# 9th EUROPEAN CONFERENCE on INFECTIONS in LEUKAEMIA

**COVID-19 EPIDEMIOLOGY GROUP**
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▶ **IN-PERSON CONFERENCE**
**From September 15th to 17th 2022**

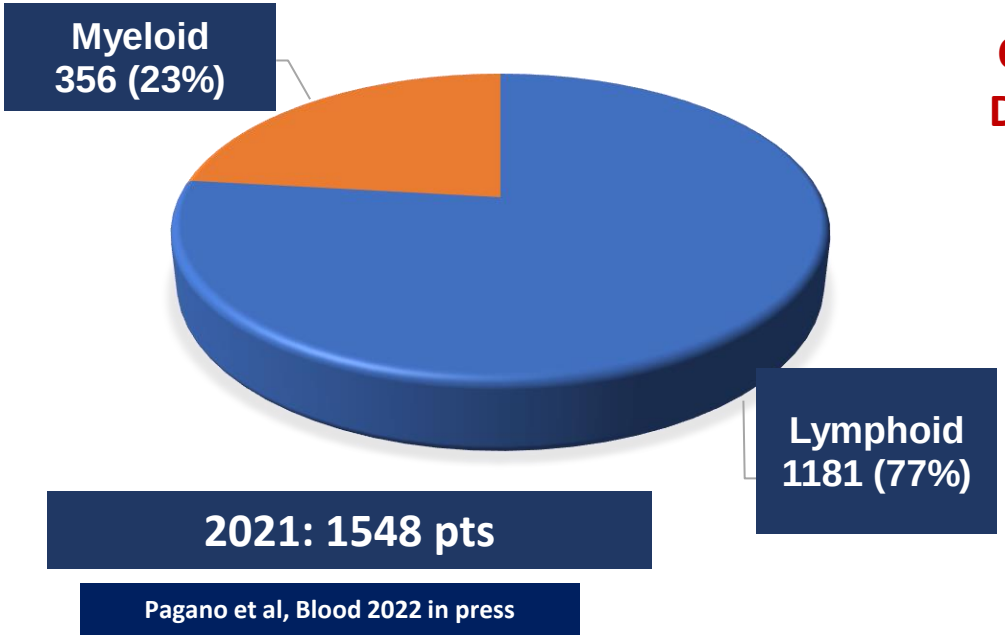
**Revised Guidelines slide set September 2022**

# Covid-19, 2022 update of Epidemiology Group

## Key points

1) Changes of mortality and morbidity compared 2020 in general and for single category of HMs
   - Impact of vaccination on COVID-19 epidemiology of HM patients
   - Impact of antivirals/monoclonals on epidemiology of HM patients

