

Physician Advice - Radiology

01/11/2015

Mammographic Advice

Imaging Features

Risk of upgrade decreases if imaging features are “Typically Benign” (see ranking spreadsheet).

```
benignMass(BxID) :- margin_Circ(BxID,present).
benignMass(BxID) :- shape_Oval(BxID,present).
benignMass(BxID) :- density(BxID,'Fat').
benignMass(BxID) :- density(BxID,'Low').
benignMass(BxID) :- massStability(BxID,stable).
benignMass(BxID) :- massStability(BxID,decreasing).
benignMammoCalcs(BxID) :- ca_Vasc(BxID,present).
benignMammoCalcs(BxID) :- ca_Suture(BxID,present).
benignMammoCalcs(BxID) :- ca_Moc(BxID,present).
benignMammoCalcs(BxID) :- ca_Lgrodlike(BxID,present).
benignMammoCalcs(BxID) :- ca_Dystr(BxID,present).
benignMammoCalcs(BxID) :- ca_Skin(BxID,present).
benignMammoCalcs(BxID) :- ca_Round(BxID,present).

radiology_advice_1(BxID) :- mass(BxID,present), benignMass(BxID).
radiology_advice_1(BxID) :- ca(BxID,present), benignMammoCalcs(BxID).

riskDecreases(BxID) :- radiology_advice_1(BxID).
```

Mammographic Advice

Imaging Features

Risk of upgrade increases if imaging features are “High Prob Malig” (see ranking spreadsheet).

```
malignantMass(BxID) :- margin_Spic(BxID,present).  
malignantMass(BxID) :- shape_Irr(BxID,present).  
malignantMass(BxID) :- density(BxID,'High').  
malignantMass(BxID) :- massStability(BxID,increasing).
```

```
radiology_advice_2(BxID) :-  
    mass(BxID,present), malignantMass(BxID).
```

```
riskIncreases(BxID) :- radiology_advice_2(BxID).
```

Mammographic Advice

Imaging Features

Risk of upgrade increases if BI-RADS category is high (4C or 5).

```
highRiskBirads(BxID) :- bIRADSCategory(BxID,9).
```

```
highRiskBirads(BxID) :- bIRADSCategory(BxID,5).
```

```
radiology_advice_3(BxID) :- highRiskBirads(BxID).
```

```
riskIncreases(BxID) :- radiology_advice_3(BxID).
```

Mammographic Advice

Imaging Features

Risk of upgrade decreases if BIRADS category is low (3 or 4A).

```
lowRiskBirads(BxID) :- bIRADSCategory(BxID,3).
```

```
lowRiskBirads(BxID) :- bIRADSCategory(BxID,7).
```

```
radiology_advice_4(BxID) :- lowRiskBirads(BxID).
```

```
riskDecreases(BxID) :- radiology_advice_4(BxID).
```

Mammographic Advice

Incidental Findings

Risk of upgrade decreases if the worrisome pathology (ARS) is not associated with mammographic finding (incidental - **If RS or ADH or LobNeo are yes and incidental).**

```
riskDecreases(BxID) :-  
  concordancePrio1(BxID, 'ARS'),  
  ((adh(BxID, 'Y'), adHInc(BxID, 'Y'));  
   (lobula(BxID, 'Y'), lCISInc(BxID, 'Y'));  
   (radial(BxID, 'Y'), radialInc(BxID, 'Y'))).
```

Mammographic Advice

Incidental Findings

Risk of upgrade decreases if the worrisome pathology (ARS) is not associated with calcifications on pathology if the dominant imaging finding was microcalcifications. (If dominant imaging is for microcalcs and ADH or LobNeo is yes but no for microcalcs)

```
riskDecreases(BxID) :-  
    domiFinding(BxID,microcalcifications),  
    ((aDH(BxID,'Y'),  
      (aDHMicrocalc(BxID,'N'); aDHMicrocalc(BxID,'N/A')));  
     (lobula(BxID,'Y'),  
      (lCISMicrocalc(BxID,'N'); lCISMicrocalc(BxID,'N/A')))).
```

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Incidental Findings

Risk of upgrade decreases for (ARS) if the imaging finding is explained by another pathology (path priority 2, or if another concordant path present**).**

```
riskDecreases(BxID) :-  
    concordancePrio1(BxID, 'ARS'),  
    concordancePrio2(BxID, Other), \+ Other = 'ARS'.  
  
riskDecreases(BxID) :-  
    concordancePrio1(BxID, 'ARS'),  
    concordancePrio2(PathID2, 'C').
```


Mammographic Advice

Breast Tissue Density

Risk of upgrade increases in dense breasts on mammography (heterogeneously or extremely dense- Category 3 & 4).

```
riskIncreases(BxID) :-  
  (breastDensity(BxID, 'HeterogeneouslyDense');  
   breastDensity(BxID, 'ExtremelyDense')).
```

Mammographic Advice

Breast Tissue Density

Risk of upgrade increases if complexity/density of breast tissue is high (extremely dense-Category 4).

```
denseBreastTissue(AbnID) :-  
    breastDensity(AbnID, 'ExtremelyDense').
```

(Redundant)