# Advantages of Using Direct Integration for EQA Result Reporting

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## Introduction and objectives

External quality assessment (EQA) is a way for laboratories to get feedback on their performance and quality and it compares their results to other laboratories analyzing an identical sample. EQA samples should be analyzed following the same process as for patient sample analysis. Most laboratories receive patient sample analysis requests electronically into their laboratory information system (LIS) and the patient results are reported electronically. However, their external quality assessment results are usually processed differently; analysis requests are not received electronically to the LIS and results are reported manually by writing the results to a paper or electronic result form of the EQA provider. This additional and out of the process step may cause delays, uncertainty or even errors in the EQA result reporting. Integrating laboratory information systems directly to EQA portals to automate EQA result reporting after sample analysis (Figure 1) is a potential way to decrease the manual workload for laboratories and make the result reporting faster and more consistent. Labquality, a Finnish independent EQA provider, has integrated several LIS systems to its electronic EQA portal LabScala using standard HL7 messaging. The aim of this study is to show the benefits of directly integrating LIS system to EQA portal for EQA result reporting.

## Methods

Result reporting of laboratories with direct integration (DI) to LabScala was compared to laboratories reporting their EQA results manually by collecting data from the EQA scheme for Pregnancy tests rounds 3-2020, 1-2021, 3-2021 and 1-2022. 66 of the 889 results were reported using direct integration. Parameters investigated were response rates (%) and speed as turn-around-time in number of days of reporting after sample distribution. Speed and response rates (%) were compared between these groups to investigate the effect of direct integration on answering.

## Results

Direct integration has been enabled for Labqualitys product Pregnancy test from year 2020 and since then DI has been used in four Pregnancy test rounds in total. In laboratories reporting their EQA results manually, the turn-around-time in number of days of reporting after sample distribution was on average 4.3. In laboratories reporting their results using DI, the comparable average number was 3.4 (Figure 2). When comparing responding rates, only 1.5% of results of laboratories using DI were not returned when in total 6.9% of manually reported results were left unreturned during the Pregnancy test rounds analyzed (Table 1).

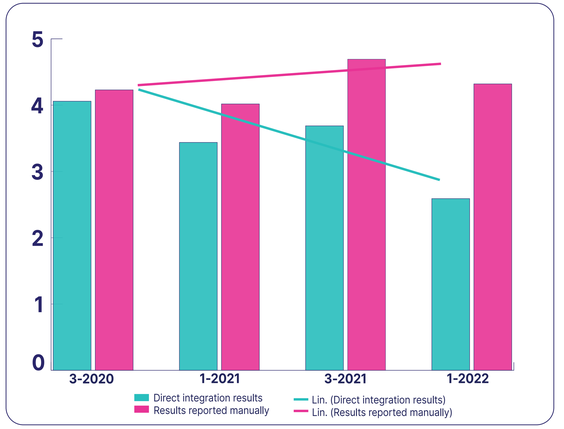


Figure 2. Average turn-around-times in number of days for analyzed rounds.

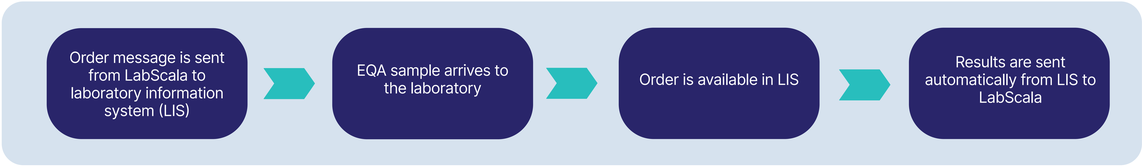


Figure 1. Basic steps of the HL7 integration in EQA result reporting between participating laboratory's laboratory information system (LIS) and Labquality's EQA platform LabScala.

| Product round | Manual participants (n) | Manual results not reported (n) | DI participants (n) | DI results not reported (n) | Manual results response rate (%) | DI results response rate (%) |
|---|---|---|---|---|---|---|
| 3-2020 | 223 | 23 | 17 | 1 | 10,3 | 5,9 |
| 1-2021 | 235 | 13 | 16 | 0 | 5,5 | 0,0 |
| 3-2021 | 217 | 15 | 16 | 0 | 6,9 | 0,0 |
| 1-2022 | 207 | 10 | 17 | 0 | 4,8 | 0,0 |
| **All rounds** | **882** | **61** | **66** | **1** | **6,9** | **1,5** |

Table 1. Response rates compared between manual and DI (Direct integration) results.

## Conclusion

Laboratories using DI reported their results faster and the response rate was higher than for laboratories reporting their results manually. DI could make it possible to have faster overall turn-around-times in EQA rounds. DI between Labquality's LabScala platform shortens the time of result reporting in laboratories and makes result reporting more consistent from round to round. In addition, the convenience of no separate result reporting step is an advantage for the laboratory staff and DI helps fulfill the criteria of treating the EQA samples, including result handling, in the same manner as patient samples.