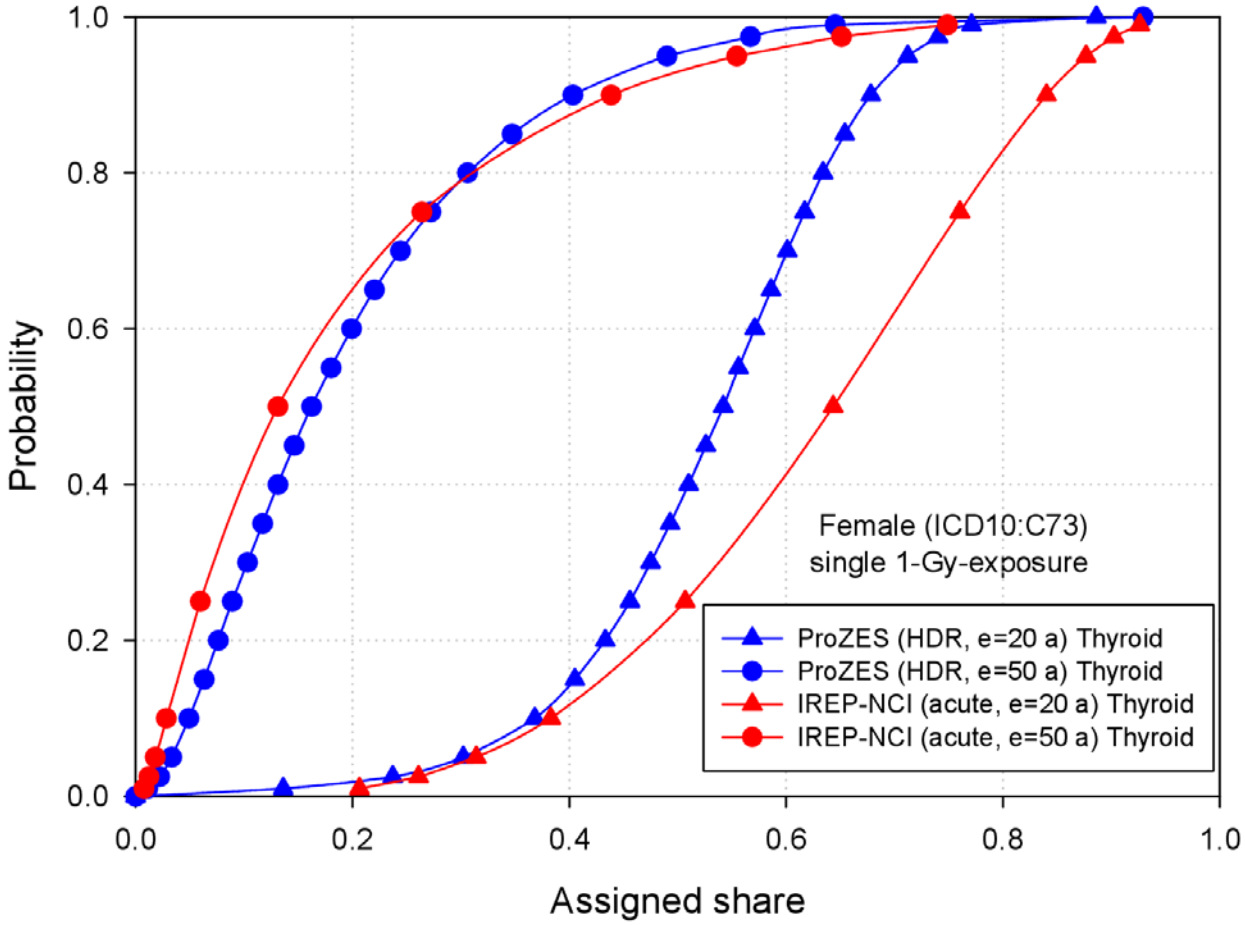

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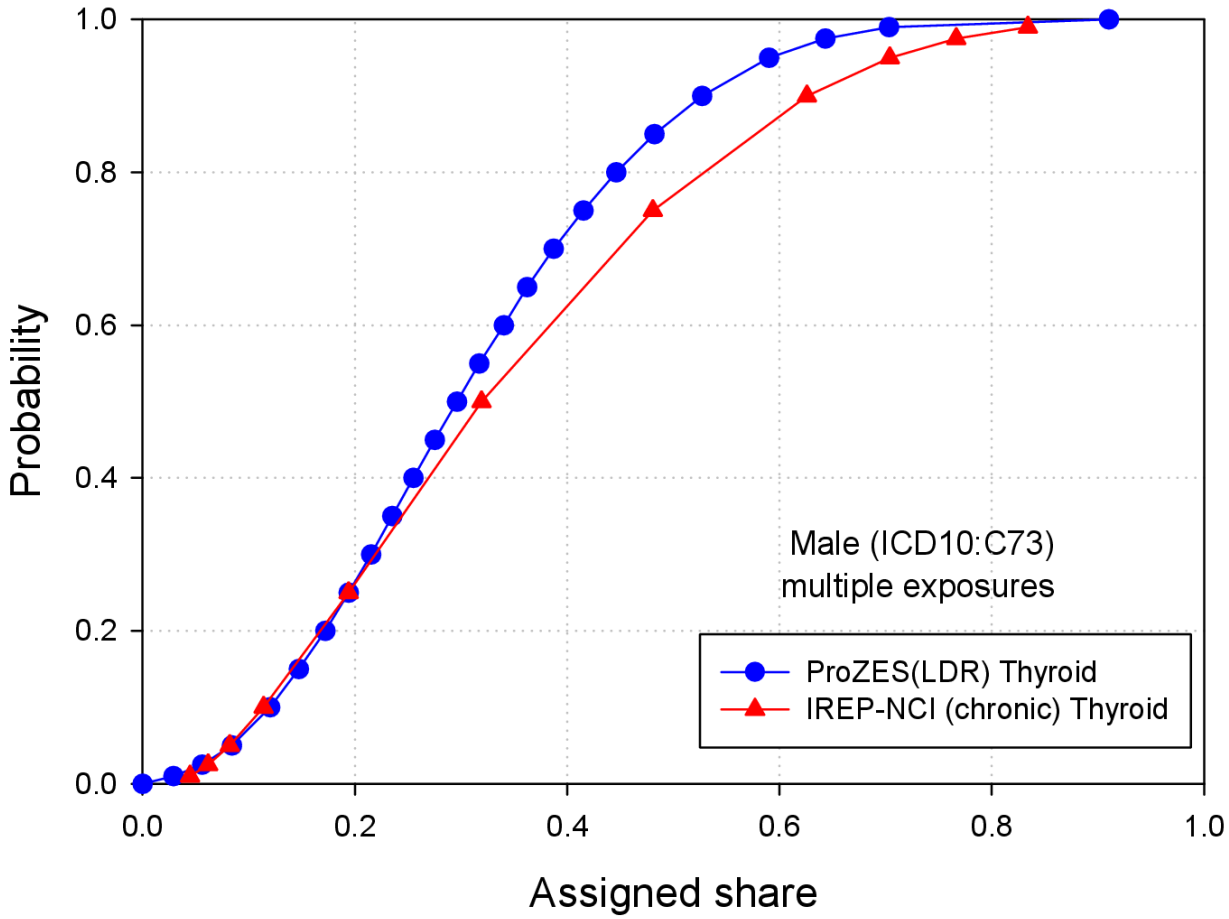

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