



ASSOLOMBARDA

The importance of the Life Sciences value chain in Lombardia

Benchmarking among Italian and European regions – 2018 edition

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Agenda

1. Lombardia Life Sciences value chain: national and European comparison

- Enhancement of the life sciences value chain
- Life sciences scientific research
- Focus on pharmaceutical sector
- Focus on healthcare services

2. In-depth analysis on clinical trials

1. LOMBARDIA LIFE SCIENCES VALUE CHAIN: NATIONAL AND EUROPEAN COMPARISON

ENHANCEMENT OF THE LIFE SCIENCES VALUE CHAIN

Project objective

Quantify the value of life sciences value chain in Lombardia, overcoming the fragmentation of data referring to its sub-sectors

In collaboration with



Cluster Lombardo
Scienze della vita



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Università Commerciale
Luigi Bocconi

CERGAS
Centro di Ricerche sulla Gestione
del'Assistenza Sanitaria e Sociale

The Federchimica associations involved were



The borders of life sciences

The life sciences value chain is a mixed system:

- **industrial value chain** (*pharmaceutical intermediates and active ingredients, drugs, medical devices and biotech research services, and starting from this edition, also the manufacturing of industrial gases for medical use segment*)
- **commercial activities** (*wholesale and retail sale of pharmaceutical products and medical devices and healthcare items*)
- **healthcare services and social care services** (*private and public hospital services, home care services, in-patient and out-patient services...*)

The analysis method

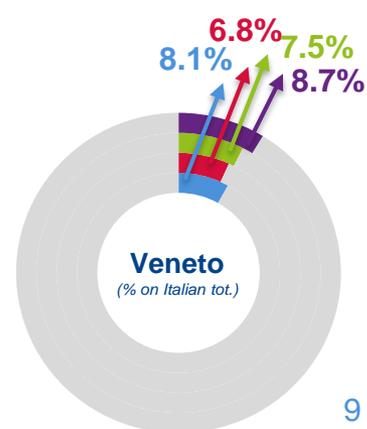
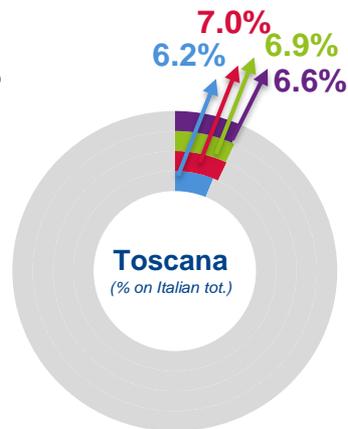
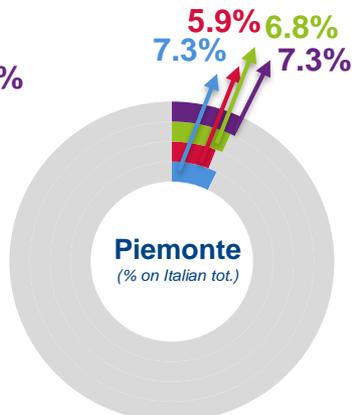
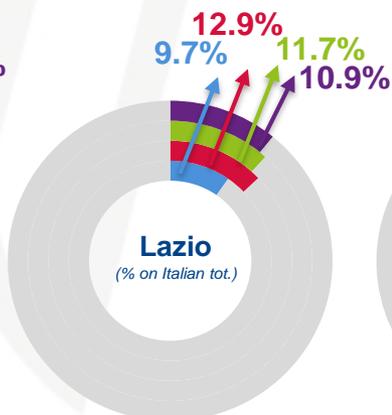
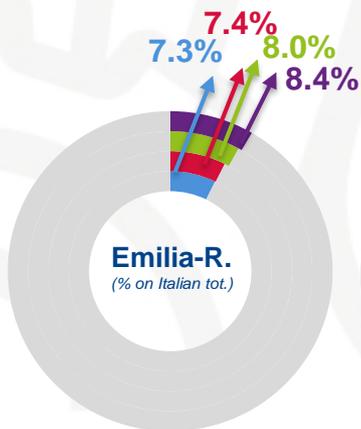
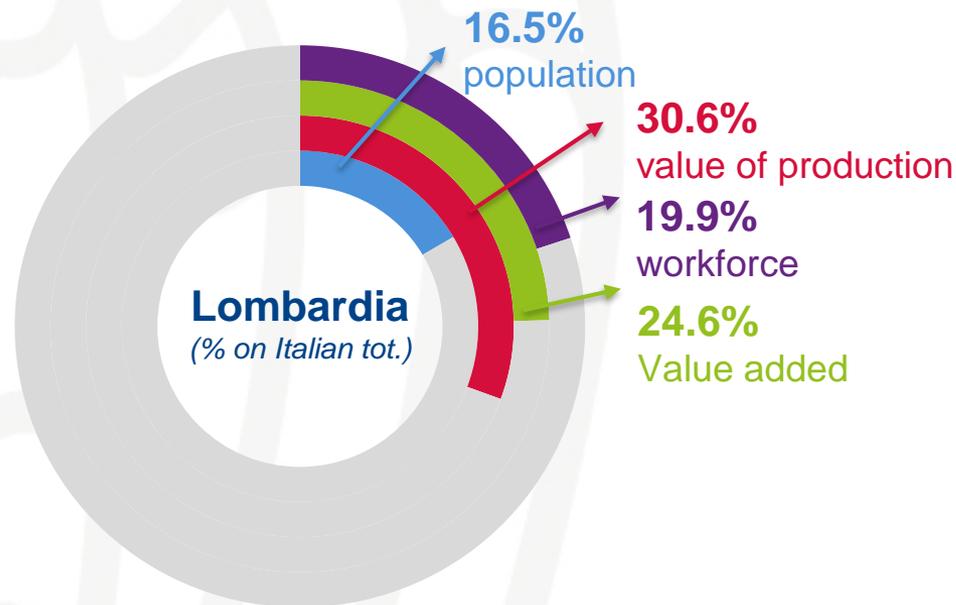
Lombardia life sciences value chain is analysed through a comparative perspective:

