



JA PreventNCD

Joint Action Prevent Non-Communicable Diseases

Session II: 11:00-13:00

Task 8.4: Monitoring access to health care and health care costs on a population level

Silvia Francisci - Istituto Superiore di Sanità

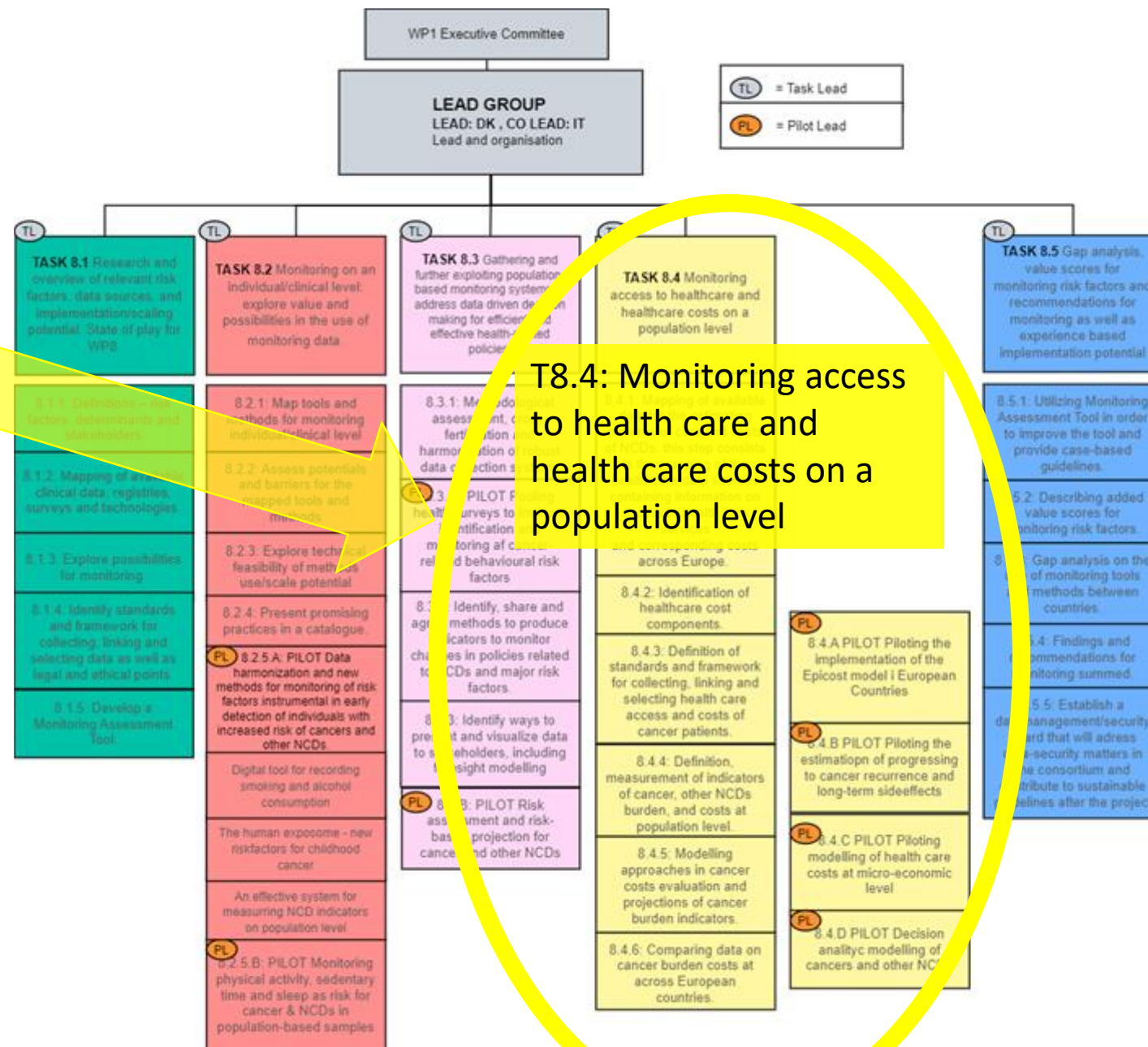
JA PreventNCD T8.3 & T8.4 Meeting

Rome, Tuesday 5th November 2024



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WP8 MONITORING: setup of tasks and organization