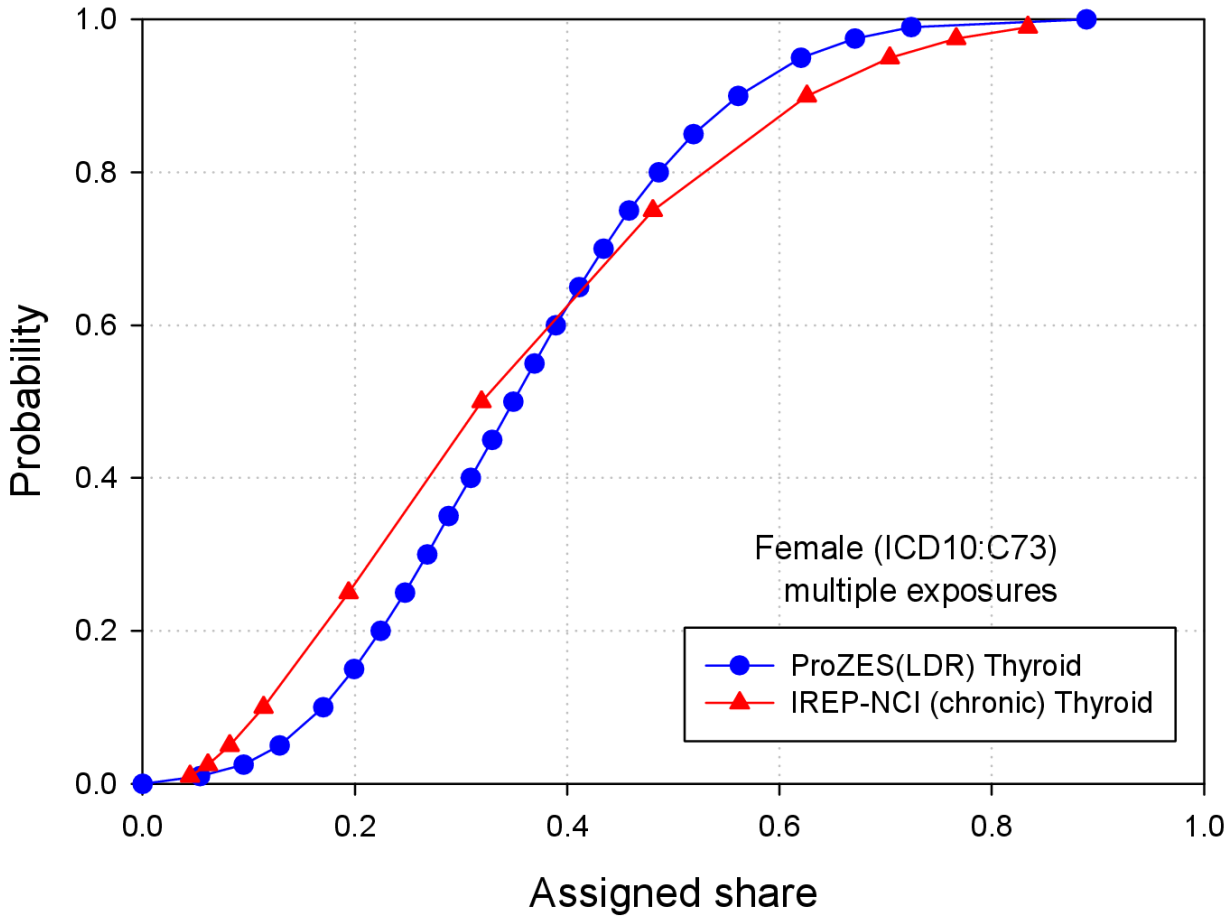
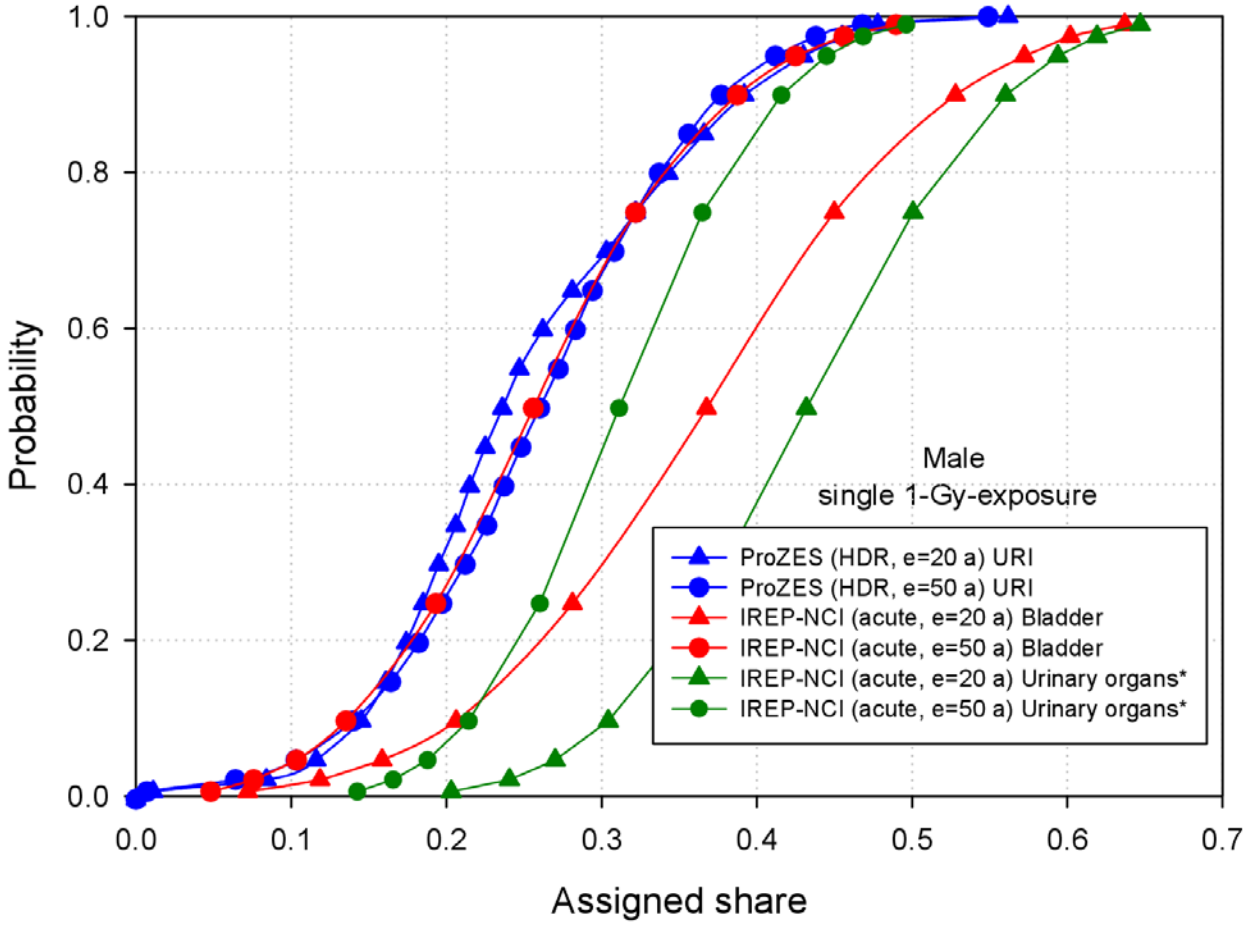


Group URI – cancers of urinary organs(ICD10:C64—68)

Male, single 1-Sv-exposure at ages 20 or 50