- *with the main national benchmark regions (Piemonte, Veneto, Emilia-Romagna, Toscana, Lazio)*
- *with the main European benchmark regions (Baden-Württemberg, Île de France, Cataluña)*

Which is the value of life sciences?

	Value of production (thousand €, 2016)	Value added (thousand €, 2016)	Workforce (2015)
Italia	207,532,396	95,597,792	1,745,172
Lombardia	63,411,692	23,510,181	347,380
<i>Emilia-Romagna</i>	<i>15,340,308</i>	<i>7,678,598</i>	<i>146,699</i>
<i>Lazio</i>	<i>26,837,462</i>	<i>11,201,568</i>	<i>190,399</i>
<i>Piemonte</i>	<i>12,160,138</i>	<i>6,543,688</i>	<i>127,619</i>
<i>Toscana</i>	<i>14,513,041</i>	<i>6,603,383</i>	<i>114,340</i>
<i>Veneto</i>	<i>14,013,771</i>	<i>7,193,184</i>	<i>151,089</i>

The contribution of Lombardia to the Italian life sciences value chain



Lombardia value chain and value added of ancillaries

	Value added value chain (thousand €)	Value added ancillaries (thousand €)	Value added value chain + ancillaries (thousand €)	Value added (value chain + ancillaries) as a % of the GDP
Italia	95,597,792	73,157,429	168,755,221	10.0% <i>(over National GDP)</i>
Lombardia	23,510,181	22,353,312	45,863,493	12.4%
<i>Emilia-Romagna</i>	<i>7,678,598</i>	<i>5,407,626</i>	<i>13,086,224</i>	<i>8.5%</i>
<i>Lazio</i>	<i>11,201,568</i>	<i>9,460,498</i>	<i>20,662,066</i>	<i>11.1%</i>
<i>Piemonte</i>	<i>6,543,688</i>	<i>4,286,581</i>	<i>10,830,269</i>	<i>8.4%</i>
<i>Toscana</i>	<i>6,603,383</i>	<i>5,116,005</i>	<i>11,719,388</i>	<i>10.4%</i>
<i>Veneto</i>	<i>7,193,184</i>	<i>4,940,007</i>	<i>12,133,191</i>	<i>7.8%</i>

