



THIRD ANNUAL  
**ISSPP**  
**Congress 2022**

*International Society  
for the Study of Pleura  
and Peritoneum*



**PLENARY ABSTRACT | GASTRIC CANCERS SESSION**

**PIPAC EstoK 01: First Randomized and Multicenter Phase II Study on Doxorubicin/Cisplatin Pressurized Intra Peritoneal Aerosol Chemotherapy in Gastric Peritoneal Metastasis: First Results On Early Postoperative Outcomes**

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# Disclosures

- Grant/Research Support from CAPNOMED

*This presentation and/or comments will be free of any bias toward or promotion of the above referenced company or their product(s) and/or other business interests.*

*This presentation and/or comments will provide a balanced, non-promotional, and evidence-based approach to all diagnostic, therapeutic and/or research related content.*

*This presentation has been peer-reviewed and no conflicts were noted.*

# PIPAC EstoK 01: Background

- Treatment of PM of gastric cancer with IV chemotherapy in first line, has a limited median survival of 10 to 11 months; with altered QoL after 4 months

*Guimbaud R et al. J Clin Oncol 2014; 3520-6*  
*Al-Batran SE et al. JAMA Oncol. 2017; 1237-44*

- PIPAC is an innovative strategy with promising results in gastric cancer with a median survival from 7 to 19 months reported in retrospective studies

*Nadiradze G J et al. Gastrointest Surg 2016; 367-73*  
*Khomyakov V et al. Pleura and Peritoneum 2016; 159-66*  
*Alyami M et al. Eur J Surg Oncol 2021; 123-27*

# PIPAC EstoK 01: Objective

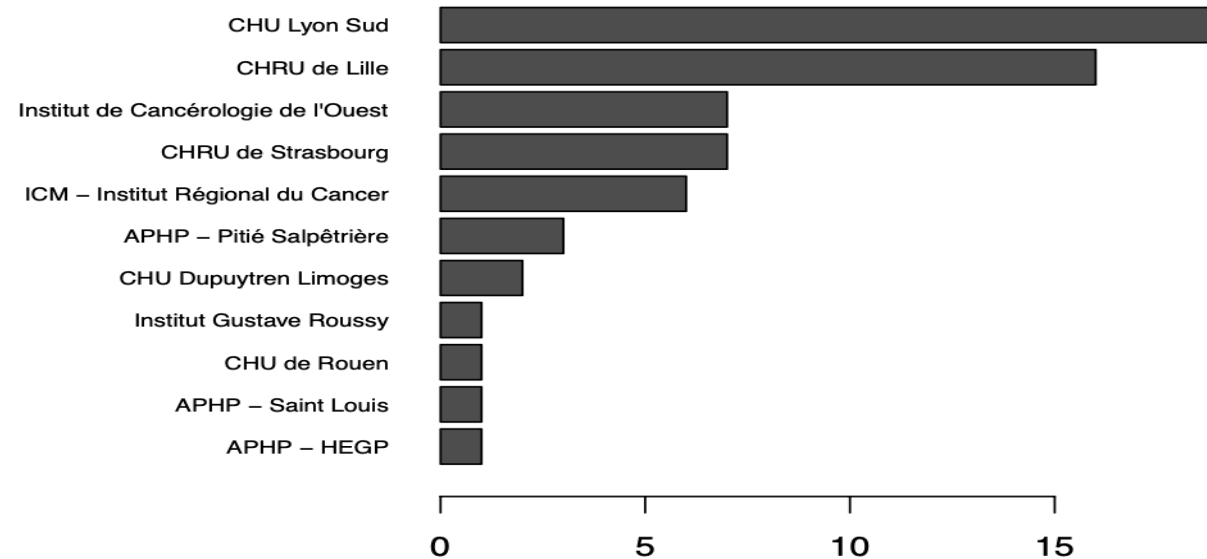
- To evaluate the safety and efficacy of Doxorubicin / Cisplatin PIPAC on patients with PM of gastric cancer
- Primary end-point: Progression free survival at 2 years
- Secondary end-points: safety, QoL and OS