# Comparison of HMs 2020-2022
# Data from EPICOVIDEHA Survey



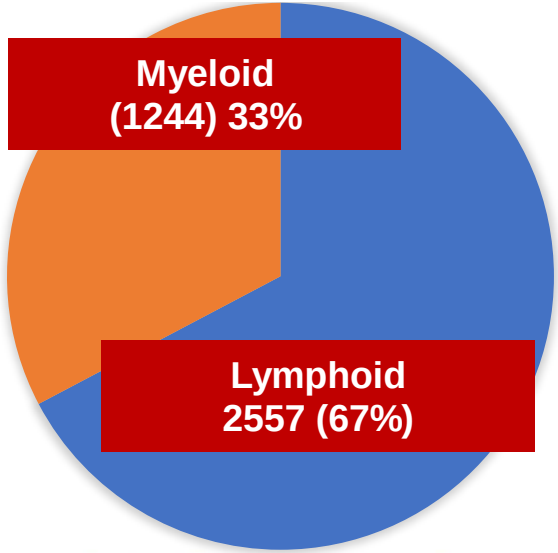

**2021: 1548 pts**

Pagano et al, Blood 2022 in press

**356/1181 (30.1%) Vs 1244/2557 (48.6%)**
**p-value=0.0001**

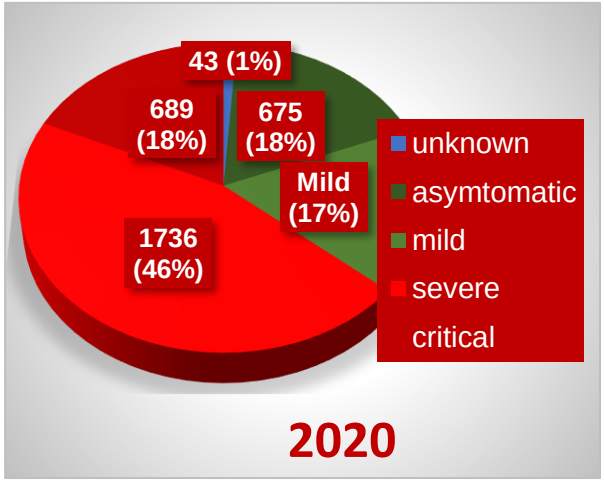
Pagano et al, J Hematol Oncol 2021

**2020: 3800 pts**



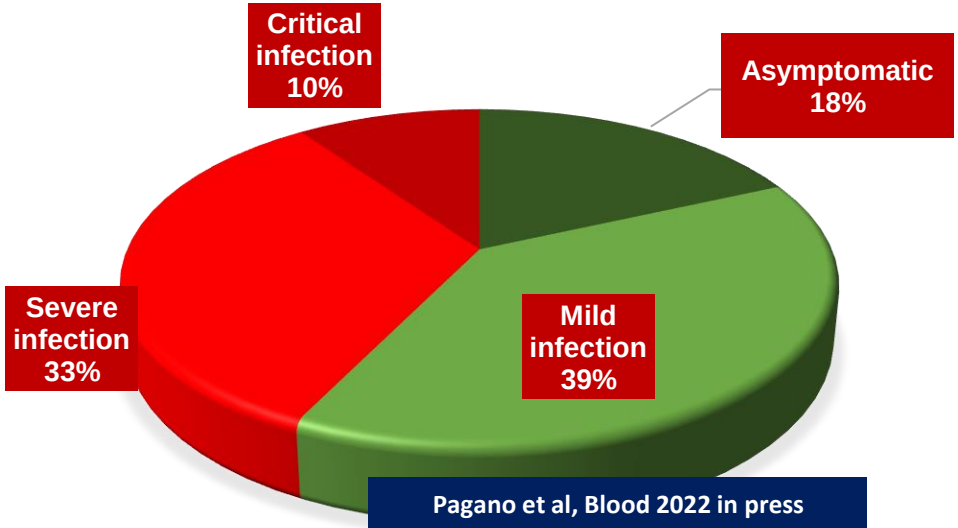
# Stratification for Severity

Pagano et al, J Hematol Oncol 2021




**Critical + Severe**
**2394/380 Vs 661/1583**
**p-value=0.00001**

# Comparison of HMs 2020-2022
# Data from EPICOVIDEHA Survey

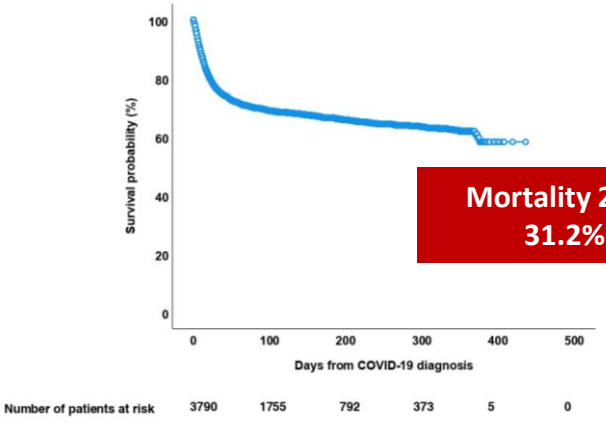



Pagano et al, Blood 2022 in press

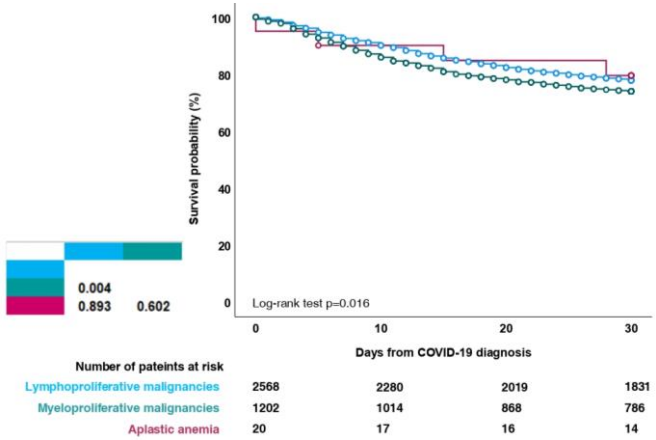
**2021-2022**

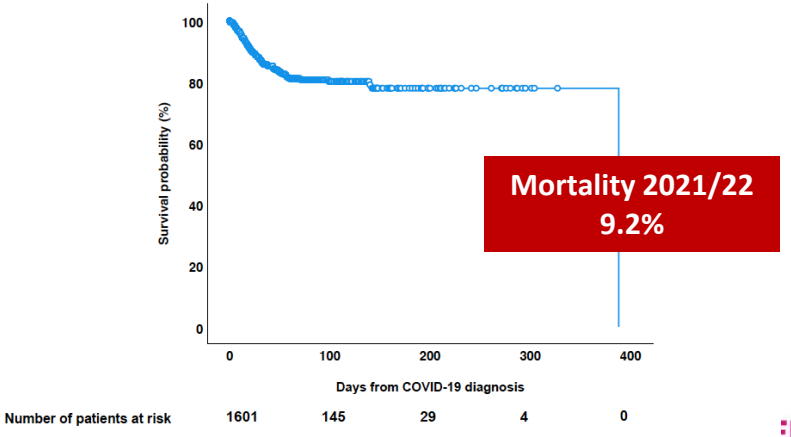
The severity of COVID-19 at admission was graded according to the China Centers for Disease Control and Prevention definitions: mild (non-pneumonia and mild pneumonia), severe (dyspnoea, respiratory frequency ≥30 breaths per min, SpO2 ≤93%, PaO2/FiO2 <300, or lung infiltrates >50%), and critical (respiratory failure, septic shock, or multiple organ dysfunction or failure)

# Overall survival

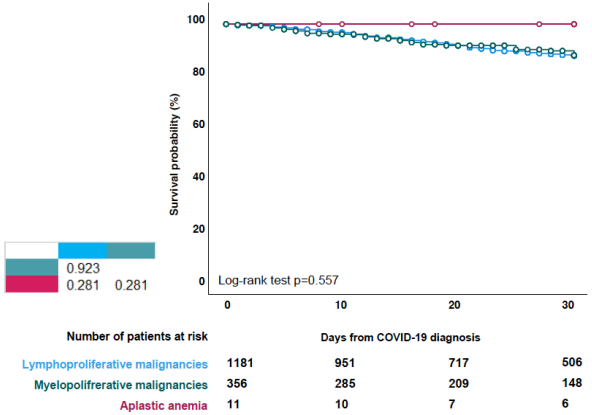



**Mortality 2020**
**31.2%**




**Mortality 2021/22**
**9.2%**

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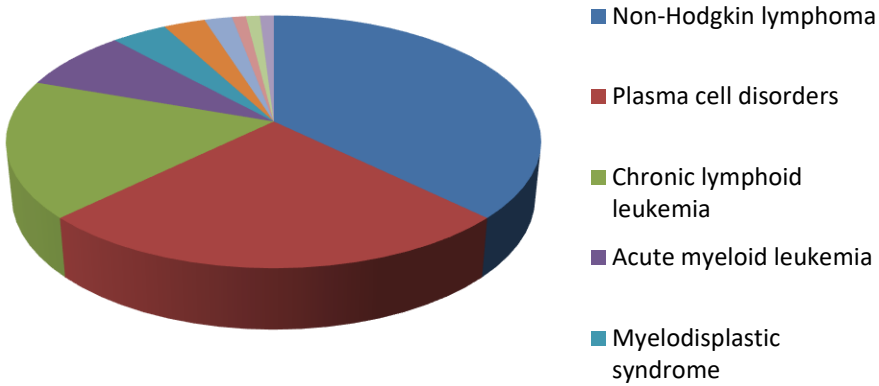
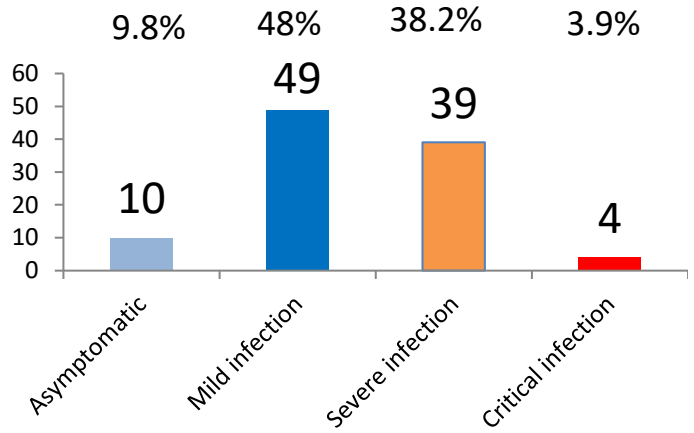
# Improved clinical outcome of COVID-19 in hematologic malignancy patients receiving a fourth dose of anti-SARS-CoV-2 vaccine: an EPICOVIDEHA report

As of August 2022, **102** out of all patients reported in the EPICOVIDEHA registry were diagnosed with COVID-19 after having received a fourth vaccine dose




- Only 21.6% of all patients needed oxygen administration
- About half did not receive any specific anti-SARS-CoV-2 treatment
- **Only 4 patients (3.9%) died**

