



*Milano  
Italy*



IRCCS San Raffaele Hospital is a clinical, scientific and university structure with international relevance and high profile of specialization for many diseases. It was founded in 1971 and recognized as Scientific Institute (IRCCS) in 1972.

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## *General features of San Raffaele Hospital*



- ✓ It is a General Hospital with a total of 49 clinical specialties and 6000 practitioners.
- ✓ The Hospital extends on a surface of 300 thousands mq in north east area of Milano.
- ✓ The whole number of beds is 1.357. In 2012, 25.751 surgical procedures and 43.000 hospitalizations were recorded.
- ✓ San Raffaele Hospital is the clinical venue of San Raffaele University, performing both Italian and English Medical Doctor Programs.



# Equipe

Luca Aldrighetti  
Michele Paganelli  
Marco Catena  
Francesca Ratti  
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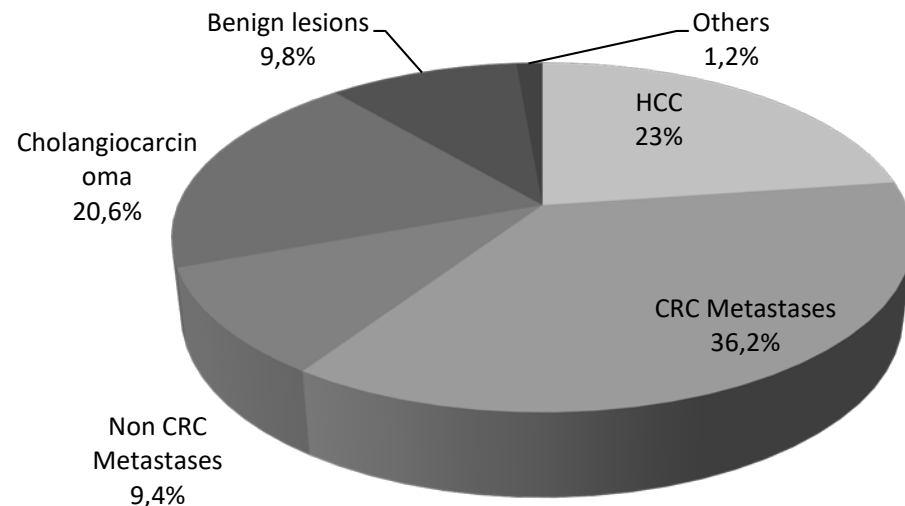




## Hepatobiliary Surgery Unit Ospedale San Raffaele - Milano

2971 Resections 01/01/2004 → 05/04/2019

Diagnosis	N (%)
1 CRC Metastases	1072 (36,2)
2 HCC	682 (23,0)
3 Cholangiocarcinoma	611 (20,6)
Non CRC Metastases	279 (9,4)
Benign lesions	290 (9,8)
Others	37 (1,2)

