/\*This query was created using MS SQL Server. It summarizes data to use in the mortality improvement analytic tool.

To prepare, data from the SOA data file should be loaded into a table named dbo.MIB\_NAIC\_20231016 in a database named VBT\_Data.

The location of the SOA data file is

https://engage.soa.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=bfbeb60e-0b46-054c-0c3c-7e4311b183df&forceDialog=0

\*/

/\* Preliminary Step: Remove Previous Versions of intermediate and final tables\*/

use vbt\_data

Drop table if exists dbo.band\_summary\_table;

Drop table if exists dbo.class\_summary\_table;

Drop table if exists dbo.dur\_summary\_table;

Drop table if exists dbo.IY\_summary\_table;

Drop table if exists dbo.plan\_summary\_table;

Drop table if exists dbo.vbt\_summary\_table;

Drop table if exists dbo.vbt\_summary\_table\_2A;

Drop table if exists dbo.vbt\_summary\_table\_RID;

Drop table if exists dbo.risk\_id\_summary;

Drop table if exists dbo.union\_table;

/\* Query1: Summarizes data \*/

select Observation\_Year,smoker\_status,Insurance\_Plan,Attained\_Age,Number\_of\_Pfd\_Classes,Preferred\_Class,

(Case

when Preferred\_Class = 'U' then 1

when Preferred\_Class = 'NA' then 1

when Preferred\_Class = '1' then 1

when Preferred\_Class = '2' then 2

when Preferred\_Class = '3' then 3

when Preferred\_Class = '4' then 4

else 0

END) as Risk\_Class\_Number,

(Case

when Number\_of\_Pfd\_Classes = 'U' then 1

when Number\_of\_Pfd\_Classes = 'NA' then 1

when Number\_of\_Pfd\_Classes = '2' then 2

when Number\_of\_Pfd\_Classes = '3' then 3

when Number\_of\_Pfd\_Classes = '4' then 4

else 0 end) as RISK\_GROUP\_NUMBER,

(Case

when Smoker\_Status = 'NS' then 1

when Smoker\_Status = 'S' then 2

when Smoker\_Status = 'U' then 3

ELSE 4

end) as Smoker\_Number,

(Case when Face\_Amount\_Band = '01: 0 - 9,999' then '0000M-0024M'

when Face\_Amount\_Band = '02: 10,000 - 24,999' then '0000M-0024M'

when Face\_Amount\_Band = '03: 25,000 - 49,999' then '0025M-0099M'

when Face\_Amount\_Band = '04: 50,000 - 99,999' then '0025M-0099M'

when Face\_Amount\_Band = '05: 100,000 - 249,999' then '0100M-0249M'

when Face\_Amount\_Band = '06: 250,000 - 499,999' then '0250M-0499M'

when Face\_Amount\_Band = '07: 500,000 - 999,999' then '0500M-0999M'

when Face\_Amount\_Band = '08: 1,000,000 - 2,499,999' then '1000M-4999M'

when Face\_Amount\_Band = '09: 2,500,000 - 4,999,999' then '1000M-4999M'

when Face\_Amount\_Band = '10: 5,000,000 - 9,999,999' then '5000M+'

when Face\_Amount\_Band = '11: 10,000,000+' then '5000M+' else 'Error' end) as FAB2,

(Case when (Issue\_Year < 1980) then '1979 and Prior'

when (Issue\_Year < 1990) then '1980-1989'

when (Issue\_Year < 2000) then '1990-1999'

when (Issue\_Year < 2010) then '2000-2009'

when (Issue\_Year < 2015) then '2010-2014'

when (Issue\_Year < 2020) then '2015-2019'

ELSE '2020 or later'

END) as IY\_GROUP,

(Case when Sex = 'M' then 'Male'

when Sex = 'F' then 'Female'

else 'Unknown' end) as Gender,

(Case when duration > 25 then 'DUR 26 plus'

when Duration > 20 then 'DUR 21-25'

when Duration > 10 then 'DUR 11-20'

when Duration > 5 then 'DUR 06-10'

when Duration > 3 then 'DUR 04-05'

when Duration > 1 then 'DUR 02-03'

when Duration = 1 then 'DUR 01'

else 'ERROR' end) as DUR\_GRP,

count(\*) as records,

sum(Amount\_Exposed) as Amount\_Exposed,

sum(Policies\_Exposed) as Policies\_Exposed,

sum(Death\_Claim\_Amount) as Death\_Claim\_Amount,

sum(Death\_Count) as Death\_Count,

sum(ExpDth\_Amt\_VBT2015) as ExpDth\_Amt\_VBT2015,

sum(ExpDth\_Cnt\_VBT2015) as ExpDth\_Cnt\_VBT2015

 into VBT\_Summary\_table

from dbo.MIB\_NAIC\_20231016

group by Observation\_Year,smoker\_status,Insurance\_Plan,Attained\_Age,Preferred\_Class,Number\_of\_Pfd\_Classes, smoker\_status, Face\_Amount\_Band,