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Rationale and background for T8.4



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- iPAAC JA Roadmap on Implementation and Sustainability of Cancer Control Actions (<https://www.ipaac.eu/roadmap/>) addresses the issue of **measuring the economic burden associated with cancer** and identifying effective policies for minimizing its impact on the health systems
- Europe's Beating Cancer Plan recalls the need for a European Cancer Information System, monitoring the burden of cancer in Europe → including new indicators to help **monitoring progress and future needs** in addressing cancer at EU and national level.
- the **sustainability of cancer and other NCDs** control is a challenge for all European governments, and is increasingly central in policy makers' debate



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Task 8.4 in the JA PreventNCD



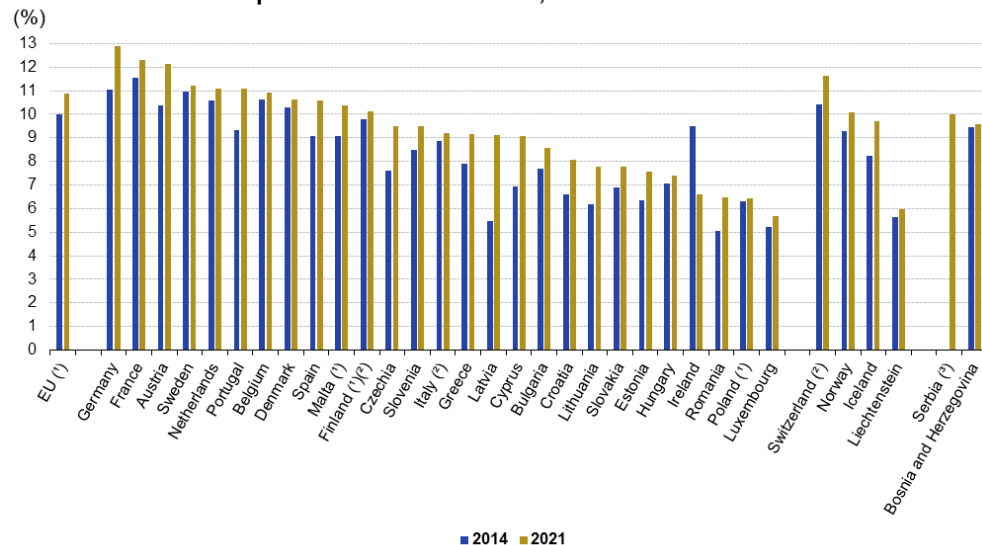
- Task 8.4 aims to move a step further in the direction of developing, sharing and implementing procedures and methodologies to monitor the **impact of NCDs at on national health care systems (population perspective)** in terms of **access to health care services** and corresponding **expenditures** related to diagnosis, treatment and follow-up of NCDs patients considering the **entire disease pathway** from diagnosis to possible recovery or end-of-life
- The **focus is on cancer**:
 - It represents one of the **major drivers of the economic impact** on healthcare systems
 - Access to health care services and **economic impact are measurables** at **population level** starting from Cancer Registry data integrated with other health care data sources
 - It has been indicated as **one of the cross-cutting themes of this JA**



HEALTH EXPENDITURES ON CANCER IN EUROPE

- ✓ **Total expenditure on health** in the EU is approaching **11% of GDP**
- ✓ Cancer care expenditures amounted to 52 bln in 1995 and **increased by 98% to 103 billion in 2018** (representing about 7% of total health care expenditures in EU)
- ✓ Main cost driver is **drugs**: 10 bln in 2005 and more than tripled to **32 bln in 2018**.
- increasing debate about **sustainability** and **economic value of new treatments**
- increasing **need for monitoring economic impact on pop, using a life-course approach**

Current healthcare expenditure relative to GDP, 2014 and 2021



■ 2014 ■ 2021

(*) 2021: provisional.

(*) Break in series.

(*) 2014: not available.