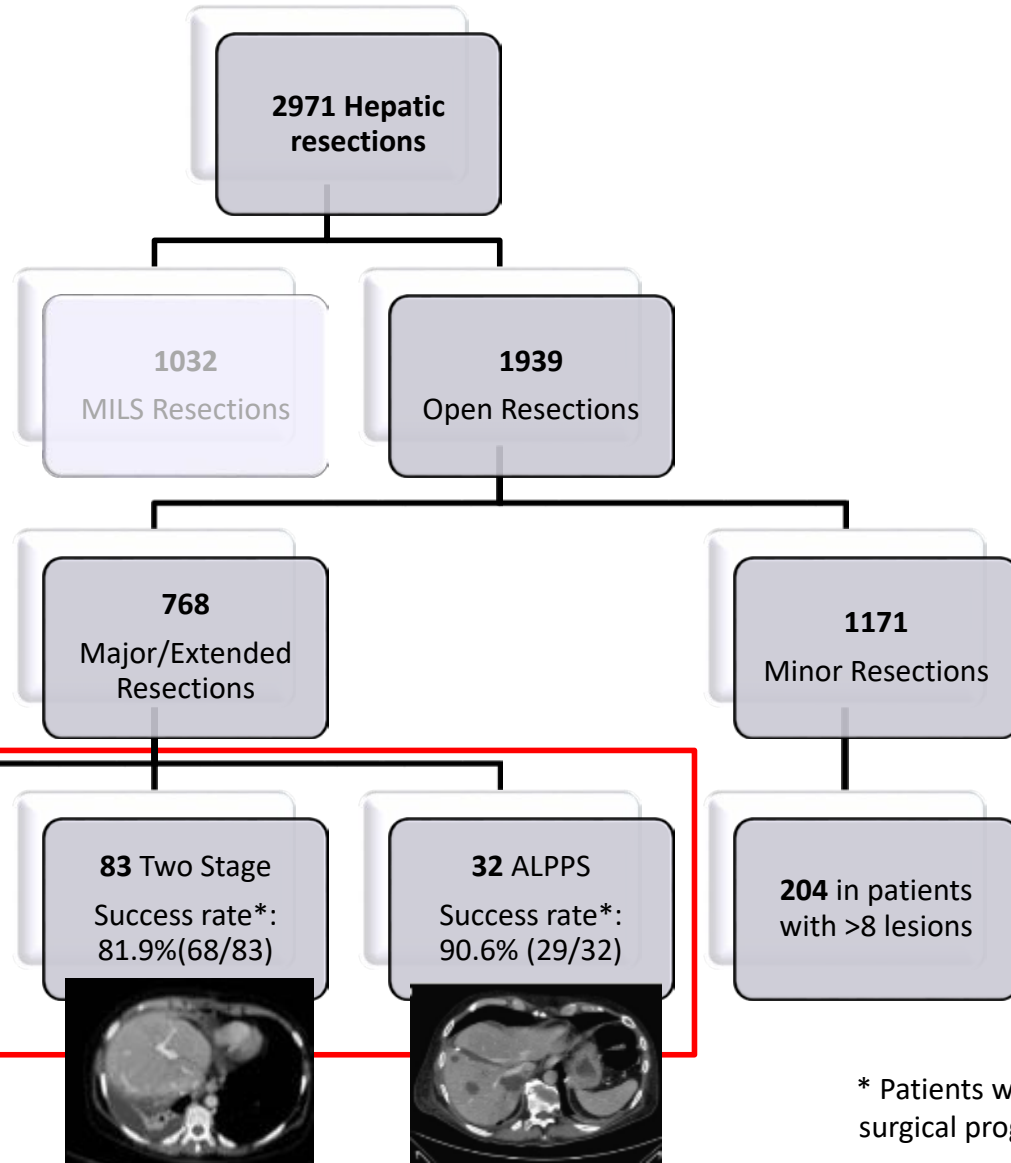


New trends in open surgery:  
**MAXI-INVASIVENESS**

## Hepatobiliary Surgery Unit Ospedale San Raffaele - Milano

2971 Resections 01/01/2004 → 05/04/2019

Expand the pool



178 patients  
with  
inadequate FLR

63 PVE/PVL  
Success rate\*:  
