



BD case study

Improving efficiency of flow cytometric immunophenotyping for the diagnosis of haematological malignancies

An Efficiency and Health Economic Evaluation of BD OneFlow™ Flow Cytometry Reagents, conducted by the NIHR Newcastle In Vitro Diagnostics Co-operative, the Health Economics Group at Newcastle University and Newcastle Upon Tyne Hospitals NHS Foundation Trust¹



Evidence statement



With many clinical decisions being based on laboratory data, errors at any stage of the laboratory workflow can have a major impact on diagnostic and treatment pathways.³



Misdiagnoses and overinterpretation are the most important pitfalls in the immunophenotyping of leukaemia and lymphoma⁴.

98%

of in-patients will undergo a diagnostic test during a hospital stay².



The EuroFlow™ Consortium validated flow cytometry panels are intended to improve characterisation of haematological malignancies and aid accurate diagnosis^{4,5}



The BD OneFlow™ Solution is built upon the EuroFlow™ Consortium work

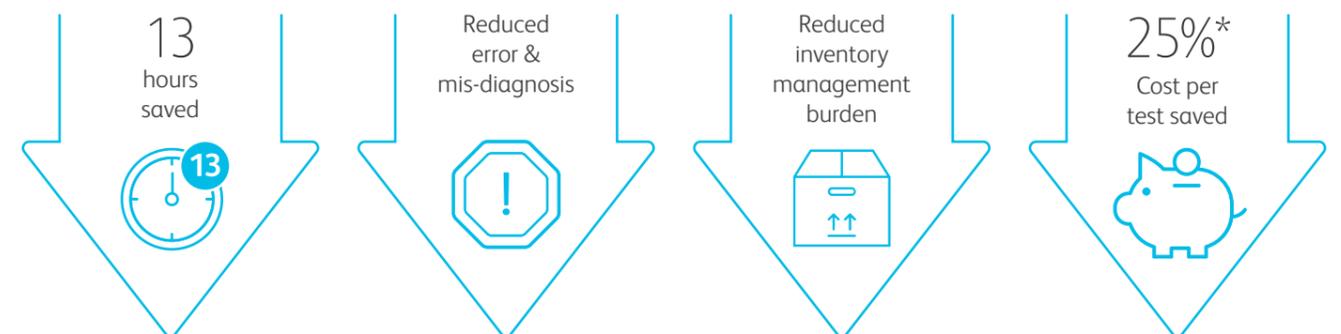


The study

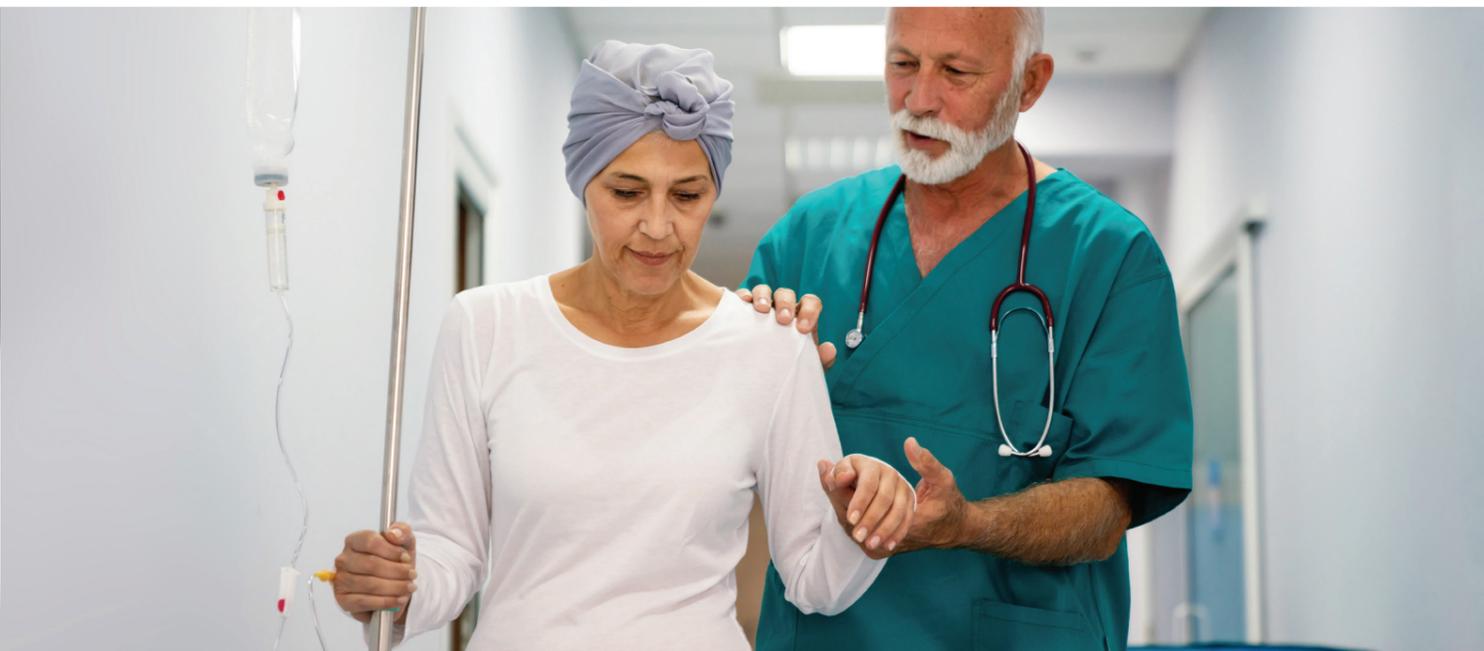
A study conducted by the NIHR Newcastle In Vitro diagnostics Co-operative, the Health Economics Group at Newcastle University and Newcastle upon Tyne Hospitals NHS Foundation Trust aimed to assess the effects on safety, efficiency and costs for the clinical diagnostic laboratory to adopt the BD Oneflow reagent tubes for diagnosing chronic lymphocytic leukaemia. This solution was compared to the laboratories in-house laboratory defined testing.