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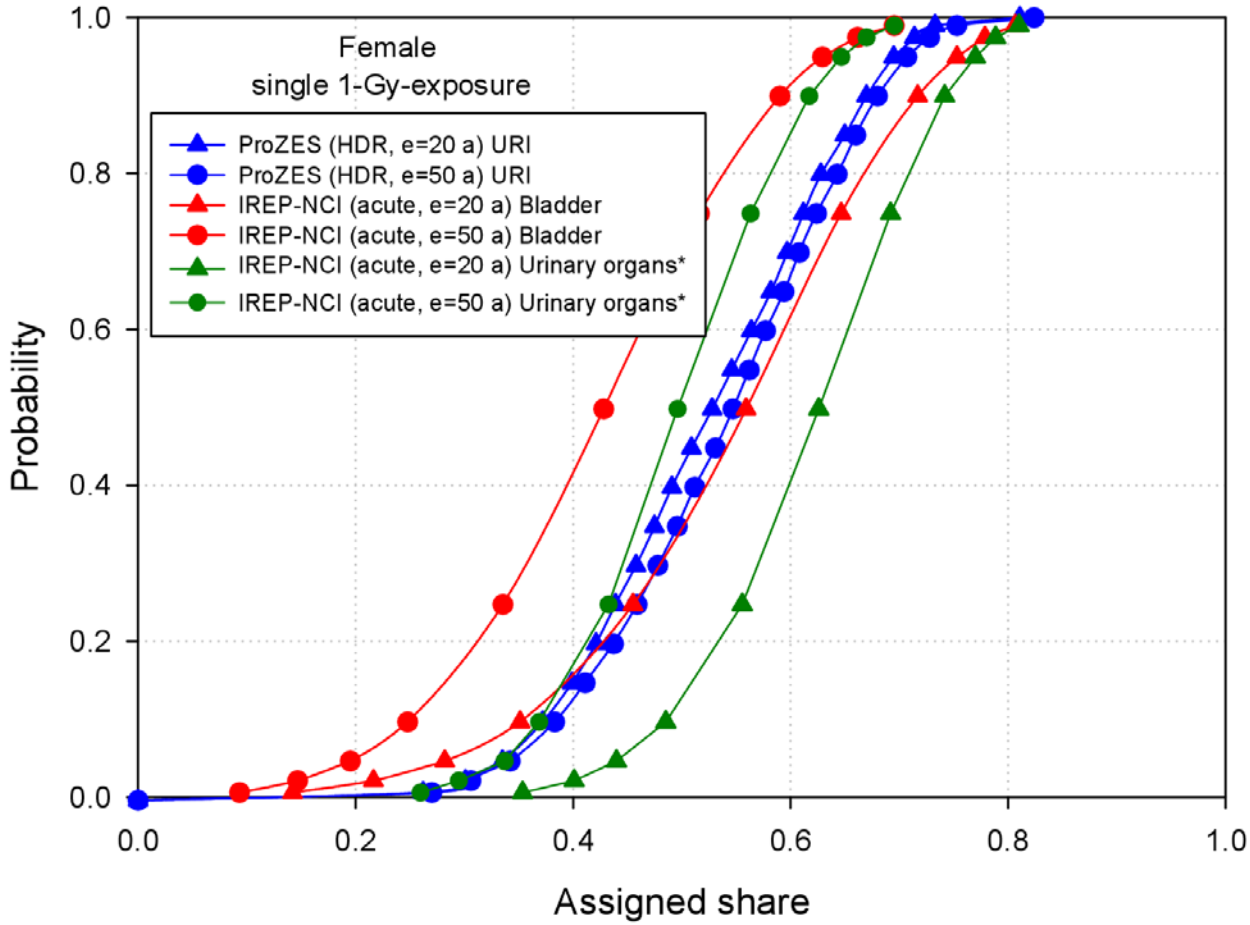

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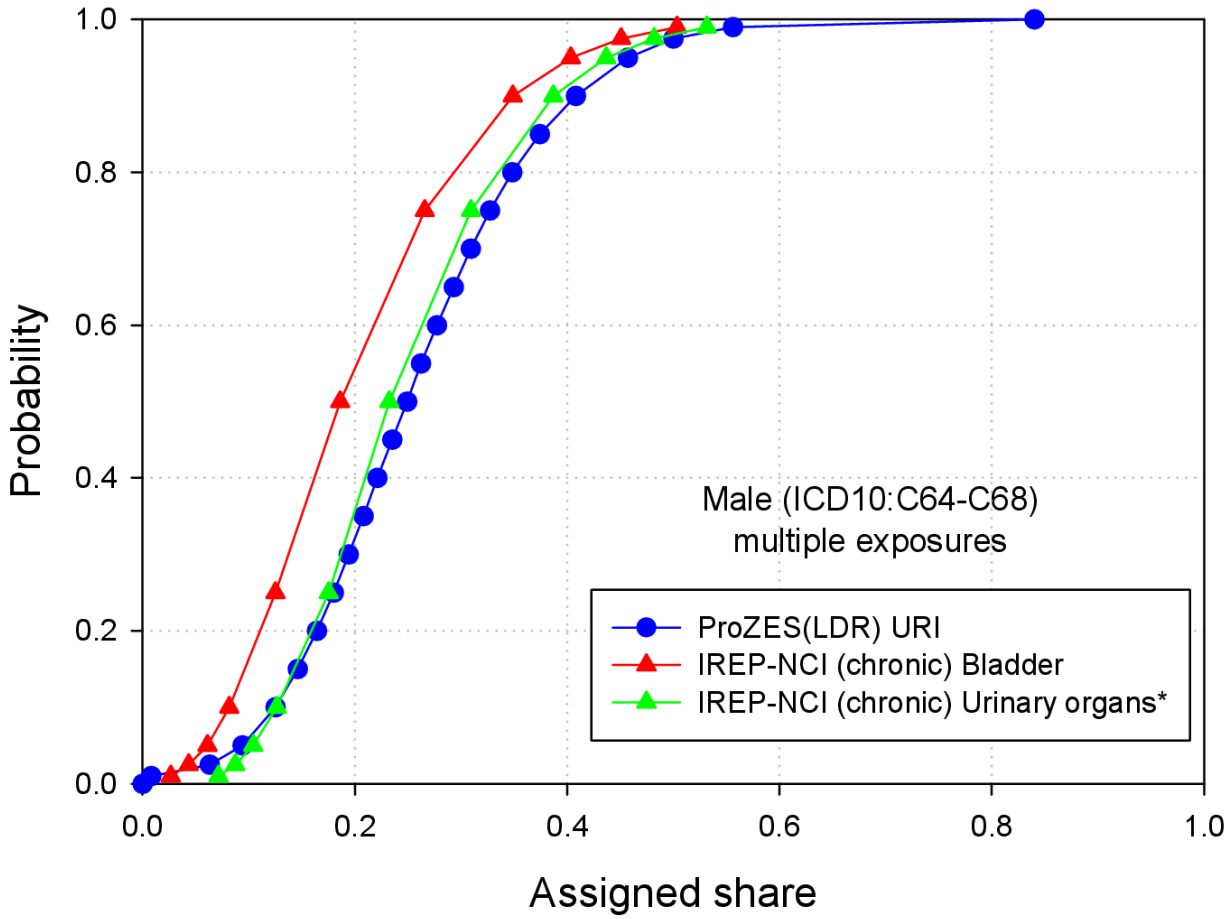

