Dear Editor,

A 9-year-old Syrian refugee girl presented at the hospital with a complaint of abdominal discomfort. The physical examination revealed multiple enlarged lymph nodes and hepatosplenomegaly. A complete blood count (CBC) showed a 70% lymphoid predominance, while the white blood cell, red blood cell, and platelet values were within the normal ranges. Her pediatrician requested a blood smear with a pre-diagnosis of infectious mononucleosis to rule out malignancy. A peripheral blood smear was prepared from a drop of blood from the ethylenediamine tetraacetic acid sample and stained as described.

On the blood smear, lymphoid predominance was quite obvious. Large lymphocytes with large, irregular nuclei were easily visible (Fig. 1). The lymphocytes were clearly atypical, but the features fell short of the definition of a blast. I decided to check the instrument results, where I saw "blasts" and "atypical lymphoid cells" flags (Fig. 1). The analyzer had detected the atypical cells and created an alarm flag. Unfortunately, these instrument flags are not sent to the laboratory information system (LIS), so while validating test results this information will not typically be available. My pediatrician colleague and I accepted the flag as an extra warning to refer the patient to a hematology center. On follow-up, the diagnosis was infectious mononucleosis based on a physical examination and positive Epstein-Barr virus immunoglobulin (Ig)M and IgG results.

Most automated hematology analyzers generate blast flags. The instrument manuals recommend a blood smear examination to confirm these warnings. On a Tuesday in mid-October 2019, 1 of the 2 devices used in our central laboratory created 7 blast/atypical lymphoid cells flags in 50 consecutive results. On that day, we validated a total of 915 complete blood count (CBC) test results. The next day, a total of 815 results were validated, and the same instrument again generated 7 blast/atypical lymphoid cells flags in 50 consecutive results. Of course it is impossible to determine an exact number of patients who...
will require a microscopic examination, but these numbers are
clues for estimated workload.
Since instrument flags are not sent to the LIS, the laboratory
specialist validating the CBC results and the clinician request-
ing the test may both be unaware of these warnings. However,
the presence of blasts in a peripheral blood smear is a criti-
cal value to be reported. The CBC is often used as a screening
test in a public hospital like ours. Only a high index of clinical
and laboratory suspicion leads to detection of blasts in blood
samples of patients without salient clinical findings or a prior
diagnosis. Each laboratory establishes its own manual review
criteria. A hospital focused on cancer patients may take instru-
ment flags into account much more seriously than a hospital
visited by the general population [1]. Confirming the presence
or absence of blasts in every flagged specimen would be im-
practical in most hospitals. It is not only a matter of cost-ef-
fectiveness, but a problem of trained and experienced staff.
However, the clinical value of a true positive flag may be quite
significant for the patient.

Reference
1. Barnes PW, McFadden SL, Machin SJ, Simson E; international
consensus group for hematology. The international consen-
sus group for hematology review: suggested criteria for ac-
tion following automated CBC and WBC differential analysis.