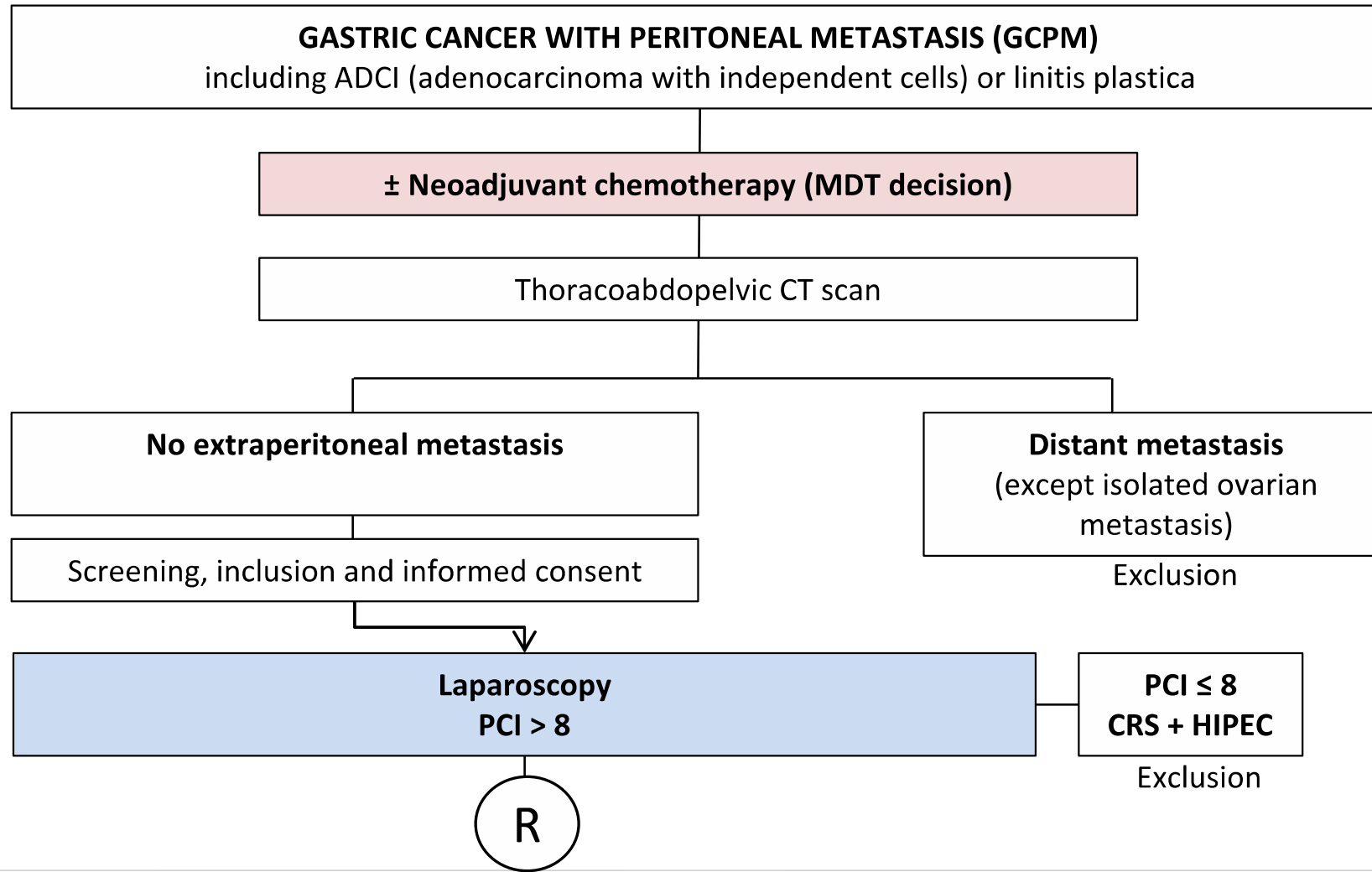
MINISTÈRE  
DES AFFAIRES SOCIALES,  
DE LA SANTÉ  
ET DES DROITS DES FEMMES

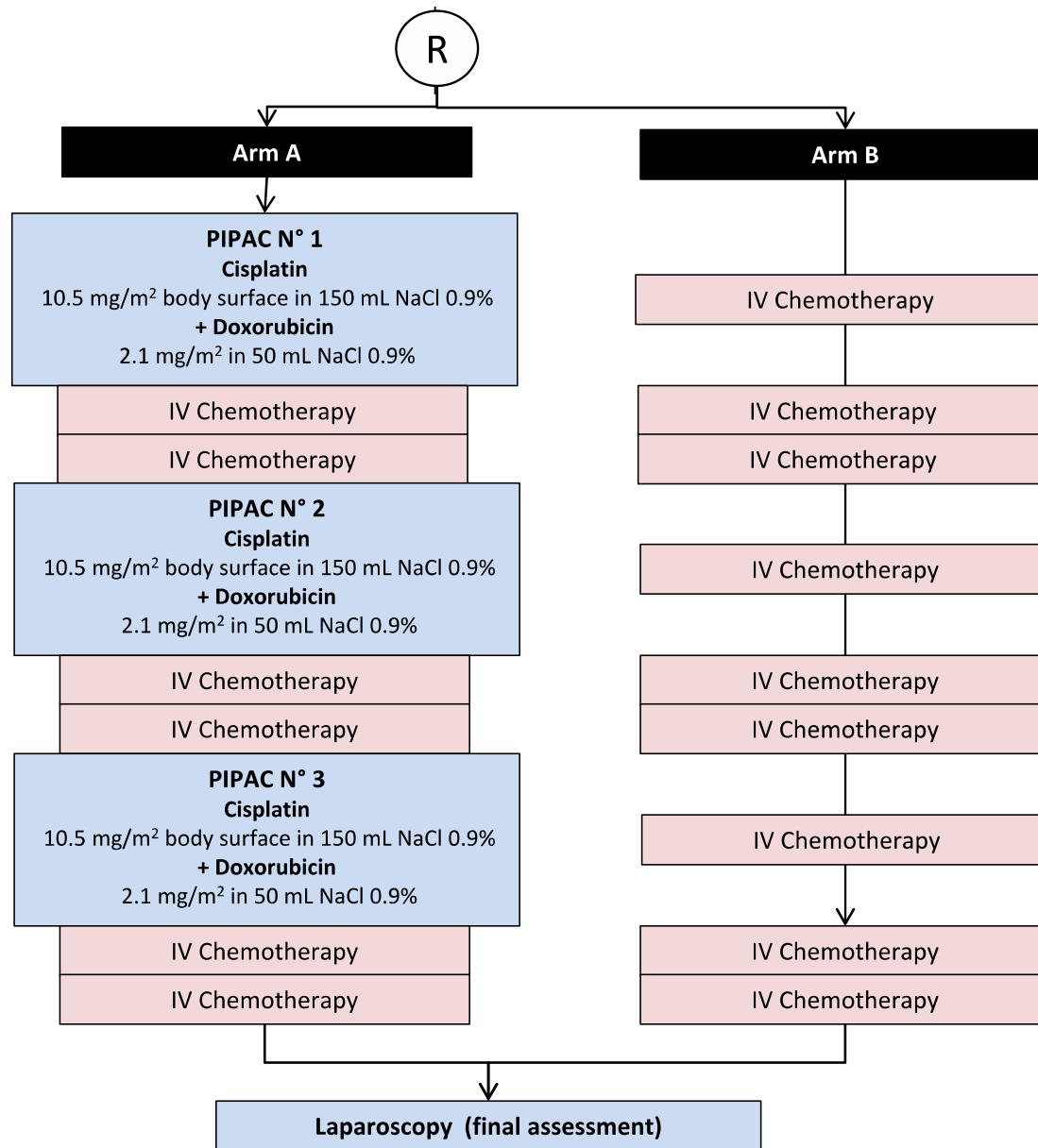
# PIPAC EstoK 01: Study design

- Prospective, open, randomized, multicenter, phase II clinical study
- Sample size: median PFS in the control arm of 6 months and