Source: Eurostat (online data code: hlth_sha11_hf)

eurostat

Thomas Hofmarcher et al. *Eur J Cancer* 129 (2020)

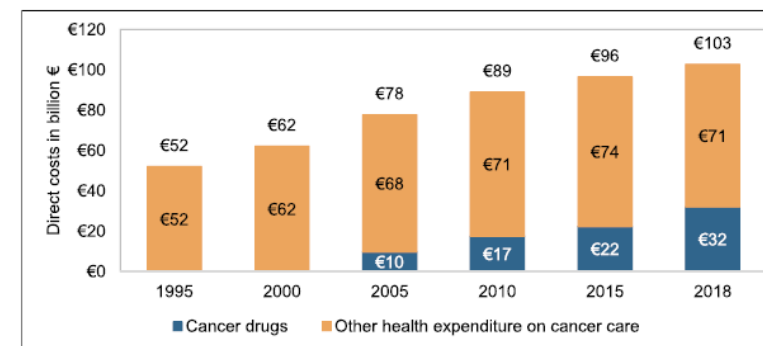


Fig. 1. Direct costs of cancer in Europe in 1995–2018 (in billion €, 2018 prices and exchange rates). Notes: Costs for 1995 and 2000 represent total direct costs, as it was not possible to separate costs because of lack of data on drugs. Cancer drug expenditure do not include confidential rebates, whose size might have increased over time. The 1995 estimates could only be adjusted for country-specific inflation between 1996 and 2018 due to lack of data.



HEALTH EXPENDITURES ON CANCER IN THE US



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HHS Public Access

Author manuscript

Cancer Epidemiol Biomarkers Prev. Author manuscript; available in PMC 2022 September 27.

Published in final edited form as:

Cancer Epidemiol Biomarkers Prev. 2020 July ; 29(7): 1304–1312. doi:10.1158/1055-9965.EPI-19-1534.

Medical Care Costs Associated with Cancer Survivorship in the United States

Angela B Mariotto¹, Lindsey Enewold¹, Jingxuan Zhao², Christopher A Zeruto³, K. Robin Yabroff²

National cost projections for all cancer sites combined through 2030 by sex using different scenarios for projections of incidence and survival. National costs for medical services (Medicare Parts A and B), oral prescription drugs (Medicare Part D) and total costs (Medicare Parts A, B, and D) by sex. Percent increase from 2015. Costs are in 2019 Billion dollars.

		National Costs in 2019 Billion Dollars														
		Medical Services (Part A & B)					Prescription Drug (Part D)					Parts (A, B & D)				
Sex	Trend scenario *	2015	2020	2025	2030	Increase 2015 to 2030	2015	2020	2025	2030	Increase 2015 to 2030	2015	2020	2025	2030	Increase 2015 to 2030
Males	Base	\$78	\$86	\$96	\$105	35%	\$8	\$9	\$10	\$12	40%	\$86	\$95	\$106	\$117	35%
Males	Inc.	\$78	\$85	\$89	\$92	18%	\$8	\$9	\$10	\$10	25%	\$86	\$94	\$99	\$102	18%
Males	Inc.+Surv	\$78	\$86	\$91	\$95	22%	\$8	\$9	\$10	\$11	33%	\$87	\$95	\$101	\$106	23%
Females	Base	\$87	\$95	\$104	\$116	33%	\$10	\$11	\$12	\$13	39%	\$96	\$105	\$116	\$129	34%
Females	Inc.	\$88	\$98	\$108	\$118	34%	\$10	\$11	\$12	\$13	39%	\$98	\$109	\$120	\$131	34%
Females	Inc.+Surv	\$88	\$98	\$108	\$119	35%	\$10	\$11	\$12	\$14	43%	\$98	\$109	\$120	\$133	36%
Both	Base	\$165	\$181	\$200	\$221	34%	\$18	\$20	\$22	\$25	40%	\$183	\$201	\$222	\$246	34%
Both	Inc.	\$166	\$183	\$197	\$210	26%	\$18	\$20	\$22	\$24	32%	\$184	\$203	\$219	\$234	27%
Both	Inc.+Surv	\$166	\$183	\$199	\$214	29%	\$18	\$20	\$23	\$25	38%	\$184	\$204	\$222	\$237	30%

* All scenarios include the aging and growth of the US population: Base= incidence and survival constant as observed in last years of data; Inc= Future trends of incidence and constant survival; and Inc.+Surv.= Future trends of incidence and survival.