Results

During one month, 13 hours of staff time were saved in processing of 100 patient samples. Staff believed that the BD Oneflow™ Solution limited unwarranted events such as processing errors and stock shortages. Furthermore, they found that the BD solution enabled detection of abnormal leukaemic cells that were missed by in-house testing. These findings would lead to improved diagnostics and therefore patient safety.



*The cost per test is reduced by 25% if the lab decides to not include morphology testing. If the lab continue with morphology testing, the cost is reduced by 21%.



The findings of this HEOR (Health Economic and Outcomes Research) study support that the BD OneFlow™ reagents, which are built upon the EuroFlow™ Consortium work, bring the standardization of leukaemia and lymphoma immunophenotyping one step forward, improving laboratory efficiency and reliability and accuracy of results for clinical decisions and ultimately, patient safety and patient outcome^{4,5}

Results presented are applicable to Newcastle Upon Tyne Hospitals NHS Foundation Trust, results will vary and may not be representative of those measured in other clinical laboratory settings

Use of BD OneFlow™ Reagents requires experience with leukaemia and lymphoma immunophenotyping and classification. The results should be interpreted by a pathologist, or equivalent professional, in conjunction with other clinical or laboratory findings.

The Institutions providing testimonials in this presentation were provided with reagents at no cost by BD and compensated by BD at fair market value for their time spent on the test studies to which the testimonials refer. However, the views, information, or opinions expressed during the testimonials are solely those of the individuals involved.

The EuroFlow™ antibody panels are property of the EuroFlow Consortium and cannot be reproduced or published without prior written permission by the EuroFlow coordinator (www.euroflow.org).

BD OneFlow™ Reagents are *in vitro* diagnostic medical devices bearing a CE mark

1. Moloney, E., Watson, H. et al. Efficiency and Health Economic Evaluations of BD OneFlow™ Flow Cytometry Reagents for Diagnosing Chronic Lymphoid Leukemia. Cytometry Part B (Clinical Cytometry). 2019.
2. Ngo A, Gandhi P, Miller WG. Frequency that laboratory tests influence medical decisions. J Applied Lab Med. 2017;1:410-414
3. WHO. Laboratory Quality Management System Handbook. 2011
4. J.J.M. van Dongen, L. Lhermitte, S. Böttcher, et al on behalf of the EuroFlow Consortium (EU-FP6, LSHB-CT-2006-018708). EuroFlow antibody panels for standardized n-dimensional flow cytometric immunophenotyping of normal, reactive and malignant leukocytes. Leukemia. 2012, 26 (9): 1908-75.
5. van der Velden, V., Flores-Montero, J., Perez-Andres, M., et al. Optimization and testing of dried antibody tube: The EuroFlow LST and PIDOT tubes as examples. J Immunol Methods. 2019;475:112287.

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