an expected median PFS in the PIPAC arm of 12 months; powering: 85%  $\alpha=0.05$ , the estimated sample size **n = 94**
- 11 French Centers included



# PIPAC EstoK 01: Study design





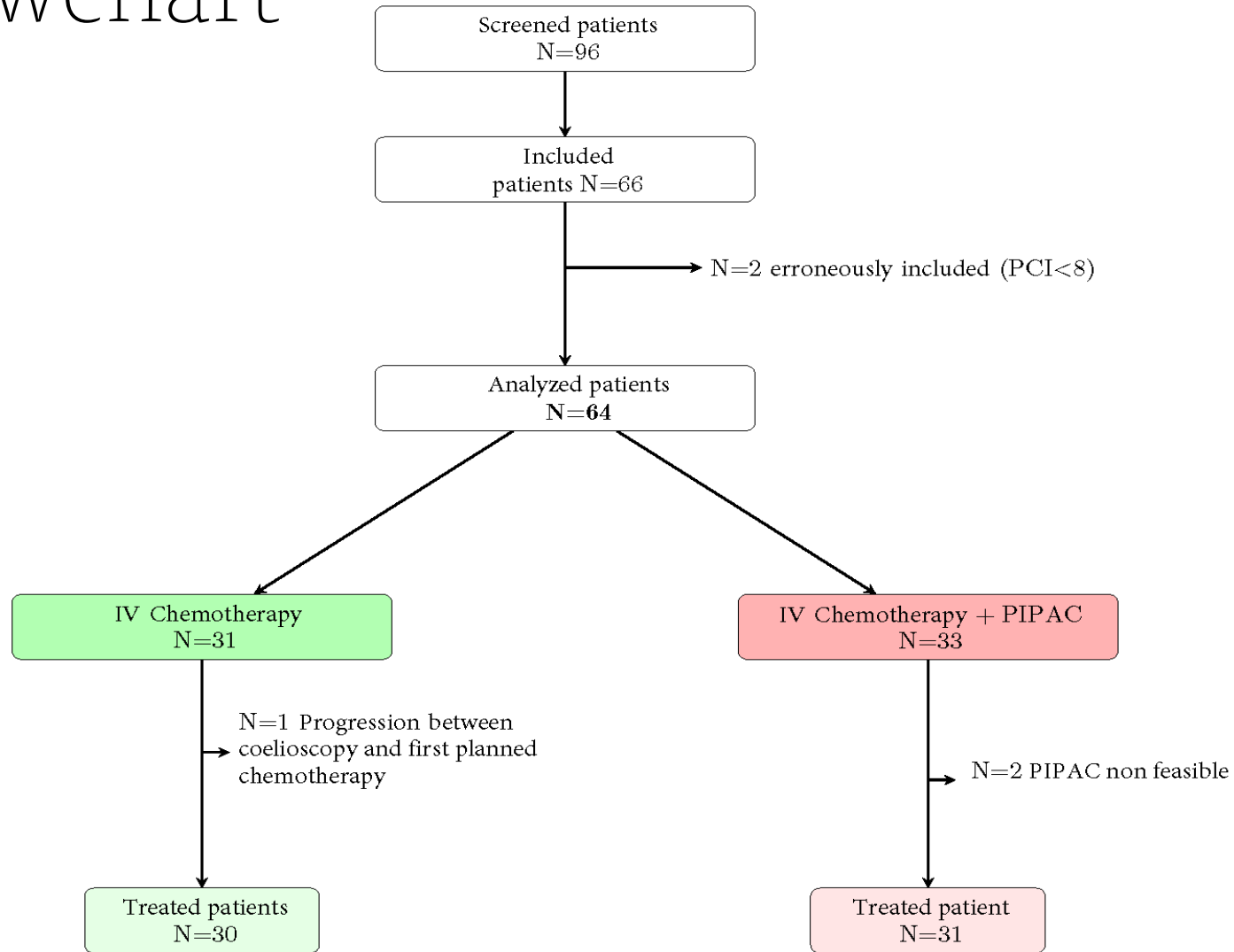
**Patients will receive standard  
IV poly chemotherapy proposed  
by the oncologist**