88.7% (55/62)

83 Two Stage  
Success rate\*:  
81.9% (68/83)

32 ALPPS  
Success rate\*:  
90.6% (29/32)

204 in patients  
with >8 lesions

\* Patients who completed the surgical program once started

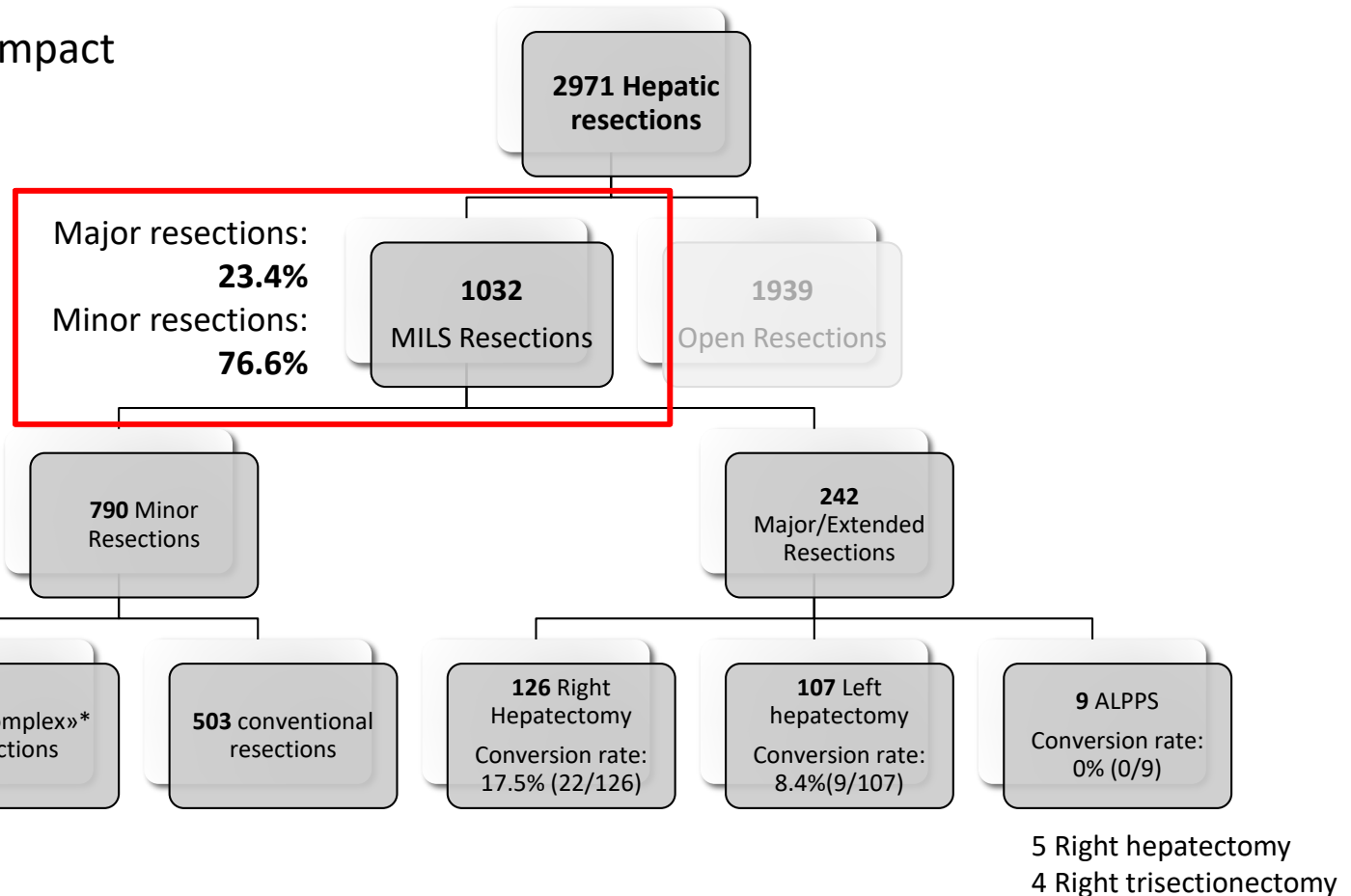
New trends in laparoscopic surgery:

