/\*\*\*\*\*\* Simulate Peer Group Performance on Patients of the clinician \*\*\*\*\*\*/

USE Benchmarking

/\*

Description of the data:

Comorbidities are in columns DRG and HCC.

The column Dr indicates clinician or peer group.

Outcomes of care are in column LOS.

\*/

-- Calculate pattern of care for clinician

DECLARE @total as float

SET @total = (SELECT COUNT([ID])FROM [dbo].[clinician] WHERE Dr='Clinician')

SELECT [DRG] as DRGa

,[HCC] as HCCa

,Avg(CAST([LOS] as Float)) as LOSa

,COUNT([ID]) as NumA

,COUNT([ID])/@total as ProbA

INTO #Clinician

FROM dbo.Clinician

WHERE Dr='Clinician' -- Select the clinician

GROUP BY [DRG], [HCC]

-- Calculate pattern of care for peer group

DECLARE @totalb as float

SET @totalb = (SELECT COUNT([ID])FROM [dbo].[clinician] WHERE Dr='Peer')

SELECT [DRG] as DRGb

,[HCC] as HCCb

,Avg([LOS]) as LOSb

,COUNT([ID]) as Numb

,COUNT([ID])/@totalb as ProbB

INTO #Peer

FROM dbo.Clinician

WHERE Dr='Peer' -- Select peer group

GROUP BY [DRG], [HCC]

-- Match clinicians and peer group on common strata

SELECT CASE When HCCa IS null Then HCCb Else HCCa END as HCCa

, CASE When DRGa IS null Then DRGb Else DRGa END DRGa

-- Does not matter if outcomes for clinician is null

, CASE WHEN LOSa IS NULL Then -1 Else LOSa END AS LOSa

, CASE When NUMa IS null Then 0 Else NUMa END NUMa

, CASE When ProbA IS null Then 0 Else ProbA END AS ProbA

, CASE When HCCb IS null Then HCCa Else HCCb END as HCCb

, CASE When DRGb IS null Then DRGa Else DRGb END AS DRGb

, CASE When NUMb IS null Then 0 Else NUMb END NUMb

, CASE When ProbB IS null Then 0 Else ProbB END AS ProbB

, LOSb -- Null values require synthetic case calculations

INTO #Match

FROM #Clinician Full Join #Peer on DRGa=DRGb and HCCa = HCCb

-- Overlap between peer and clinician cases

SELECT Round(100.\*CAST (SUM(NUMa)

-SUM(CASE WHEN LOSb is null then NUMa else 0 end) AS float)/

CAST(SUM(NUMa) as Float),2) AS [Overlap without Synthetic Cases]

FROM #Match

-- Calculate peer group's performance, if it had clinician's patients

SELECT NumA

, HCCa AS HCC

, DRGa AS DRG

, ProbA

, LOSa

, ProbA AS ProbB -- Switch probabilities of peer group to clinician

-- For missing outcomes, calculate synthetic outcomes:

, CASE WHEN LOSb IS NULL THEN

(SELECT AVG(LOS) FROM dbo.clinician INNER JOIN #Match ON HCC=HCCb

WHERE Dr='Peer' and LOSb is null) \* --Average for a marginal

(SELECT AVG(LOS) FROM dbo.clinician INNER JOIN #Match ON DRG=DRGb

WHERE Dr='Peer' and LOSb is null) / --Average for complement marginal

(SELECT AVG(LOS) FROM dbo.clinician -- Average for entire set

WHERE Dr='Peer')

ELSE LOSb END AS LOSb

INTO #All

FROM #Match

-- Overlap between peer and clinician cases

SELECT Round(100.\*CAST (SUM(NUMa)

-SUM(CASE WHEN LOSb is null then NUMa else 0 end) AS float)/

CAST(SUM(NUMa) as Float),2) AS [Overlap with Synthetic Cases]

FROM #All

Select Round(SUM(ProbA

\*CASE WHEN LOSb is null then 0 else LOSa End),2) As [Clinician LOS]

, Round(SUM(ProbB\*LOSb),2) AS [Peer LOS]

, Round(((Cast(SUM(ProbB\*LOSb) as float)

-Cast(SUM(ProbA\*CASE WHEN LOSb is null then 0 else LOSa End) as float))\*100)

/Cast(SUM(ProbB\*LOSb) as float),2) AS [Percent More Efficient]

FROM #ALL