EOX, ECX, FOLFIRI, FOLFOX, ECF, or FLOT,  
or any new standard validated during the study

All patients can be included,  
even with multiple previous lines of chemotherapy



# Flowchart

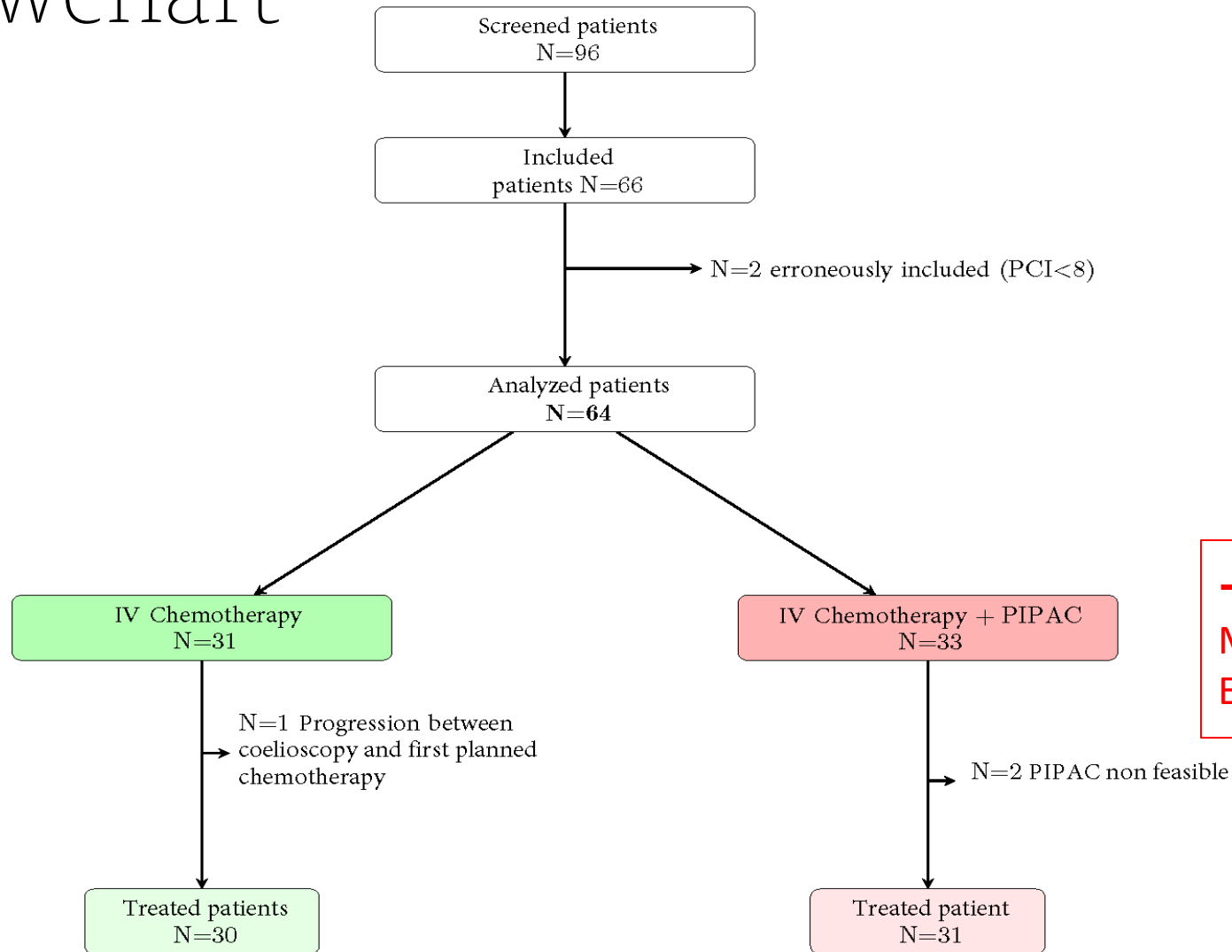


ITT

Per Protocol



# Flowchart



ITT

Per Protocol

**→ Stopped for safety issue in March 2022**  
**More death with small bowel obstruction**  
**Early results under process**

