Introduction:
Risk of acute organ failure (AOF) in cancer patients (pts) on systemic cancer treatment is unknown. However, 5% of non-hematologic and 15% of hematologic cancer pts will need admission to intensive care unit (ICU). IPOP-SCI-2017/01 is a prospective cohort study designed to ascertain the cumulative incidence of AOF in adult cancer pts.

Methods:
Single centre prospective cohort study with consecutive sampling of adult cancer pts admitted for unscheduled inpatient care while on, or up to 8 weeks after, systemic cancer treatment. Primary endpoint was AOF as defined by quick SOFA. Six months accrual expected an accrual of 400 pts to infer a population risk AOF with a standard error of 1%.

Results:
Between 08/2018 and 02/2019 10392 pts were on systemic anticancer treatment, 358 had unscheduled inpatient care and were eligible for inclusion and 285 were included. Median age was 64 years, 51% were male, 52% had adjusted Charlson Comorbidity Index (CCI) $>3$ and hematologic cancers accounted for 22% of pts. The cumulative risk of AOF on hospital admission was 35% (95%CI: 31-39); and of AOF during hospital stay was 40% (95%CI: 35-44). AOF was associated with older age, CCI $>3$, hematologic malignancy, shorter median time from diagnosis and $>1$ prior line of therapy. On admission, 62% of pts were considered not eligible for artificial organ replacement therapy (noAORT) and 34% of pts who developed AOF while in hospital were judged noAORT. Overall, 17 (15%) of AOF pts were admitted to ICU, 31.5% for AORT. Median follow up 9.5 months (min 6; max 12). Inpatient mortality was 18%, with ICU mortality rate of 59%, with median cohort survival 4.5 months (95%CI: 3.5-5.4). On multivariate analysis, AOF was an independent poor prognostic factor (HR 1.6; 95% CI 1.2-2.1).

Conclusion:
Risk of AOF in cancer pts admitted for unscheduled inpatient care while on systemic treatment is 35%, and risk of ICU is 15%. AOF in cancer pts was an independent poor prognostic factor.