Issue\_Year,Sex,Duration;

/\*Query 2: Adds Risk\_ID to summary table\*/

select \*,

(case

when (Smoker\_Number\*100+Risk\_Group\_Number\*10+Risk\_Class\_Number) = 111 THEN 'NC'

when (Smoker\_Number\*100+Risk\_Group\_Number\*10+Risk\_Class\_Number) = 121 THEN 'NB'

when (Smoker\_Number\*100+Risk\_Group\_Number\*10+Risk\_Class\_Number) = 122 then 'ND'

when (Smoker\_Number\*100+Risk\_Group\_Number\*10+Risk\_Class\_Number) = 131 THEN 'NA'

when (Smoker\_Number\*100+Risk\_Group\_Number\*10+Risk\_Class\_Number) = 132 THEN 'NA'

when (Smoker\_Number\*100+Risk\_Group\_Number\*10+Risk\_Class\_Number) = 133 THEN 'NC'

when (Smoker\_Number\*100+Risk\_Group\_Number\*10+Risk\_Class\_Number) = 141 THEN 'NA'

when (Smoker\_Number\*100+Risk\_Group\_Number\*10+Risk\_Class\_Number) = 142 THEN 'NA'

when (Smoker\_Number\*100+Risk\_Group\_Number\*10+Risk\_Class\_Number) = 143 THEN 'NB'

when (Smoker\_Number\*100+Risk\_Group\_Number\*10+Risk\_Class\_Number) = 144 THEN 'NC'

when (Smoker\_Number\*100+Risk\_Group\_Number\*10+Risk\_Class\_Number) = 211 THEN 'SB'

when (Smoker\_Number\*100+Risk\_Group\_Number\*10+Risk\_Class\_Number) = 221 THEN 'SA'

when (Smoker\_Number\*100+Risk\_Group\_Number\*10+Risk\_Class\_Number) = 222 THEN 'SB'

when (Smoker\_Number\*100+Risk\_Group\_Number\*10+Risk\_Class\_Number) = 311 THEN 'UU'

else 'XX'

END) as Risk\_ID

into vbt\_summary\_table\_RID

from vbt\_summary\_table;

/\*Query 3: Further Summarizes Data\*/

select Observation\_Year,Insurance\_Plan,Attained\_Age,

FAB2,

IY\_GROUP,

Gender,

DUR\_GRP,RISK\_ID,

sum(records) as records,

sum(Amount\_Exposed) as Amount\_Exposed,

sum(Policies\_Exposed) as Policies\_Exposed,

sum(Death\_Claim\_Amount) as Death\_Claim\_Amount,

sum(Death\_Count) as Death\_Count,

sum(ExpDth\_Amt\_VBT2015) as ExpDth\_Amt\_VBT2015,

sum(ExpDth\_Cnt\_VBT2015) as ExpDth\_Cnt\_VBT2015

into vbt\_summary\_table\_2A

from vbt\_summary\_table\_RID

group by

Observation\_Year,Insurance\_Plan,Attained\_Age,

FAB2,

IY\_GROUP,

Gender,

DUR\_GRP,

RISK\_ID;

/\*Query 4: Band summary query\*/

select 1 as variable,

Gender,

Observation\_Year,

FAB2 as subgroup,

Attained\_Age,

sum(records) as records,

sum(Amount\_Exposed) as Amount\_Exposed,

sum(Policies\_Exposed) as Policies\_Exposed,

sum(Death\_Claim\_Amount) as Death\_Claim\_Amount,

sum(Death\_Count) as Death\_Count

into band\_summary\_table

from vbt\_summary\_table\_2A

group by

Gender,

Observation\_Year,

FAB2,

Attained\_Age

order by

Gender,

Observation\_Year,

FAB2,

Attained\_Age;