# Results: Patient characteristics

Criteria	Overall N=64	IV Chemo N=31	IV Chemo + PIPAC N=33
<b>Age (years), Mean [Q1;Q3]</b>	57 [49.75;67]	57 [51.5;67]	57 [49;64]
<b>Sex (Male/Female)</b>	29 (45%) / 35(55%)	12 (39%) / 19 (61%)	17 (52%) / 16 (48%)
<b>PS (ECOG) at screening (0/1)</b>	36 (61%) / 23 (39%)	20 (69%) / 9 (31%)	16 (53%) / 14 (47%)
<b>BMI, Mean [Q1;Q3]</b>	22.1 [19.4;25.1]	24.7 [21.5;28.3]	20.8 [18.9;23.2]
<b>Metachronous / Synchronous PC</b>	17 (27%) / 47 (73%)	8 (26%) / 23 (74%)	9 (27%) / 24 (73%)
<b>Primary tumor resection</b>	15 (24 %)	5 (17 %)	10 (30 %)
<b>Number of previous chemo lines</b>			
<b>0</b>	20 (31%)	11 (35%)	9 (27%)
<b>1</b>	32 (50%)	12 (39%)	20 (61%)
<b>2</b>	8 (12%)	4 (13%)	4 (12%)
<b>3-4</b>	4 (7%)	4 (13%)	0
<b>PCI at inclusion, Mean [Q1;Q3]</b>	19.5 [13;27]	20 [12.5;26.5]	19 [14;27]
<b>Ascites at inclusion</b>	36 (57%)	14 (55%)	13 (59%)
<b>Volume of Ascites (ml), Mean [Q1;Q3]</b>	350 [85;1500]	300 [50;800]	400 [100;1500]

# Results: Treatment characteristics

Criteria	Overall N=64	IV Chemo N=31	IV Chemo + PIPAC N=33
<b>Number of PIPAC, Mean [Q1;Q3]</b>	1 [0;3]	0 [0;0]	3 [1;4]
<b>0 PIPAC</b>	29 (45%)	27 (87%)	2 (6%)
<b>1 PIPAC</b>	10 (16%)	3 (10%)	7 (21%)
<b>2 PIPAC</b>	7 (11%)	1 (3%)	6 (18%)
<b>3 or more PIPAC</b>	18 (28%)	0	18 (54%)
<b>Clavien Dindo score</b>			
<b>0 / I / II</b>		31 (100%)	13 (42%) / 3 (10%) / 9 (29%)
<b>III / IV / V</b>		0	6 (20%) / 0 / 0
<b>CTCAE ≥ 3</b>	N		
<b>Mean [Q1;Q3]</b>	46 (72%)	21 (68%)	25 (76%)
	2 [1;2]	2 [1;3]	2 [1;2]
<b>Secondary CRS+HIPEC</b>	3 (5%)	1 (3%)	2 (6%)

Mean Follow-up: 8.4 months [IQR: 3.8;12.5]

# Cumulative incidence of bowel obstruction

- **45 patients with bowel obstruction**

Global Cumulative Incidence (Cinc) at 12 months: 57.4% [CI95%: 44.5; 70.3]

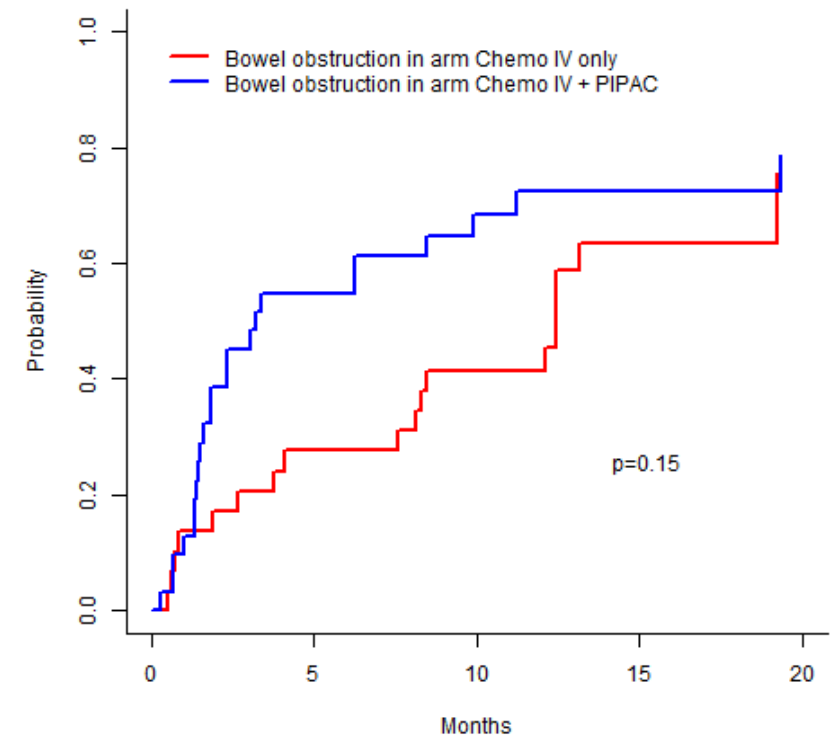
- **20 in arm IV Chemo**

Cinc at 12 months: **41.4%** [CI95%: 23.0; 59.3]