LIFE SCIENCES SCIENTIFIC
RESEARCH

Life sciences scientific research in Lombardia: a European comparison

	Life sciences articles per million inhabitants	% highly cited life sciences articles (2016)
Lombardia	627	2.2%
Baden-Württemberg	731	3.1%
Cataluña	606	2.7%
Île de France	1,96	2.3%

FOCUS PHARMACEUTICAL SECTOR

The pharmaceutical sector within the life sciences industry

	Value of production (thousand €)	Value added (thousand €)	Share of Italian value added in %	Workforce (2015)
Italia	30,698,517	9,352,277	100.0%	57,573
Lombardia	14,881,415	4,348,902	46.5%	25,812
<i>Emilia-Romagna</i>	<i>1,465,137</i>	<i>557,095</i>	<i>6.0%</i>	<i>3,795</i>
<i>Lazio</i>	<i>8,370,861</i>	<i>2,225,423</i>	<i>23.8%</i>	<i>12,439</i>
<i>Piemonte</i>	<i>701,147</i>	<i>270,027</i>	<i>2.9%</i>	<i>1,759</i>
<i>Toscana</i>	<i>3,322,391</i>	<i>1,191,438</i>	<i>12.7%</i>	<i>6,882</i>
<i>Veneto</i>	<i>1,137,463</i>	<i>469,978</i>	<i>5.0%</i>	<i>3,586</i>

Lombardia pharmaceutical sector: European comparison

537 euro

value added per
inhabitant

2.2%

share of the
regional value added

1.6%

share of the
regional turnover



Lombardia

323 euro

value added per
inhabitant

1.9%

share of the
regional value added

1.7%

share of the
regional turnover



**Baden-
Württemberg**

356 euro

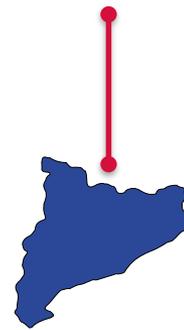
value added per
inhabitant

2.5%

share of the
regional value added

2.1%

share of the
regional turnover



Cataluña

517 euro

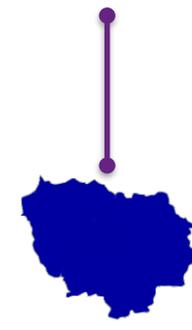
value added per
inhabitant

1.2%

share of the
regional value added

1.2%

share of the
regional turnover



Île de France

FOCUS HEALTHCARE SERVICES

Healthcare services sector within the life sciences industry

	Value of production (thousand €)	Value added (thousand €)	Share of Italian value added in %	Workforce (2015)
Italia	127,364,700	76,586,200	100.0%	1,383,400
Lombardia	23,306,291	14,014,403	18.3%	250,166
<i>Emilia-Romagna</i>	<i>10,709,543</i>	<i>6,439,800</i>	<i>8.4%</i>	<i>116,111</i>
<i>Lazio</i>	<i>13,382,136</i>	<i>8,046,868</i>	<i>10.5%</i>	<i>144,583</i>
<i>Piemonte</i>	<i>9,878,424</i>	<i>5,940,036</i>	<i>7.8%</i>	<i>107,510</i>
<i>Toscana</i>	<i>8,162,641</i>	<i>4,908,312</i>	<i>6.4%</i>	<i>88,974</i>
<i>Veneto</i>	<i>9,956,536</i>	<i>5,987,006</i>	<i>7.8%</i>	<i>108,252</i>