**MINI-INVASIVENESS**

## Hepatobiliary Surgery Unit Ospedale San Raffaele - Milano

2971 Resections 01/01/2004 → 05/04/2019

Reduce the impact



\* P-S segments, lesions close to vessels, redo surgery, cirrhosis



# 1032 Laparoscopic hepatic resections

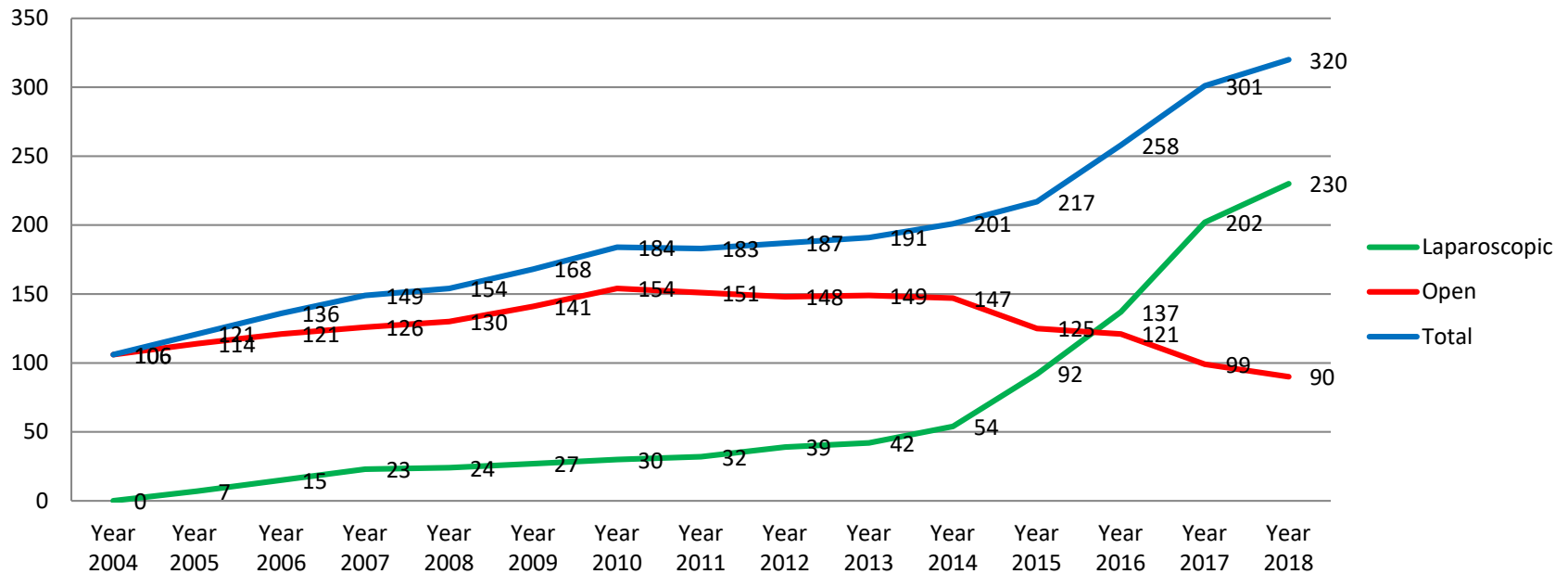
(September 2005 – April 2019)

34.7% of the entire Institutional Series

Variable		Variable	
<b>Procedure, n (%)</b>		Median age (range)	61.7 (22-83)
Right hepatectomy	126 (12,2)	M/F (%)	54.4/35.6
Left hepatectomy	107 (10,4)	Cirrhosis (%)	26
ALPPS	9 (0,9)	Comorbidities (%)	33
Left lateral sectionectomy	150 (14,5)	<b>Indications, (%)</b>	
Bisegmentectomy	108 (10,5)	HCC	35.8 <span style="border: 1px solid black; padding: 2px;">1</span>
Segmentectomy	217 (21,0)	Metastases	29.5 <span style="border: 1px solid black; padding: 2px;">2</span>
Wedge resection	315 (30,5)	Cholangiocarcinoma	16.7 <span style="border: 1px solid black; padding: 2px;">3</span>
		Haemangioma	3.9
<b>Lesions side, left/right n(%)</b>	560/476 (54.3/ 45.7)	FNH	5.9
		Adenoma	3.3
<b>No. resections/patients n (%)</b>		Hepatolitisias	3.9
Single	756 (73.3)		
Multiple	280 (26.7)		
<b>Associated procedures, n (%)</b>		<b>Lesion diametre[median mm] (range)</b>	42 (12-210)
LPS colorectal resection	67 (6.5)		
<b>Conversion rate n (%)</b>	116 (11.2)		



## Liver resection activity – Hepatobiliary Surgery Division San Raffaele Hospital, Milano (2004-2018)



**2005:** Ratio  
MILS/Whole  
series  
**5.8%**

**2010:**  
MILS/Whole  
series  
**16.3%**

**2016:**  
MILS/Whole  
series  
**53.1%**

**2018:**  
MILS/Whole  
series  
**71.1%**