- **25 in arm IV Chemo + PIPAC**

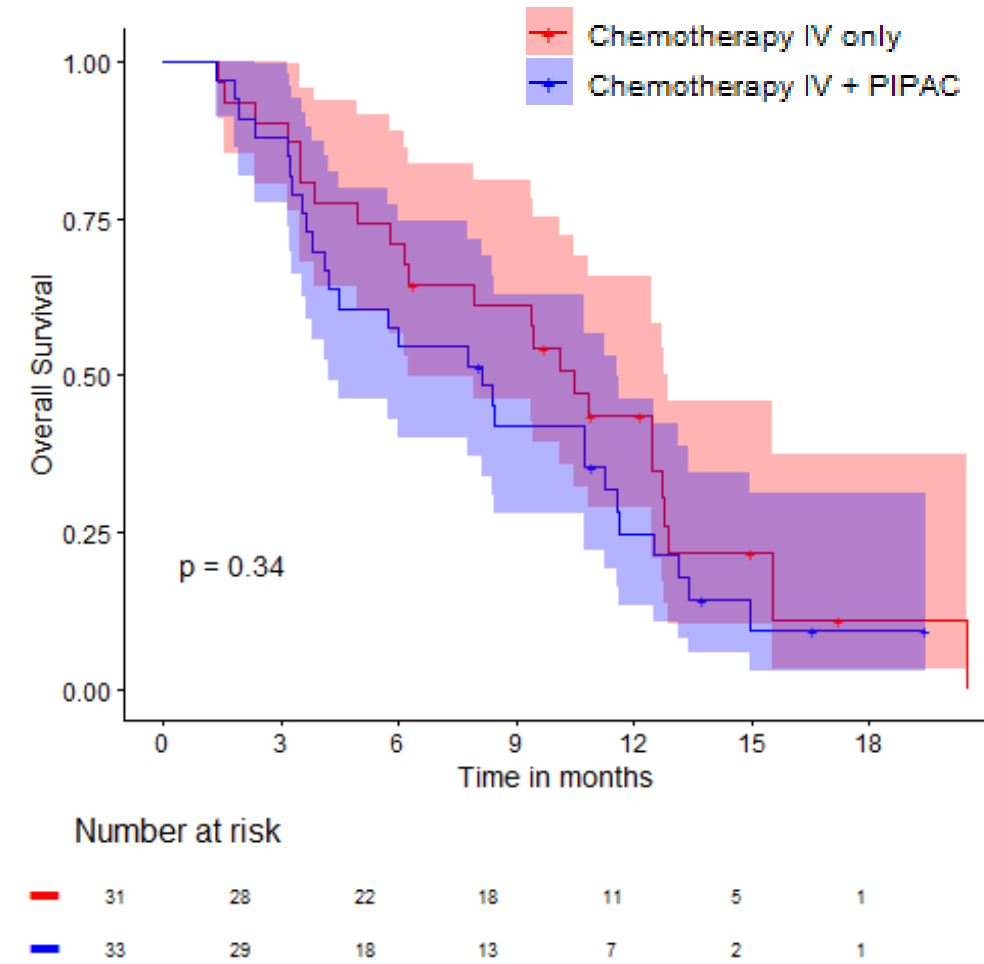
Cinc at 12 months: **72.5%** [CI95%: 55.4; 89.6]

→ **Stopped for safety issue in March 2022**  
More death with small bowel obstruction



# Overall Survival

- **53 deaths, OS at 12 months : 33.7 % [CI95%: 23.6; 48.2]**
  - **25 in arm IV Chemo**  
OS at 12 months, 43.5 % [CI95%: 28.8; 65.7]  
**Median: 10.5 months [6.3 ; 12.9]**
  - **28 in arm IV Chemo + PIPAC**  
OS at 12 months, 24.8 % [CI95%: 13.3; 46.0]  
**Median: 8.1 Months [4.2 ; 11.6]**



# Overall Survival

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**Median: 10.5 months [6.3 ; 12.9]**

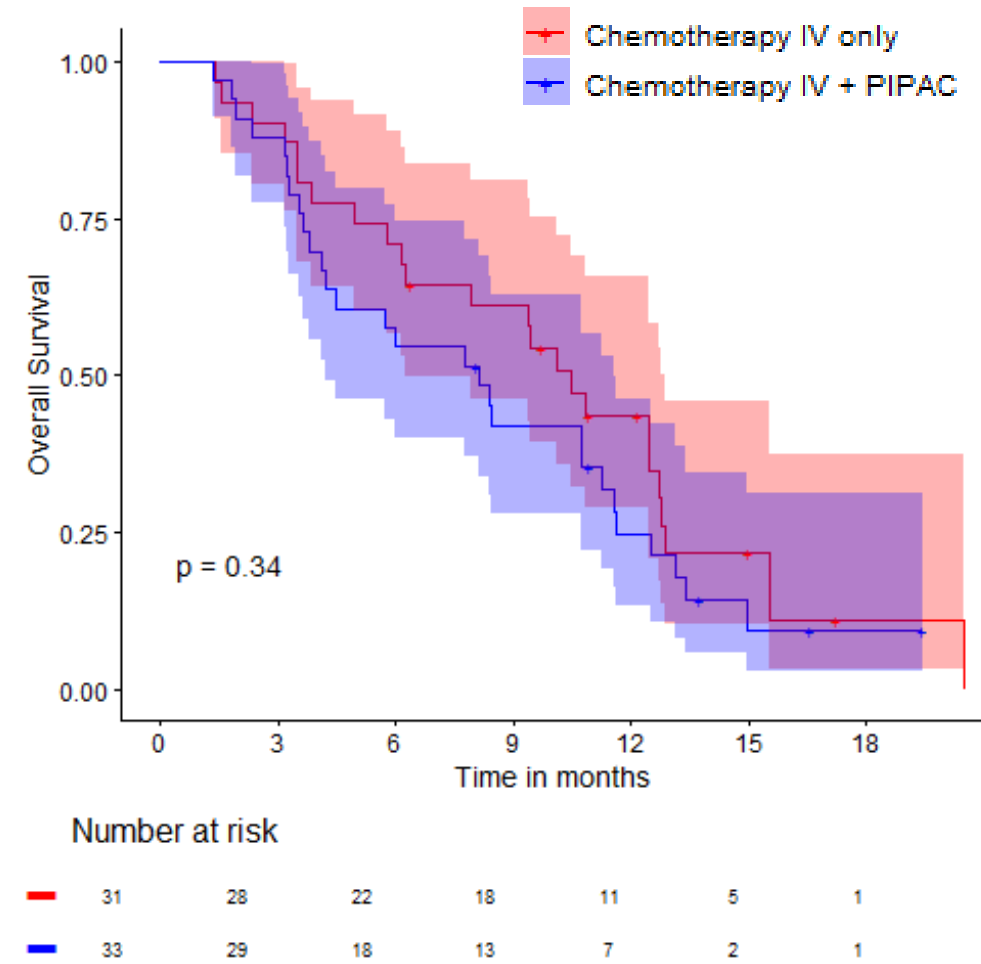
**Time Diagnosis of PC / Random (months): 3.9 [1.0;8.6]**