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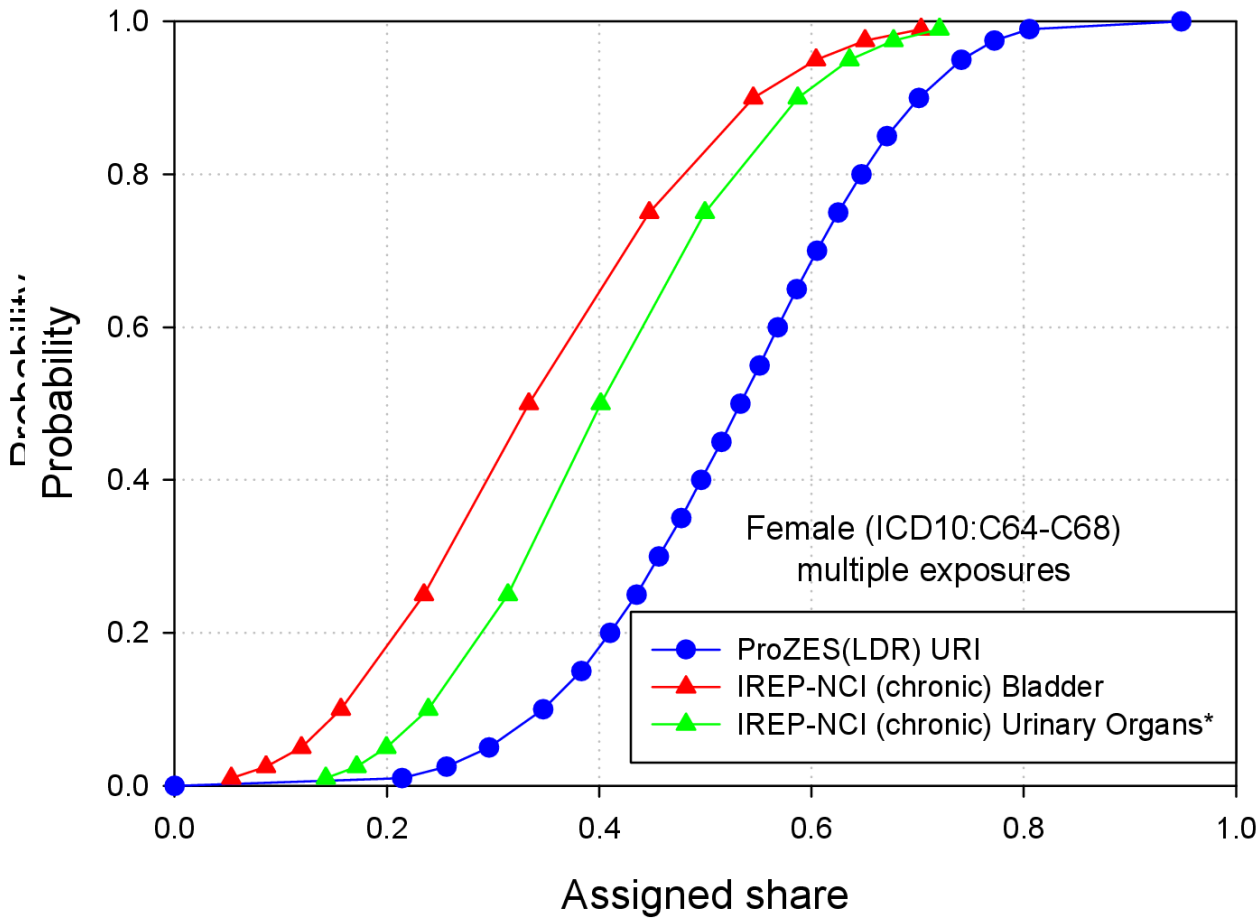
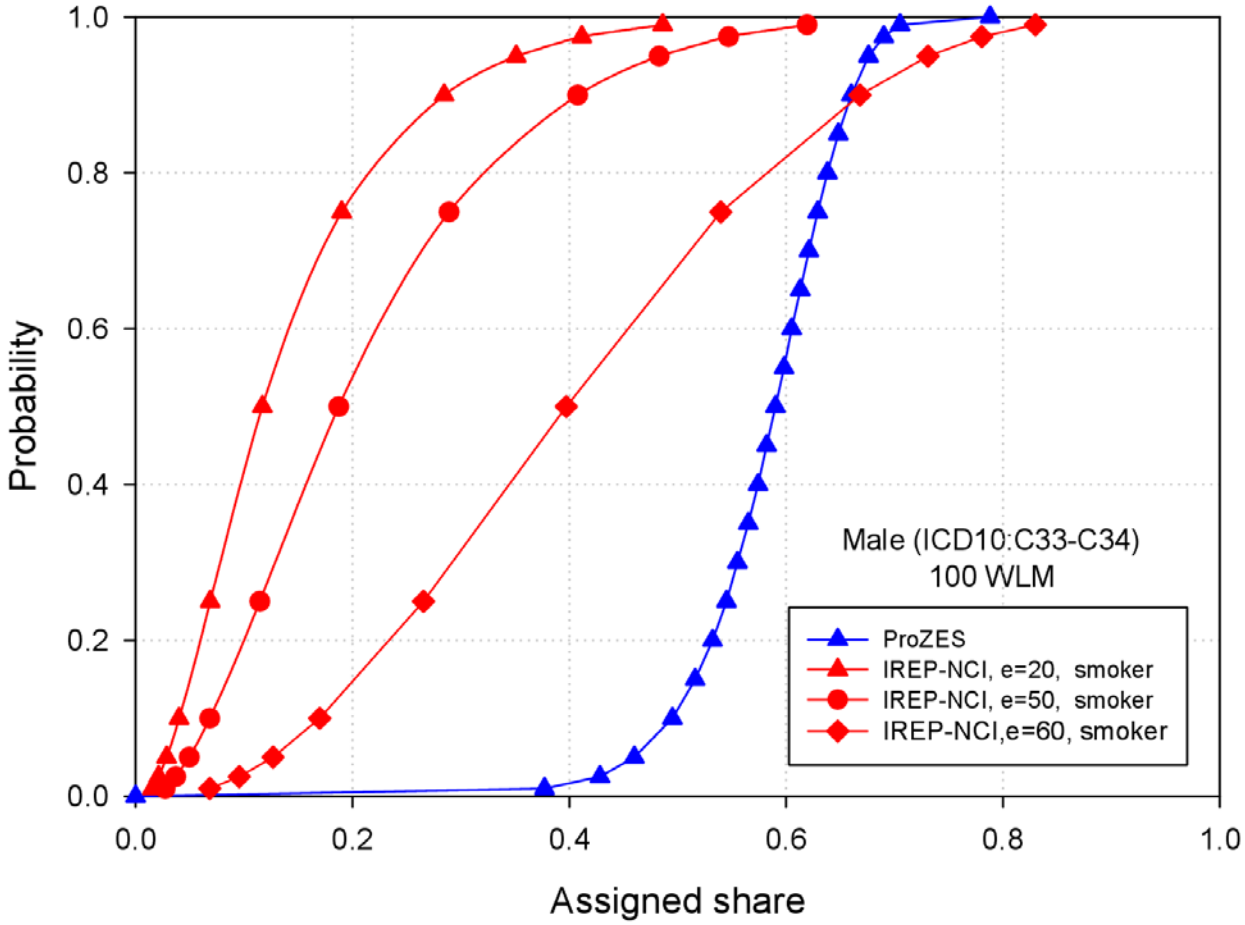
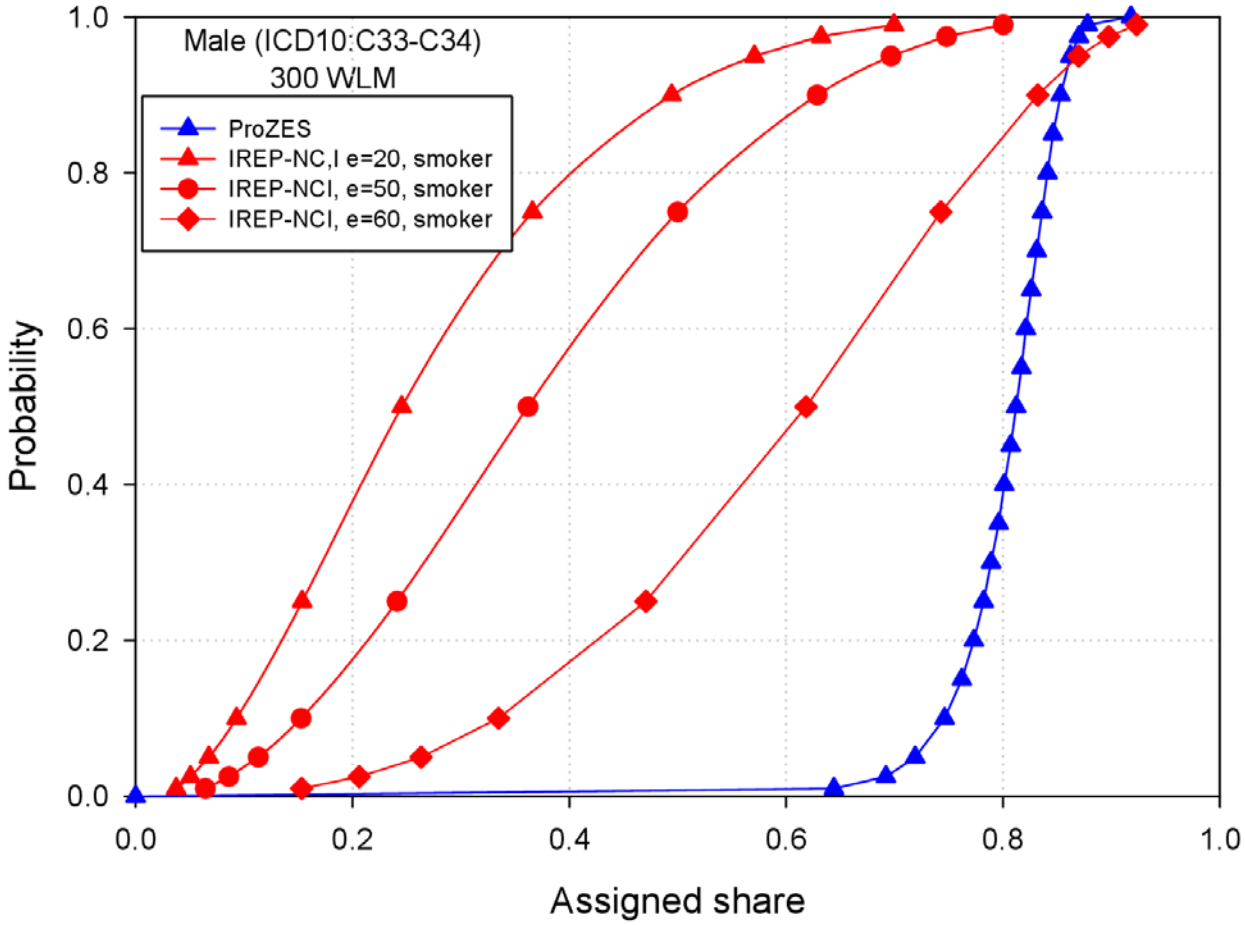


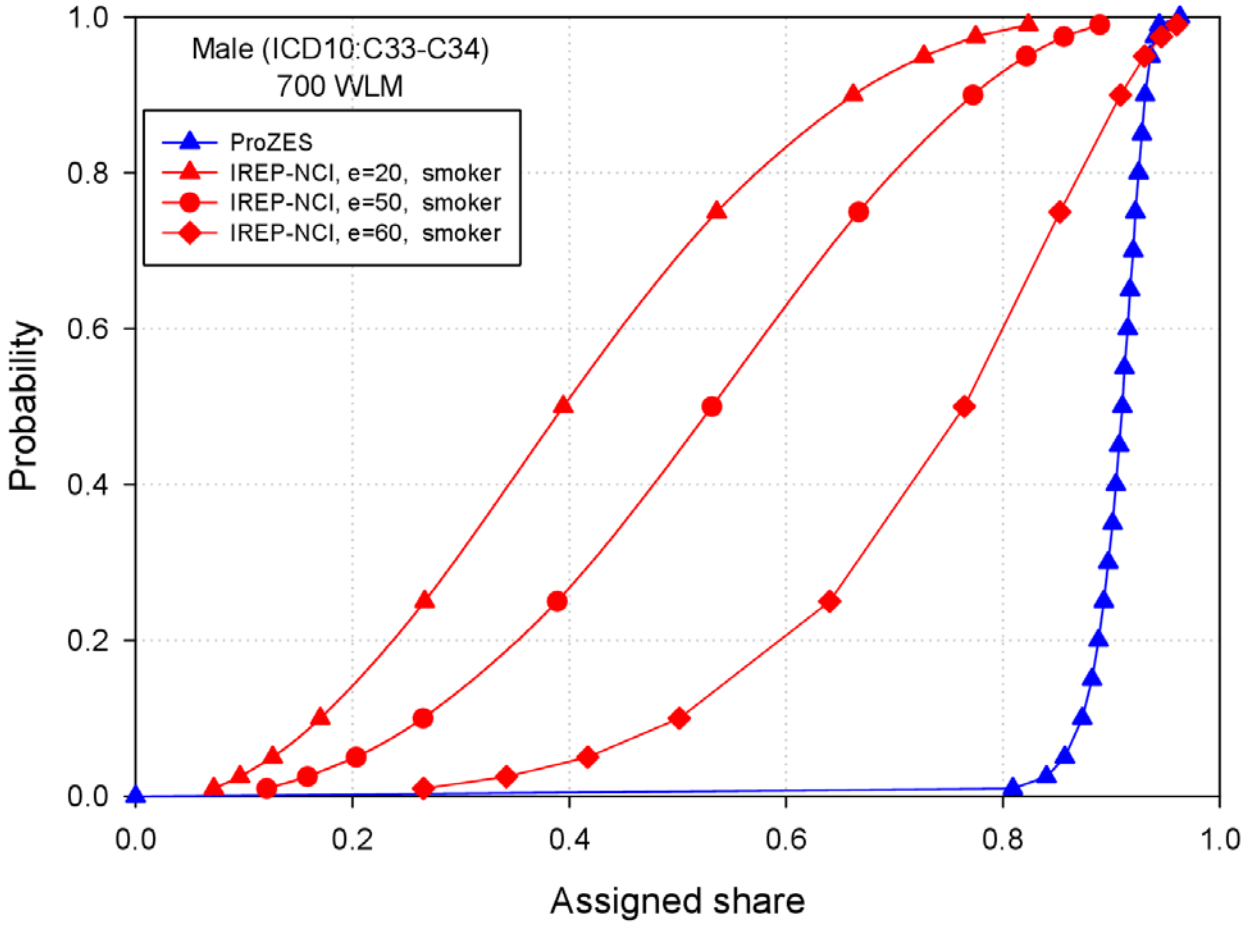