Background:

The prevalence of cancer survivorship is increasing, due to both demographic and epidemiological dynamics

Impact:

The national cancer-attributed medical care **costs in the US are substantial and projected to increase dramatically by 2030**, thus reflecting the rising burden of cancer care among cancer survivors. In the same period, national costs for **medical services** are projected to **increase by 34%** and **prescription drugs by 40%**.

Conclusions:

Phase specific cancer-attributable cost estimates by cancer site and stage at diagnosis are **critical inputs** for simulations and cost-effectiveness studies that can be used **to evaluate cancer control interventions, including those addressing prevention, screening and early detection, treatment, and survivorship care.**



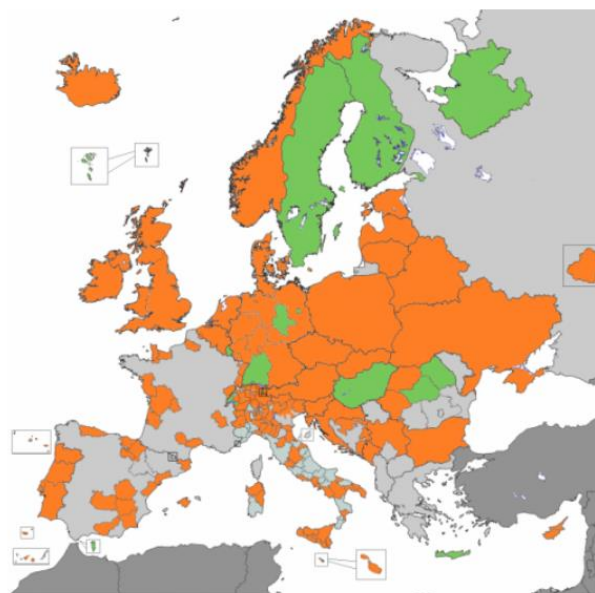
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ECIS - European Cancer Information System

Home Explore the data ▾ Publications ▾ About ECIS ▾

ECIS provides the latest information on indicators that quantify cancer burden across Europe. It permits the exploration of geographical patterns and temporal trends of incidence, mortality and survival data across Europe for the major cancer entities.

Geographic distribution of the general Cancer Registries (all cancer sites and all ages) that have submitted data to the ENCR-JRC project, as part of the 2015 call for data:



Orange: Cancer Registries participating in the ENCR-JRC Project
Green: Cancer Registries not yet participating in the ENCR-JRC Project

The ENCR-JRC project on cancer incidence and mortality in Europe was launched in 2015 by the ENCR Steering Committee and JRC to set up a standardised and comparable database for monitoring cancer incidence and mortality in the European Union and to provide regular information on the burden of cancer in Europe.

Cancer Registries (CRs) provide accurate and representative information on cancer patients, real-world data,

without any selection due to age, socio-economic or co-morbid condition, granting by design longitudinal follow-up, even in the long term. They are not only essential in cancer epidemiology but they have the potential **to support quality improvement in cancer care and provide multidimensional information on cancer survivorship.**

Linking at individual level CRs data to other health care data sources allows to measure at population level access to health care services and associated costs.

Task 8.4: setup and organization



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The Task 8.4 is developed in **6 subtasks** and **4 pilots**

Task leader: Silvia Francisci , ISS, Italy

8 Participating countries, 17 Affiliated Entities:

Belgium (Sciensano, BCR), Denmark (RSYD), Finland (THL, UKK), Greece (Idika, HUA, NKUA), Italy (ISS, CRO Aviano, AZVe, Uniroma1), Norway (NIPH, OUS), Slovenia (NIJZ), Spain (FISABIO, ICO)

Total effort 262 Pms

Italian Association of Cancer Registries (**AIRTUM**) will also contribute as **Sub-contract**

Deliverable D8.2 specific for T8.4 due M40: Report

Country	CA/AE	PM T8.4
Italy	16. ISS	62
	16.6 Uniroma1	9.5
	16.7 CRO Aviano	6
	16.8 AZVe	9.5
Spain	24 FISABIO	47
	24.2 ICO	33
Belgium	3. Sciensano	38
	3.4 BCR	26
Norway	1.1 NIPH	7.5
	1.1 NIPH	8.4
Denmark	7. RSYD	6
Slovenia	22. NIJZ	5
Greece	12.1 Idika	>=0.65
	12.4 HUA	1
	12.6 NKUA	1
Finland	9. THL	1
	9.3 UKK-instituutti	1
TOTAL TASK 8.4		
8	17	262



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Task 8.4: subtasks description



ST 8.4.1: Mapping of available data for the estimating patterns of care and costs of NCDs JA PreventNCD

This ST will consist of mapping the health care data sources with information on access to health care services and corresponding costs across EU, taking also into account ownership and legislative background.