- **28 in arm IV Chemo + PIPAC**

OS at 12 months, 24.8 % [CI95%: 13.3; 46.0]

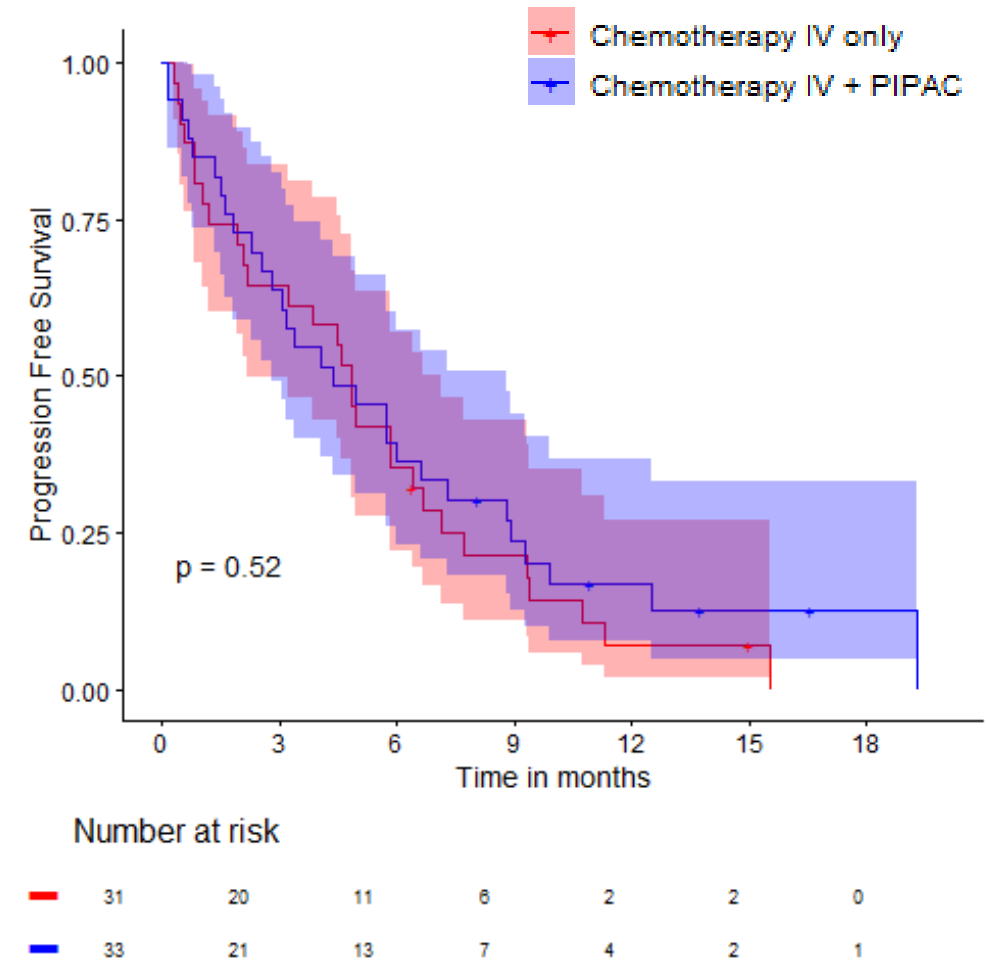
**Median: 8.1 Months [4.2 ; 11.6]**

**Time Diagnosis of PC / Random (months): 4.6 [1.6;8.0]**



# Progression-Free Survival

- **58 events, PFS at 12 months, 12.0 % [CI95%: 6.0; 24.1]**
  - **29 in arm IV Chemo**  
PFS at 12 months, 7.2 % [CI95%: 1.9; 27.0]  
**Median: 4.8 Months [2.2;7.2]**
  - **29 in arm IV Chemo + PIPAC**  
PFS at 12 months, 16.8 % [CI95%: 7.7; 36.7]  
**Median: 4.4 Months [2.8;8.8]**