Salmanton-Garcia et al, Hemasphere in press

# Myeloid Malignancies

- The incidence of COVID-19 in CML patients after the first wave is similar to that in general population (Breccia et al Br J Haematol 2022)
- The overall mortality of patients with AML and MDS from COVID-19 in 2021 is markedly decreased (Marchesi et al Haematologica 2022)
- The impact of a third and fourth booster vaccine, improved care for patients with myeloprolipherative disorders and COVID-19 and differences in severity between SARS-CoV-2 variants (Pagano et al, Blood 2022)
- Risk of early death still increases with age and relapsed/refractory disease
- Ruxolitinib can cause a reducted efficacy of vaccination and risk of death was higher in those patients who abruptly discontinued ruxolitinib in MPN (Pimpinelli et al, J Hematol Oncol 2021)

# Lymphoid Malignancies

- In the era of the Omicron variant of COVID-19, milder disease along with lower fatality rates (5%) are observed. (Blennow et al, Am J Hematol 2022)
- In CLL ICU admission rates were highest prior to emergence of omicron (12-12.5% vs 0-3%) (Niemann *et al. Blood. 2022)*
- Among 164 patients with plasma cell dyscrasias that completed vaccination with an 8-month median follow up after vaccination, only 5 patients experienced a mild form of COVID-19 during the Delta-variant wave, more patients (*n* = 12) are tested positive with the emergence of the omicron variant, but there were no significant clinical manifestations, hospitalizations, or deaths. (Hoornaert *et al. Blood. 2022)*
- Risk of early death still increases with age and relapsed/refractory disease

# Epidemiological summary in HSCT & Covid-19

| | CIBMTR[1] | EBMT[2] | EPICOVIDEHA[3] | Metanalysis (Lim et al)[3] |
|---|---|---|---|---|
| Patient cohort | Allo- 184<br>Auto- 134 | Allo- 236<br>Auto- 146 | Allo- 173<br>Auto- 74 | Allo- 1191<br>Auto- 934 |
| Median time from HSCT to Covid-19 | 17mo (allo); 23 mo (auto) | 17.9 months (min–max; −0.9 to 350.3) | NA | 16.4mo (allo) & 23.2mo (auto) |
| Severe disease/Mechanical ventilation | 14% patients (45/383) | NA | 45% severe disease –in overall study | 14% |
| ICU admission | NA | 22.5% patients | 18% -in overall study | 18% |
| Covid-19 as primary cause of death | 14% (55/383) | 25% | 24.8% (auto)-27%(allo)<br>(lower than non-transplant HMs) | 21% |
| Auto vs Allo post Covid survival | NS | NS | NS | NS |
| Risk factors | 1. Age≥50yrs<br>2. Male gender<br>3. ≤12 months post allo-HSCT | 1. Older age<br>2. Higher ISI group<br>3. Need for ICU<br>4. Poor PS (mainly allo) | 1. ICU admission<br>2. Older age<br>3. active disease,<br>4. Renal/liver/cardiac disease<br>5. smoking history | 1. Under 1 year since HSCT<br>2. Within 6 months of immunosuppression<br>3. Active GVHD<br>4. Low lymphocyte count<br>5. Older age |

1.Sharma A et al, *Lancet Haematol*. 2021;8:e185–e193.
2. Ljungman, P., *Leukemia* (2021)
3. Pagano et al, *J Hematol Oncol* 14, 168 (2021)
4. Lim YJ, EJHaem. 2022 Jun 14:10.1002/jha2.465.

# Pediatric and adolescent onco-hematological population

- Confirmed lower morbidity and mortality compared with adult population
- Morbidity and mortality higher than otherwise healthy pediatric and adolescent population
- Low or no incidence of MIS-C in cancer pediatric patients
- Delay of chemotherapy is most frequent consequence in 35%-59% of pts for a median of 2 weeks

***References:***
*Heusler et al. Eur J Cancer 2021; Weclawek-Tompol et al. J Hematol Oncol 2021*; *Zama et al Ann Hematol 2022; Kahn et al. Cur Oncol Rep 2022; Global Health Resaerch Group on Childre's Non-Communicable Diseases Collaborative BMJ Open 2022; Pellande-Marcotte et al CMAJ 2021*

- In 2022 the mortality rate observed in COVID-19 patients affected by HMs is markedly reduced.
- The severity and outcome of COVID-19 is worse in HM patients compared to the general population, with a higher mortality rate.
- In 2022 after the introduction of vaccination COVID-19 is mainly observed in patients with lymphoproliferative diseases such as NHL, CLL and MM.
- In all subset of HM patients, older age, cardiovascular and metabolic comorbidities, and active or not controlled (i.e. not in remission) malignancy remain the main risk factors for mortality.
- Children with HM have a lower prevalence of COVID-19 and associated mortality than adults with HM.

# Comments on revised guidelines

You can send your comments about the Epidemiology Covid group revised guidelines before Octobre 31st to the group leader:
Livio Pagano: Livio.Pagano@unicatt.it