ST 8.4.2: Identification of health different care costs components

This ST includes definitions of cost types and technical aspects related to their identification in the relevant data sources. This represents the preliminary step in cancer cost descriptive analysis and modelling. Three categories of costs are taken into account: direct health care costs; other direct non-health care costs; productivity or indirect costs.

ST 8.4.3: Definition of standards and framework costs for collecting, linking and selecting health care access and costs of cancer patients.

This subtask includes definitions of data quality standards, classification systems used and issues related to data linkage. The focus is on methods and procedures to identify cancer related costs and issues on data quality, harmonization and interoperability; individual linkage of cancer registries with other data sources.



Task 8.4: subtasks description



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The first three ST are **addressed to all participating countries/AEs** and will develop baseline activities which are **preliminary to the development of the entire Task**. ISS (**Tania Lopez**) has the **leadership of these 3 STs**

The activity of these three ST will be developed using an **ad-hoc developed questionnaire** administered to the T8.4 participating countries

IM8.4.1/2/3 is due on M15: Questionnaire for mapping available data for estimating cancer costs indicators sent to the participating countries

ID 8.4.1/2/3 is due on M20: Interim report on the questionnaire for mapping available data for estimating cancer costs indicators in the European countries



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Task 8.4: subtasks description



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ST 8.4.4: Definition, **measurement** of indicators of cancer, other NCDs burden, and **costs at population level** (ST leader: Silvia Francisci, ISS)

This ST defines indicators of cancer burden and costs at population level and identifies methods for their measurement: prevalence and cancer-attributable cost estimates by phase of care, cancer survivors living with recurrences are critical inputs for evaluating cancer control interventions, including those addressing prevention, screening and early detection, treatment, and survivorship care.

This ST is developed through the following piloting activities:

- **Pilot 8.4.a:** piloting the implementation of the Epicost model in European countries (pilot Leader: Stefano Guzzinati, Azienda O, Veneto) IM8.4.a (due on M22) and ID8.4.a due on M31;
- **Pilot 8.4.b:** piloting the estimation of cancer recurrence and long-term side effect (pilot Leader: Luigino Dal Maso, CRO Aviano) IM8.4.a (due on M23) and ID8.4.a due on M32;



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Pilot 8.4.a: Piloting the implementation of the Epicost model in European countries



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- The **idea is to extend at European level the Italian experience of the EPICOST study (*Epidemiological profiles and cost models of cancer patients*)**, which aims to evaluate the economic impact of cancer on the Health Care System, on a population level, according to a phase of care approach reflecting the clinical pathway (three phases of care are proposed: diagnosis-first treatment, surveillance and end-of-life)
- This **model of analysis has been successfully implemented in Italy and it is replicable** in all countries/regions where a cancer registry is present, and linkable at individual level with other data sources reporting costs information.
- The **feasibility of applying the EPICOST model** has been **assessed** in other European countries, such as Belgium, Norway, Poland and Spain **in the framework of** the Innovative Partnership for Action Against Cancer (**iPAAC**) JA, sponsored by the EU.



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Pilot 8.4.b: Piloting the estimation of cancer recurrence and long-term side effect



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- There is **increasing interest** in collecting data and developing methods suitable to estimate the **cancer recurrence** and to measure it in terms of number and percent of patients living with recurrence
- This information is **not routinely collected** by population-based Cancer Registries
- This may **support decisions of oncologists and policy makers** on the best **follow-up plans, in terms of outcomes and costs.**
- Also it might have special relevance for patients in overcoming the obstacles to **full rehabilitation.**



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Task 8.4: subtasks description



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ST 8.4.5: Modelling approaches in cancer costs evaluation and projections of cancer burden indicators (ST leaders: Andrea Tavilla, Silvia Francisci; ISS)

This ST will explore modelling approaches **suitable to identify cost drivers and to forecast cancer burden and costs indicators** in the framework of population-based studies, using individual level information. It contributes to measuring and projecting cancer-related expenditures that is an **increasingly important issue for health care policy makers at multiple levels** (national, regional or local), as well as for health care payers.