Caratteristiche di healthcare services within a national comparison

- **Levels of per capita health expenditure in line with the national average** (*1,931 euro per capita vs. a national average of 1,899 euro per capita, +1.7%*)
- **Levels of per capita out-of-pocket expenditure significantly higher than the national average** (*752 euro per capita vs 560 euro per capita, +34%*)
- **Consistent use of private contracted healthcare services companies on the supply side** (*41.7% of the public expenditure vs a national average of 34.9%*)
- **A moderate public health expenditure share of the total GDP** (*5,2% vs a national average of 6.9%, in 2016*)

Lombardia healthcare services: European comparison

4.3%

value added per
inhabitant

11.7

qualified workforce
1.000/inhabitants

21.0

life expectancy
65 years

136.6

inappropriate
Hospitalization rate



Lombardia

4.4%

value added per
inhabitant

20.7

qualified workforce
1.000/inhabitants

20.1

life expectancy
65 years

532.8

inappropriate
Hospitalization rate



**Baden-
Württemberg**

3.5%

value added per
inhabitant

12.9

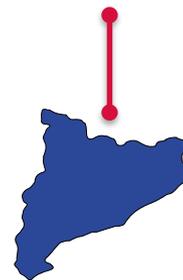
qualified workforce
1.000/inhabitants

21.4

life expectancy
65 years

179.4

inappropriate
Hospitalization rate



Cataluña

4.2%

value added per
inhabitant

15.8

qualified workforce
1.000/inhabitants

22.7

life expectancy
65 years

300.9

inappropriate
Hospitalization rate

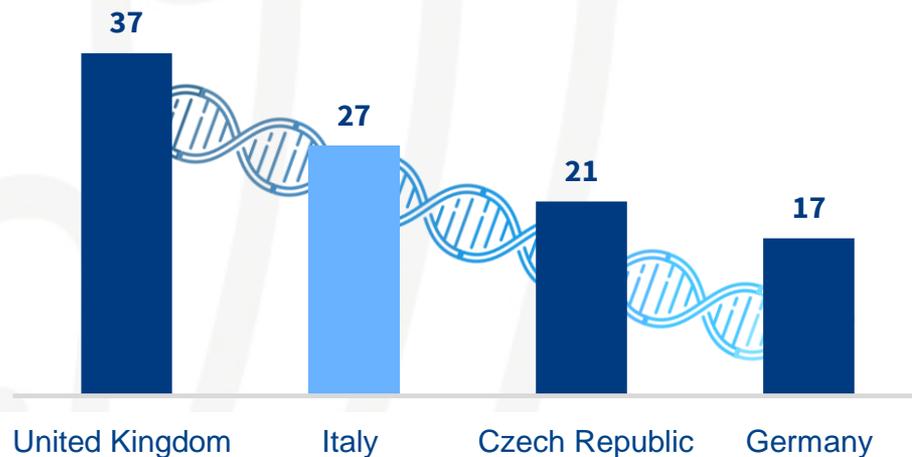


Île de France

2. IN-DEPTH ANALYSIS ON CLINICAL TRIALS

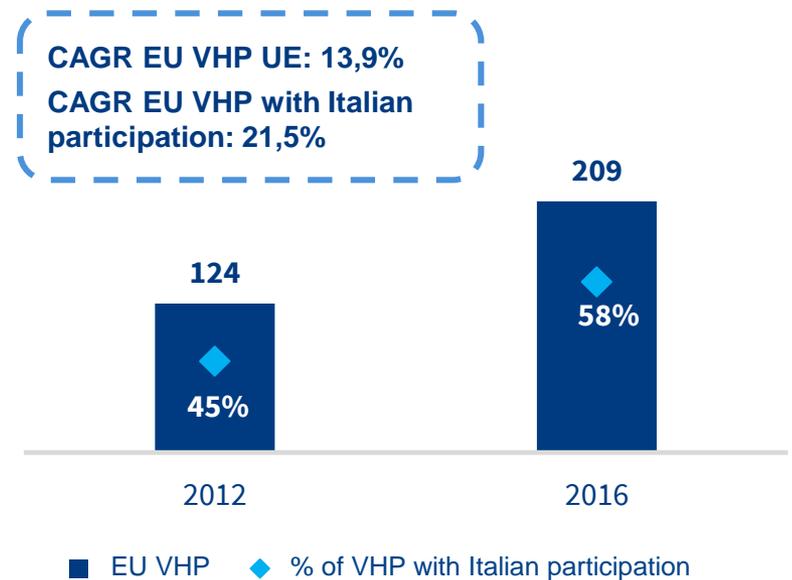
Italian competitiveness on the clinical trials sector

