Purpose: In contrast to commercial dose (MU) second check software using data from treatment planning system, we developed the software which can directly access commercial record and verify, Mosaiq system - to perform the MU and data integrity checks.

Methods: Microsoft ActiveX Data Objects (ADO) and ActiveX Data Objects for .NET (ADO.NET) were used to access Mosaiq SQL server directly to retrieve the essential treatment parameters for MU second check. ADO was supported in Visual Basic for Applications (VBA); therefore, ADO was first applied to retrieve Mosaiq's parameters to our in-house MU Calc Excel spreadsheet for non-IMRT plan MU check. To perform more sophisticated data retrieving and dose calculation, ADO.NET was applied to develop an IMRT second check program using Microsoft Visual C#.

Results: By using either ADO or ADO.NET, user can access Mosaiq database server directly to retrieve the corresponding fields through SQL queries. Patient identification (Pat_ID1) can be obtained from vw_PatBro_Identifiers table through either IDA or Last_Name columns. Prescription - (such as SIT_ID, Site_Name, Energy, Dose_Tx) can be read from Site table. Treatment field parameters (gantry, collimator, field aperture, accessories, and MLC for each control points) can be found in TxField and TxFieldPoints tables. The dose at the check point can be calculated according to those parameters retrieved directly from Mosaiq then compared with treatment planning result.

Conclusion: Since patients are treated with parameters from R&V system, to perform a MU second check and data transfer from planning system check on the R&V system provides the most straightforward quality assurance control, especially in a heterogeneous vendor environment. Currently, our tools only work on Mosaiq. However, this concept and technique should be applied to other R&V systems.

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n/a