Group LUNG–cancers of trachea, bronchus and lung (ICD10: C33-34) Male, exposure to radon at 100 WLM



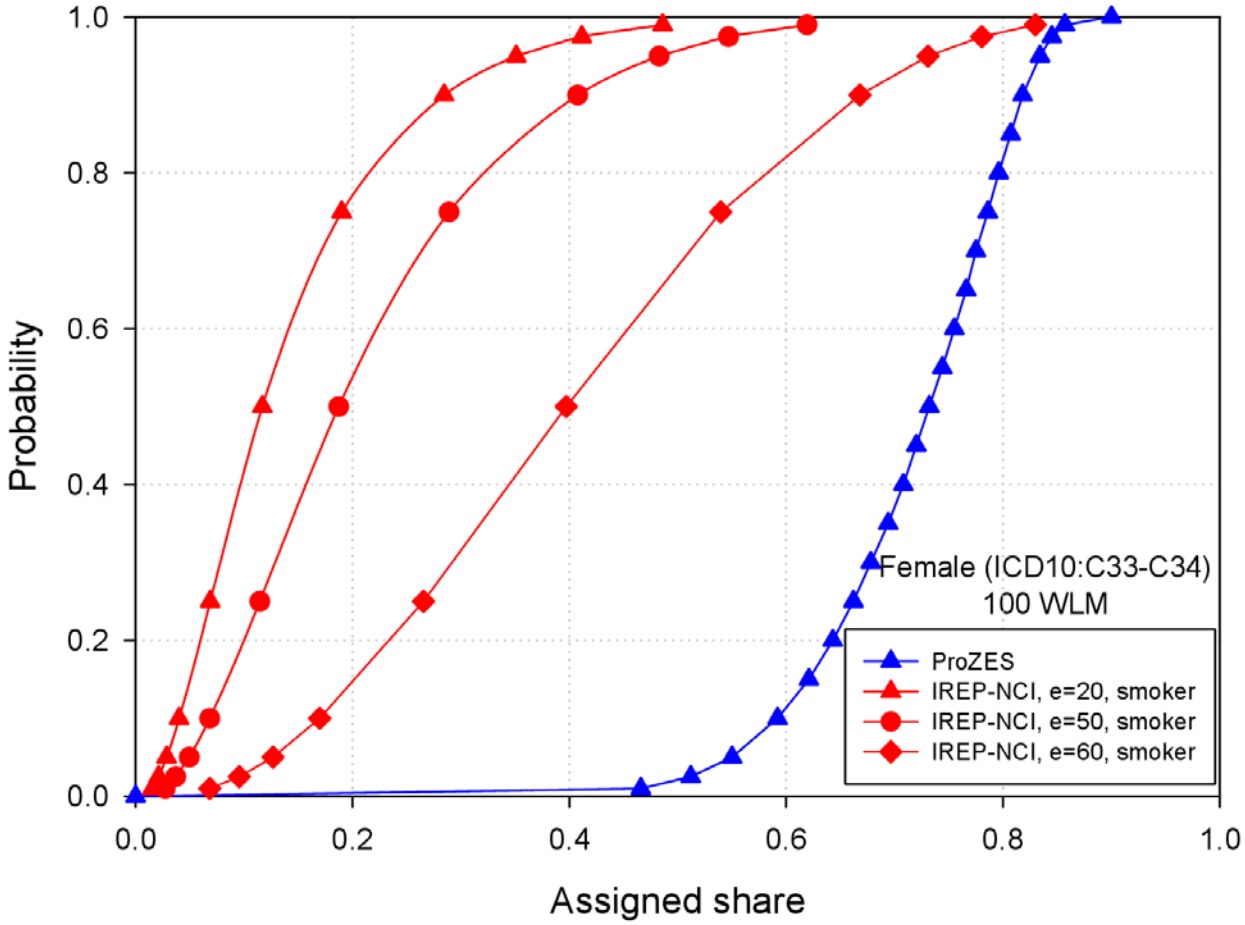