Main Member States managing VHP clinical trials as Reference Competent Authority, 2016



Italy is positioned just behind United Kingdom for number of clinical trials conducted under the VHP framework as Reference Competent Authority

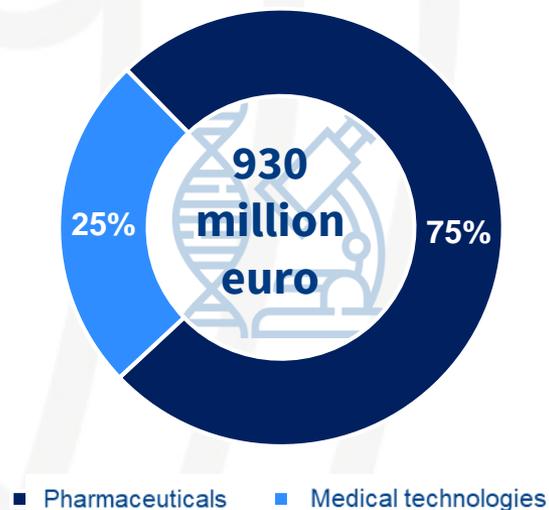
Clinical trials activated under the VHP framework, 2012-2016



From 2012 to 2016, the number of VHP clinical trials with an Italian participation increased from 56 to 122 studies

The impact of investments devoted to clinical trials

Investments on clinical trials in Italy
(pharmaceutical and medical technologies
sectors), 2016



Investing on clinical trials produces a positive impact across many areas, such as:

- Innovation
- Population health status
- NHS sustainability
- Relevance of the research
- Welfare

- **5 years survival rates for many cancer types is consistently increased in Italy** (65% colorectal; 87% breast; 91% prostate)
- For every **euro invested on clinical trials** applied to oncology **the NHS saves 2.2 euro**

Lombardia ecosystem of clinical trials

56% pharmaceuticals
clinical trials



19 Public and private
IRCCSs



Milano



56% of the CROs
operating in the country

32 research centers

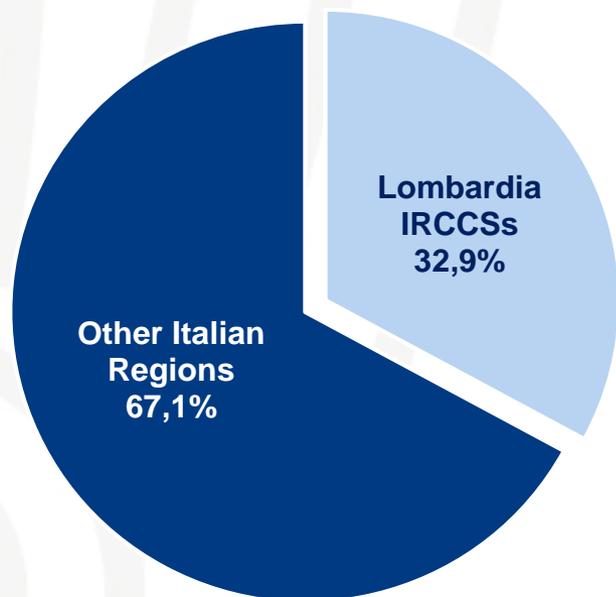


6,000 researchers in
university clinics and
research centers

Clinical trials in Lombardia: focus on the IRCCSs

- According to 2016 data, the **IRCCSs operating in Lombardia** conducted **303 clinical trials**, representing 32.9% of the total Italian clinical trials (which were 920) managed by all the research centers operating in Italy