# Towards a better selection of patients

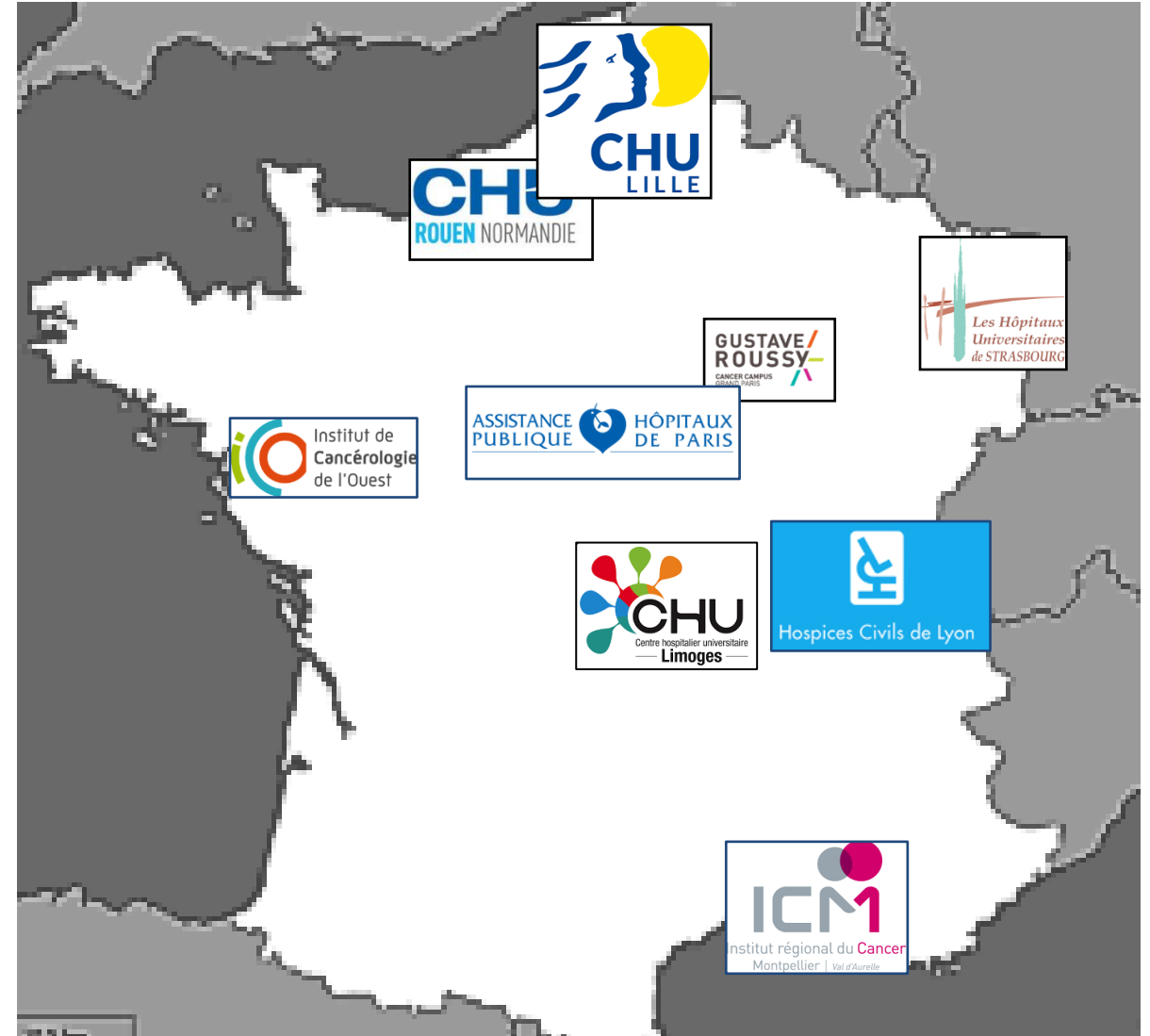
Criteria	0-2 PIPAC N=15	3 or more PIPAC N=18
Age (years), Mean [Q1;Q3]	59 [49.5;67.5]	54.5 [44.5;60.8]
Sex (Male/Female)	7 (47%) / 8 (53%)	10 (56%) / 8 (44%)
PS (ECOG) at screening (0/1)	7 (54%) / 6 (46%)	9 (53%) / 8 (47%)
BMI, Med [Q1;Q3]	20.5 [19.5;24.5]	20.9 [18.2;22.4]
Metachronous / Synchronous PC	5 (33%) / 10 (67%)	4 (22%) / 14 (78%)
Primary tumor resection	5 (33%)	5 (28%)
Number of previous chemo lines		
0	1 (7%)	8 (44%)
1	10 (67%)	10 (56%)
2	4 (27%)	0
PCI at inclusion, Mean [Q1;Q3]	22 [14;27]	19 [13;25.8]
Ascites at inclusion	9 (60%)	10 (59%)
Volume of Ascites (ml), Mean [Q1;Q3]	1000 [375;1925]	100 [80;500]

# PIPAC EstoK 01: Conclusion

- First randomized phase II study on D/C PIPAC in PM gastric cancer
- No survival advantage in PIPAC group, stopped for safety issue
- Identify patients with high vulnerability for PIPAC-associated bowel obstruction
- Optimize patient selection for highest potential to complete 3 PIPAC courses:
  - less invasive disease
  - treated earlier in their history of PM
- To build our next RCT: PIPAC EstoK 02?

# Acknowledgments

- Pr M. Pocard
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- Dr J. Coget
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