→ **Pilot 8.4.c**: piloting modelling of health care costs at micro-economic level (pilot Leader: Cristina Mollica, University of Roma, La Sapienza) IM8.4.c (due on M24) and ID8.4.c due on M33;

→ **Pilot 8.4.d**: decision analytic modelling of cancers and other NCDs (pilot Leader: Wenche Nystad NIPH-FHI, Norway, country participants: Norway) 3 Workshops (due on M21, M33, M45 respectively)



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Pilot 8.4.c: Piloting modelling of health care costs at micro-economic level



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- **Measuring and projecting the economic burden** associated with cancer, **identifying cost drivers**, and effective policies for minimizing its impact are **increasingly important issues for health care policy makers**
- **Statistical modelling** allows to identify those features that most influence costs and to predict health care use and associated costs in the future
- Modelling of healthcare costs, however, can be a **challenging task due to the peculiar features characterizing the data distribution**, that can require the use of specific statistical methods besides the most traditional approaches to obtain reliable estimates



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Task 8.4: subtasks description



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ST 8.4.6: Comparing data on cancer burden and costs at population level across European countries (ST leader: Silvia Francisci, ISS)

International comparison might be especially **useful to provide further insight into cancer patient management and best practices to increase efficiency of health care delivery**. On the other hand, differences in health care delivery systems, health care policies, and data availability make international comparisons complex. **This part of Task 8.4 will explore the main challenges related to international comparisons** of current and future cancer-related costs measured at population-level across health systems and countries.

Learnings from this part of the T8.4 will feed into the deliverable WP8-D8.3 (Report on recommendations on monitoring systems, gaps analysis between countries and implementation/dissemination potentials based on the findings in the tasks and pilots) due on M48.



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Objective of SESSION II



- To provide and share with the participants the detailed description of Task 8.4, in terms of rationale, objectives, expected outcomes, impact and relevance within the JA PreventNCD;
- To strengthening the collaboration between the participants, involving each partner into specific subtasks/piloting activities according to their interest and the planned effort;
- To discuss possible challenges and issues to face during the next three years of activity, in order to address them in the most suitable way;
- To share the work plan and to identify the best way to ensure a smooth workflow in line with planned activities and goals to achieve.



Agenda for SESSION II: T8.4



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11:00-13:00	Session II: Task 8.4 “Monitoring access to health care and health care costs on a population level”	Task 8.4 leaders
11:00-11:25	Brief introduction to Task breakdown (subtasks, pilots)	Task and Subtask leaders: Silvia Francisci, Tania Lopez (ISS, Italy)
11:25 -11:45	Pilot 8.4.a: Implementation of the Epicost model in EU	Pilot leaders: Stefano Guzzinati, Alessandra Andreotti (RTV, Italy)
11:45-12:05	Pilot 8.4.b: Estimating cancer recurrence	Pilot leaders: Luigino Dal Maso, Fabiola Giudici (CRO, Italy)
12:05-12:25	Pilot 8.4.c: Modelling health care costs at micro-economic level	Pilot leaders: Cristina Mollica (La Sapienza, Italy)
12.25-12.40	Discussion issues and challenges related to pilot a,b,c activities	All partners Task 8.4
12:40-13:00	Pilot 8.4.d: Decision analytic modelling of NCDs	Pilot leaders: NIPH t.b.d.



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For the discussion



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Task 8.4: ISSUES/CHALLENGES for discussion



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- a) **Harmonization of data on claims**: classification systems, data availability, individual/aggregate level, data quality, completeness and coverage;
- b) **Definition and sharing of cost components** and related indicators
- c) **Interoperability** (problems of standardization, lack of common standards) and issues related to data linkage between CRs and other health care data sources
- d) **Data sharing?**: Access (many different authorization procedures, time- and resource- consuming), GDPR local interpretations
- e) **Costs** of monitoring systems in terms of development and maintaining



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SESSION III



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GANNT CHART FOR T8.4



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Deliverable D8.2 – Report on monitoring access to health care and health care costs on a population level as well as projections.