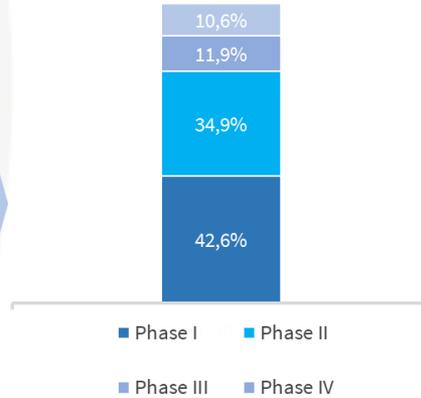
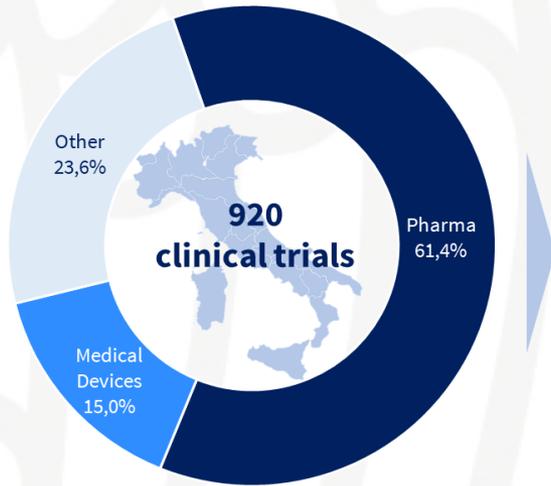
Italian clinical trials: focus on Lombardia IRCCSs, 2016



Distribution of clinical trials by study area, 2016

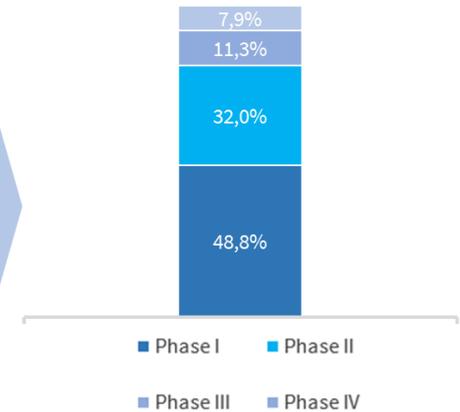
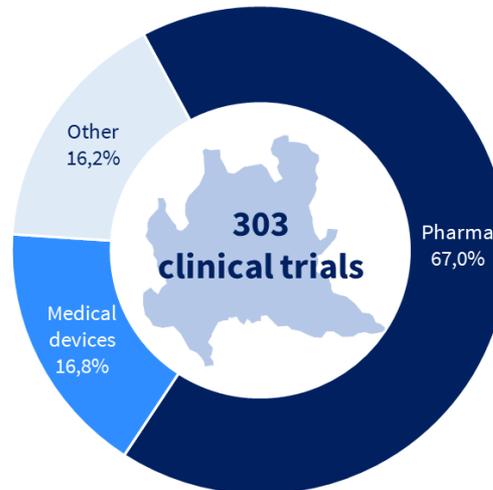
Type of trial	Italy	Lombardia IRCCSs
Interventional study	78%	81%
Observational study	22%	19%
Of which: Patient registries	5%	5%