/\*Query 5:Plan summary query\*/

select 2 as variable,

Gender,

Observation\_Year,

Insurance\_Plan as subgroup,

Attained\_Age,

sum(records) as records,

sum(Amount\_Exposed) as Amount\_Exposed,

sum(Policies\_Exposed) as Policies\_Exposed,

sum(Death\_Claim\_Amount) as Death\_Claim\_Amount,

sum(Death\_Count) as Death\_Count

into PLAN\_summary\_table

from vbt\_summary\_table\_2A

group by

Gender,

Observation\_Year,

Insurance\_Plan,

Attained\_Age

order by

Gender,

Observation\_Year,

Insurance\_Plan,

Attained\_Age;

/\*QUERY 6: Class summary query\*/

select 3 as variable,

Gender,

Observation\_Year,

RISK\_ID as subgroup,

Attained\_Age,

sum(records) as records,

sum(Amount\_Exposed) as Amount\_Exposed,

sum(Policies\_Exposed) as Policies\_Exposed,

sum(Death\_Claim\_Amount) as Death\_Claim\_Amount,

sum(Death\_Count) as Death\_Count

into CLASS\_summary\_table

from vbt\_summary\_table\_2A

group by

Gender,

Observation\_Year,

RISK\_ID,

Attained\_Age

order by

Gender,

Observation\_Year,

RISK\_ID,

Attained\_Age;

/\*Query 7: Duration Summary query\*/

select 4 as variable,

Gender,

Observation\_Year,

DUR\_GRP as subgroup,

Attained\_Age,

sum(records) as records,

sum(Amount\_Exposed) as Amount\_Exposed,

sum(Policies\_Exposed) as Policies\_Exposed,

sum(Death\_Claim\_Amount) as Death\_Claim\_Amount,

sum(Death\_Count) as Death\_Count

into DUR\_summary\_table

from vbt\_summary\_table\_2A

group by

Gender,

Observation\_Year,

DUR\_GRP,

Attained\_Age

order by

Gender,

Observation\_Year,

DUR\_GRP,

Attained\_Age;

/\*Query 8: Issue Year Summary\*/

select 5 as variable,

Gender,

Observation\_Year,

IY\_GROUP as subgroup,

Attained\_Age,

sum(records) as records,

sum(Amount\_Exposed) as Amount\_Exposed,

sum(Policies\_Exposed) as Policies\_Exposed,

sum(Death\_Claim\_Amount) as Death\_Claim\_Amount,

sum(Death\_Count) as Death\_Count

into IY\_summary\_table

from vbt\_summary\_table\_2A

group by

Gender,

Observation\_Year,

IY\_GROUP,

Attained\_Age

order by

Gender,

Observation\_Year,

IY\_GROUP,

Attained\_Age;

/\*Query 9: Union query: Combines five groupings\*/

select \*

into union\_table

from dbo.band\_summary\_table

union

select \* from dbo.plan\_summary\_table

union

select \* from dbo.class\_summary\_table

union

select \* from dbo.dur\_summary\_table

union

select \*

from dbo.IY\_summary\_table;

/\*Query 10: Creates Risk ID Summary\*/

select RISK\_id,

smoker\_status,Number\_of\_pfd\_classes,preferred\_class,

count(\*) as counter, sum(records) as records,

sum(Death\_Claim\_Amount)/sum(ExpDth\_Amt\_VBT2015) as AE\_Amount,

sum(Death\_Count)/sum(ExpDth\_Cnt\_VBT2015) as AE\_Count,

sum(Amount\_Exposed) as Amount\_Exposed,

sum(Policies\_Exposed) as Policies\_Exposed,

sum(Death\_Claim\_Amount) as Death\_Claim\_Amount,

sum(Death\_Count) as Death\_Count,

sum(ExpDth\_Amt\_VBT2015) as ExpDth\_Amt\_VBT2015,

sum(ExpDth\_Cnt\_VBT2015) as ExpDth\_Cnt\_VBT2015

into risk\_id\_summary

from dbo.vbt\_summary\_table\_RID

group by

Risk\_id,

smoker\_status,Number\_of\_pfd\_classes,preferred\_class

order by

Risk\_id,

smoker\_status,Number\_of\_pfd\_classes,preferred\_class;

/\* Final Step: Remove Intermediate Tables\*/

Drop table if exists dbo.band\_summary\_table;

Drop table if exists dbo.class\_summary\_table;

Drop table if exists dbo.dur\_summary\_table;

Drop table if exists dbo.IY\_summary\_table;

Drop table if exists dbo.plan\_summary\_table;

Drop table if exists dbo.vbt\_summary\_table;

Drop table if exists dbo.vbt\_summary\_table\_2A;

Drop table if exists dbo.vbt\_summary\_table\_RID;