

Erratum

In volume 74B (Supplement 1, March 2008) of *Clinical Cytometry* (Cytometry Part B), there were some unfortunate omissions/errors related to specific attributes featured on some affordable flow cytometers for CD4 T-cell counting. The omissions were all in Table 1 on page S36. The table was intended to provide a general guide and summary of some key features available on various instruments (at the time of publication) as part of an article published with the title of “Affordable CD4 T-cell Enumeration for Resource-Limited Regions: A Status Report for 2008 [DOI: 10.1002/cyto.b.20414].”

Regrettably there were some missing bits of information in the Table. We offer our most sincere apology for this oversight. We wish to assure our readership that the omissions in Table 1 inferring limitations affecting Becton Dickinson’s FACSCount and Partec’s CyFlow Counter were typographic omission errors. To neutralize the unintentional misrepresentation that occurred in Table 1, we are providing the correct information that was missing in the Table and in addition we also introduce here a new completely revised Table 1. This rendition of the attributes to consider without reference to any specific instruments should be a better tool to our readership when attempting to select the most appropriate instrumentation for a given resource limited location. This may also better serve readers, in that instrument options and features are a constantly changing landscape and one in which all possibilities are not always delineated in an options sheet or brochure.

In general, we wish to point out to you that all the specifications in Table 1 were offered as part of a strategically different approach to help with decision making. Never the less information must be as accurate as possible. We did include a disclaimer in the form of an explanation that information provided in Table 1 is incomplete and we suggested further research into instrument, reagent performance and other critical issues including total system costs. We offered a significantly unique strategy to help in making informed decisions that will support quality managed CD4 T-cell counting clinics. The intention was to help with some of the extraordinary constraints one encounters when dealing with some remote rural locations in Africa. With this in mind, we generated three categories to consider when sustainable quality services and cost related strategies are critical. The categories that we consider important are: (1) available energy and environmental conditions, (2) overall operational cost limitations and volume of testing, and (3) the challenge to maintain quality labor force in some remote rural locations. In Table 1, the emphasis was clearly to assist illustrating how these three factors will influence decision making. How to synergize the desired impact as it is related to sustainable diagnostic services as considering all relevant regional challenges. Table 1 was offered as a vehicle to guide a potential lab, or program manager; it was not compiled for the purpose of a side-by-side comparison of instruments. Thus, the replacement Table which merely details the issues one should consider rather than comparing instruments is now included to better promote this aim.

The list of omissions and corresponding corrections:

E-1 Use of low energy laser or LED:

The BD FACSCount should have been identified as a flow cytometer with a low energy consuming laser.

E-6 Protection against electrical power fluctuation:

All manufacturers address this problem with UPS units. It can be part of the delivery package, but it is not always included with the basic system price.

E-7/9 Operates without alternating current:

All three systems; CyFlow Counter, FACSCount, and PointCare Now can be operated with battery and or solar panel. However, these types of arrangements need to be negotiated with the vendor and they are usually available at an additional cost.

E-8 Eliminated stand-alone computer:

CyFlow Counter and FACSCount have built-in PCs. Both instruments are equipped with automated gating software.

C-10 For maximum daily sample throughput:

We intentionally left this line blank for all makes as the optimal performance depends on a number of variables such as how many of the specimens are to be run are pediatric assays, can the system can be equipped with an auto-loading station, and how many technicians will be assigned to the daily operation.

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Table 1
A Strategy for Selecting CD4 T-Cell Counting System for a Remote Location in Resource Poor Settings

Categories Considered	Points*	System 1	System 2	System 3
Environmental/Energy Issues (EE)				
Minimized energy for light source	3-1			
Minimized water consumption	3-1			
Minimized waste collection	3-1			
Eliminated cold chain & refrigeration	2 or 0			
Eliminated light sensitive reagents	2 or 0			
Closed system for bio-hazard waste	2 or 0			
Protection against power fluctuation	3-1			
Availability of options to operate with DC	3-1			
Eliminated stand-alone computer	2 or 0			
Eliminated the need for AC for laboratory	2 or 0			
Sub total for EE (ideally 5 points)				
Cost, Supplies & Sustainability Issues (CS)				
Reduced MAb numbers & minimum volume	4-1			
Eliminated the use of lysing reagent	2 or 0			
Simultaneous CD4 T absolute & % count	2 or 0			
Eliminated absolute counting beads	2 or 0			
On-board patient & daily QC data capacity	3-1			
Daily QC integrated with start-up protocol	2 or 0			
Compatibility with EQAP	2 or 0			
Availability of sustainable service contract	3-1			
Availability of satellite/GSM surveillance	2 or 0			
Maximum daily sample throughput	3-1			
Sub total for CS (ideally 4 points)				
Human Resource Issues (HR)				
Eliminated manual gating	2 or 0			
Eliminated manual pipetting	3-1			
On-board automated data management	3-1			
Availability of continuous training	3-1			
Instrument portability: transport case	3-1			
Instrument foot-print with accessories	3-1			
Eliminated high-skill tasks	3-1			
Availability of barcode reader	2 or 0			
Minimized bio-hazard exposure	3-1			
Additional diagnostic capacities	2 or 0			
Sub total for HR (ideally 7 points)				
Total for all three categories				

*Explanation for the recommended "POINT" system.

In general, when an option is either available or not the recommended score is either 0 or 2 respectively. If the option can be considered on a gradual scale towards desirability the points may be awarded on a reversed sliding scale from 3 to 1. For example a CD4 T-cell assay may use four reagents (three point) whereas another may use only two (two points). If the reagent volume requirement per test is twice the volume of another system, these events may also be considered on a reverse sliding scale. Where the lower volume of reagent is considered better hence assign a lower score from 4 to as low as 1.

L-1 Elimination of manual gating:

This is a good example how rapidly situations can change in the field. Effective May 2008 all five flow cytometers listed in Table 1 are sold with automated gating software without additional cost.

L-2 Manual pipeting is avoided:

The FACSCount is furnished with calibrated electronic pipetter. This means that pipetting is included in the procedure, but the most common error, the manual pipeting step has been eliminated.

L-3 Onboard automated data management:

This line should have been left open right across as each local/regional manager has to establish what is the minimum onboard data storage capacity and the minimum level of automation required for daily performance reports generation.

L-4 Availability of continuous-training:

After the instrument is in operation for some time, access to continuous training is a critical requirement. We left this line blank for all systems as such service is offered by some companies in some countries. It is important to find out if such service is available to you at rural locations and is it free.

L-5 Portability: is transport case available?

Most companies offer a transport case fitted specially for their instrument. Such container is usually not included in the basic price. You need to negotiate.

L-6 Small bench-top footprint:

CyFlow Counter was erroneously omitted from that category.

L-7 Barcode reader is available or as an option:

It is available for CyFlow Counter and the FACSCount instruments as an option.

L-8 High skill-level operator is eliminated:

We refer to advancements that permit the exclusion of relatively high skill levels. We selected four criteria. All four eliminated procedures mentioned below require considerable training and acquired skills to perform:

1. Elimination of all manual precision pipeting of blood and/or reagents
2. Elimination of all manual gating of lymphocyte subsets
3. Inclusion of on-board data management that generates L-J plots for daily QC
4. Elimination of handling open blood vials which poses a significant potential as occupational biohazard.

Please note that we are introducing a replacement Table. Here it is the potential purchaser who fills in the appropriate values for systems 1-3 of their choosing. The values may be adjusted according to how various categories may represent higher priority for a specific location.