Fields of clinical trials



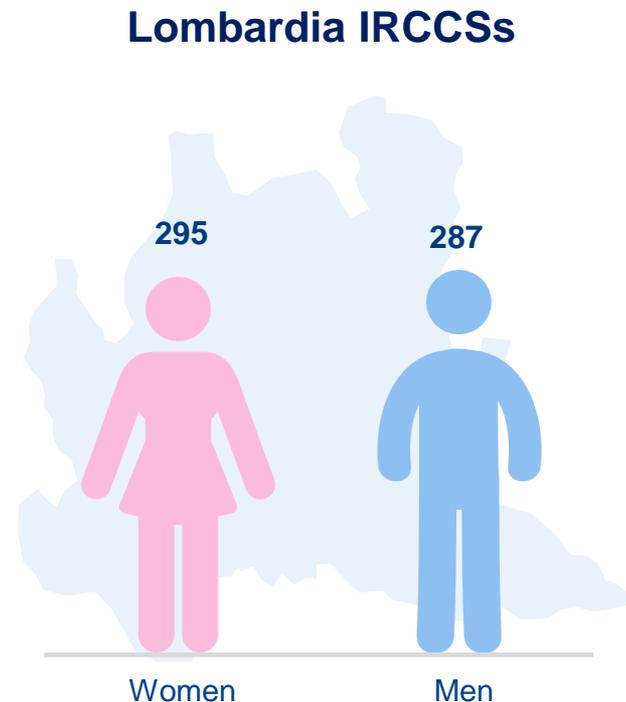
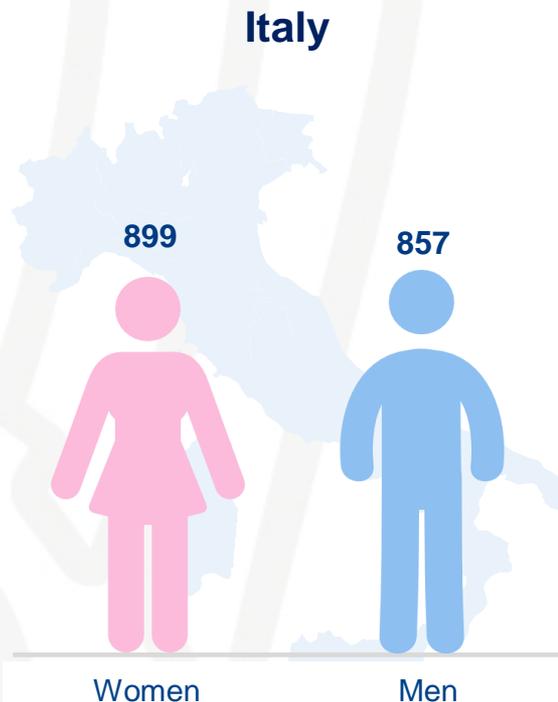
Distribution of clinical trials by study area, Italy, 2016

Distribution of clinical trials by study area, Lombardia IRCCSs, 2016



Gender of people involved in clinical trials

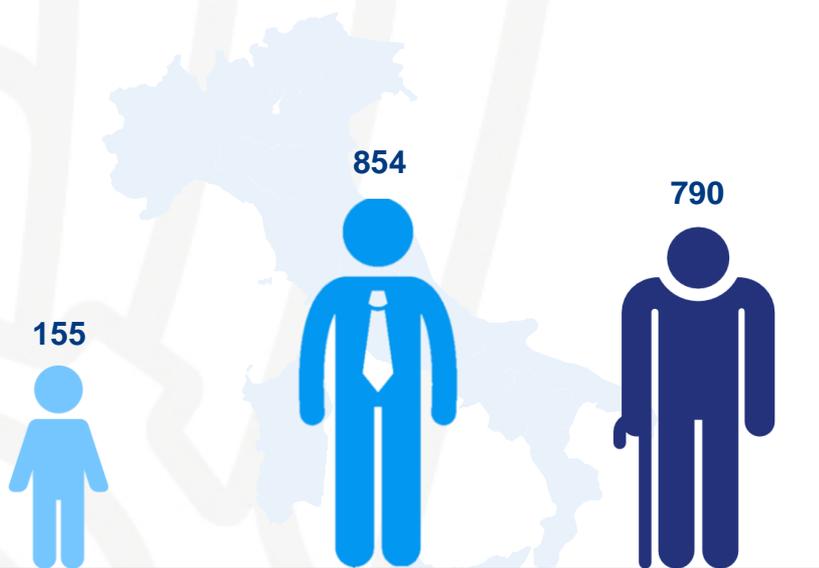
Left: distribution of clinical studies based on the gender of people involved, Italy, 2016; Right: distribution of clinical studies based on the gender of people involved, Lombardia IRCCSs, 2016