Group LUNG–cancers of trachea, bronchus and lung (ICD10: C33-34) Male, exposure to radon at 300 WLM



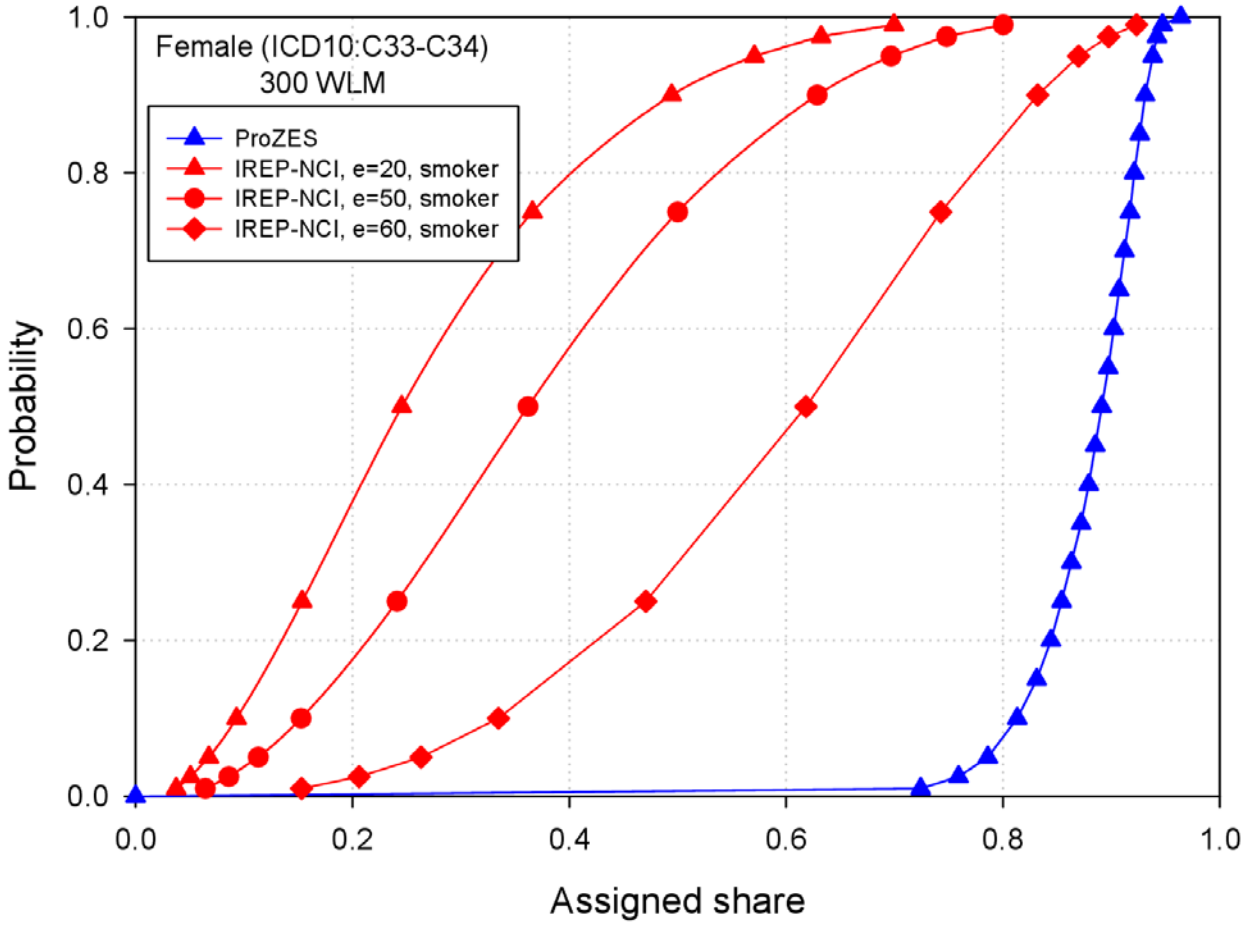
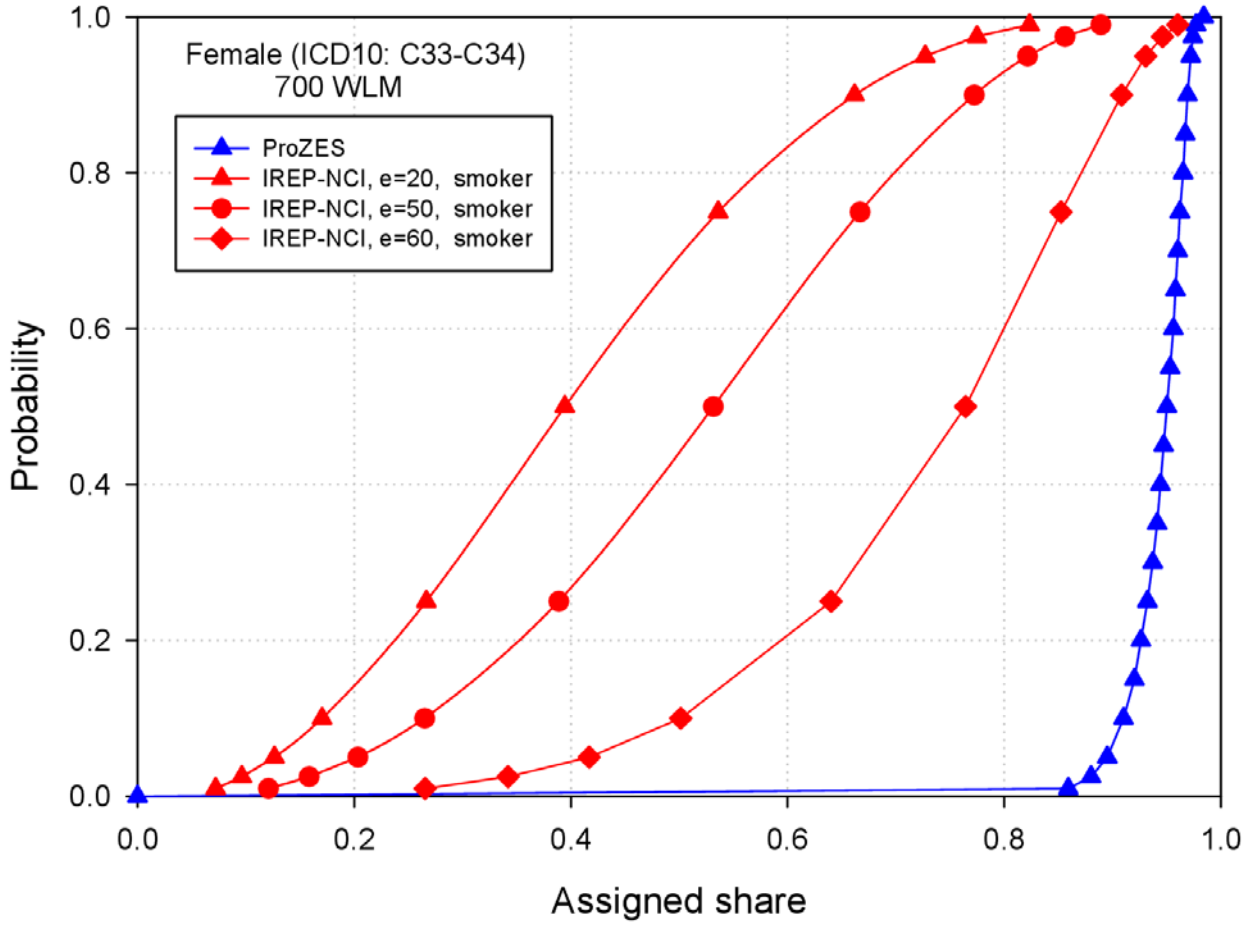
Group LUNG–cancers of trachea, bronchus and lung (ICD10: C33-34) Male, exposure to radon at 700 WLM



Group LUNG–cancers of trachea, bronchus and lung (ICD10: C33-34) Female, exposure to radon at 100 WLM



Group LUNG–cancers of trachea, bronchus and lung (ICD10: C33-34) Female, exposure to radon at 300 WLM



Group LUNG–cancers of trachea, bronchus and lung (ICD10: C33-34) Female, exposure to radon at 700 WLM