Deliverable No	Deliverable Name	Deliverable Description	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (Month)
D8.2	Report on monitoring access to health care and health care costs on a population level as well as projections.	Report on impact of cancer and NCDs on the national health care systems, in terms of access and use of the health care	WP8	16-ISS	Other	PU-Public	40

Task/Deliverable/Milestone	2024				2025				2026				2027			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Monitoring access to health care and health care costs on a population level																
<i>D8.2 Report on monitoring access to health care and health care costs on a population level as well as projections.</i>																X
ST 8.4.1																
ST 8.4.2																
ST 8.4.3																
IM8.4.1/8.4.2/8.4.3					X											
ID8.4.1/8.4.2/8.4.3							X									
ST8.4.4																
ST8.4.5																
ST8.4.6																
Pilot 8.4.a																
IM8.4.a								X								
ID8.4.a											X					
Pilot 8.4.b																
IM8.4.b								X								
ID8.4.b											X					
Pilot 8.4.c																
IM8.4.c								X								
ID8.4.c											X					

ID/IM number	ID/IM description	Month
ID8.4.1/2/3	Interim report on the questionnaire for mapping available data for estimating cancer costs indicators in the European countries	M20
IM8.4.1/2/3	Questionnaire for mapping available data for estimating cancer costs indicators sent to the participating countries	M15

ID/IM number	ID/IM description	Month
D8.4.b	Interim report on the implementation of the methodologies for estimating the probability of progressing to cancer recurrence and long-term side-effects in the European countries and results from the piloting action	32
D8.4.c	Interim report on the implementation of modelling of health care costs at micro-economic level in the European countries and results from the piloting action.	33
M8.4.c	Methodological framework/design to support the implementation of modelling of health care costs at micro-economic level in the European countries.	24



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Task 8.4: working group



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The Task 8.4 is coordinated by Italy, with the support of Denmark as lead of WP8

There are two groups of participating countries according to planned effort (PMs):

- high effort
- medium/low effort

We ask for a reference person per country (all countries) related to the ST 8.4.1, 2, 3 → questionnaire

We also ask for a reference person per country (high effort)/pilot activities a,b,c → one per country/pilot activity



Country	CA/AE	PM T8.4
Italy	16. ISS	62
	16.6 Uniroma1	9.5
	16.7 CRO Aviano	6
	16.8 AZVe	9.5
Spain	24 FISABIO	47
	24.2 ICO	33
Belgium	3. Sciensano	38
	3.4 BCR	26
Norway	1.1 NIPH	7.5
	1.1 NIPH	8.4
Denmark	7. RSYD	6
Slovenia	22. NIJZ	5
Greece	12.1 Idika	>=0.65
	12.4 HUA	1
	12.6 NKUA	1
Finland	9. THL	1
	9.3 UKK-instituutti	1
TOTAL TASK 8.4		
8	17	262



Common protocol for data collection to address different questions raised in the three piloting activities:



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- Pilot 8.4.a
- Pilot 8.4.b
- Pilot 8.4.c

- Data sources:
 - **Cancer Registries** selecting the study cohort
 - **Health care databases** for selecting patterns of care/costs: Hospital admissions (HA), OutPatient Services (OPS), Hospital Drugs (HD)
- Study design → **population-based retrospective study cohort**:
 - **Cross-sectional**: most recent cancer prevalence cohort (pilot a and c)
 - **Longitudinal**: incident cases must have at least 5 yrs fup since diagnosis (pilot b)
- **Life-course approach**: 3 phases of care according to clinical pathway, 5 yrs fup
- **Two case studies** (cancer types): **colon-rectum, breast female**



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TAKE HOME MESSAGE: WORKING TOGETHER!!!



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- as concerning **ST 8.4.1, 8.4.2 and 8.4.3** we plan to organize **at least two virtual meetings** before submitting the final version of the questionnaire to the participant countries
- As concerning the **piloting activities**: we need to have a contact person for each of the piloting activities addressed to those countries with high PMs contribution (Italy, Belgium, Norway and Spain), we will organize specific **virtual meetings** and possible **site visits when needed**
- For **task 8.4** we plan to organize **two in person meetings** one by the end of 2025, another by the end of 2026 possibly in connection with other WP8 initiatives;



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