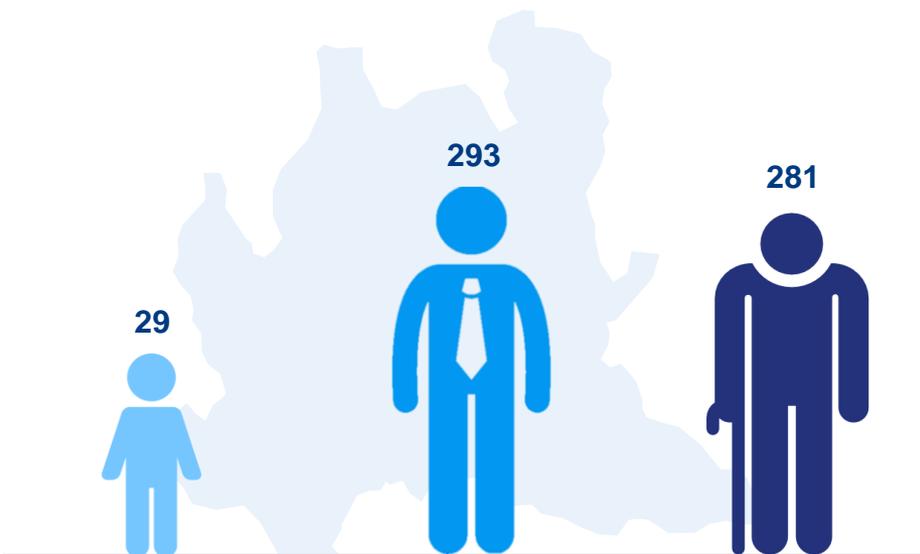
Age of people involved in clinical trials

Left: distribution of clinical studies based on the age of people involved, Italy, 2016; Right: distribution of clinical studies based on the age of people involved, Lombardy IRCCSs, 2016

Italy



Lombardia IRCCSs

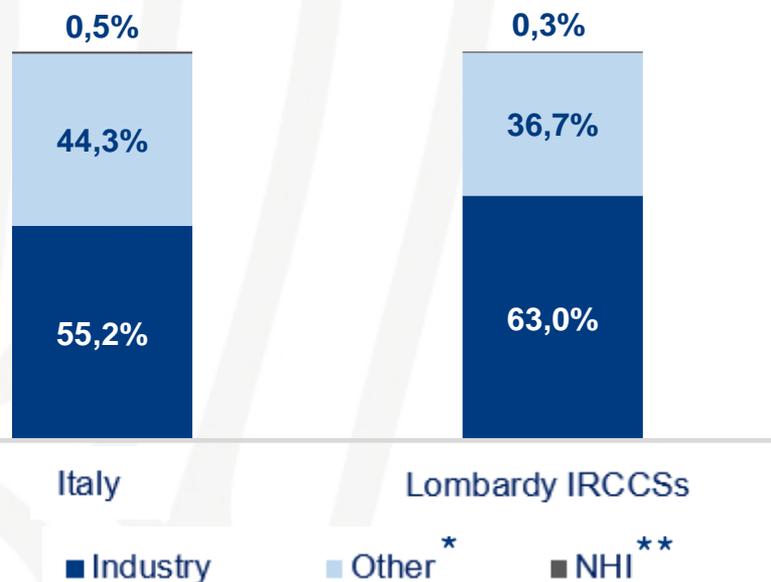


Children (<= di 17 anni) Adults (>=18 <=64) Elderly (>= 65 anni)

Children (<= di 17 anni) Adults (>=18 <=64) Elderly (>= 65 anni)

Sponsors of clinical trials

Distribution of clinical trials per sponsor typology, 2016



- Data underline the **relevance of the industry referring to clinical trials financing**. Private companies sponsor **55% of clinical trials, at the national level**
- Focusing on **IRCCSs operating in Lombardia** the industry finances **63% of clinical trials**

*National Institutes of Public Health

**individuals, universities, organizations



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