INCIDENCE OF BENIGN BREAST PAPILLOMAS DIAGNOSED ON CORE BIOPSY WITH UPSTAGING TO ATYPIA OR MALIGNANCY ON SURGICAL EXCISIONAL BIOPSY

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PROBLEM
Solitary intraductal papillomas are the most common cause of unilateral spontaneous bloody nipple discharge in women aged 40-60.² Although papillomas are considered benign, the lesions are frequently surgically excised after diagnosis on core biopsy. Excision is performed due to a certain percentage of core biopsy cases being reclassified (upstaged) to atypia or malignancy on following excisional biopsy procedure, ranging from 5-21%.²

BACKGROUND
Solitary intraductal papillomas are benign, proliferative, mass forming lesions arising in the lactiferous ductal system of the breast, typically seen in women between 40 and 60. These lesions are part of a spectrum of papillary lesions of the breast (including multiple papillomas, papillomatosis and juvenile papillomatosis). Papillomas are a common cause of bloody, serous, or serosanguinous nipple discharge representing the causative agent for 40-70% of women presenting with pathologic nipple discharge.² Papillomas consist of a fibrovascular stalk with overlying epithelial layer, and project into the lumen of the central lactiferous ducts. Torsion of the stalk frequently generates pathologic nipple discharge.

Multiple prior studies have demonstrated significant variation in the rate of upstaging papillomas diagnosed at core biopsy. Some prior studies have demonstrated little or no reclassification to atypia or malignancy after excisional biopsy with other prior studies demonstrating upstage rates as high as 38%.³ This wide variation in upstage rate has led previous authors to recommend that individual institutions examine their own data regarding papillomas.

OBJECTIVE
The primary objective of the study is to determine the incidence of core biopsy diagnosis of intraductal papilloma and subsequent upstage rate to atypia or malignancy after excisional excisional biopsy. The secondary objective of the study is to analyze individual features of upstaged cases (as decided by pathology criteria) that may obviate the need for obligatory excisional biopsy for this not uncommon pathologic entity of the breast.

METHODS
This is a retrospective study. A pathology database for core biopsy diagnosed intraductal papilloma from 2010 through 2016 at Aurora facilities was reviewed and included all Aurora Health Care facilities. Information regarding incidence was collected from pathology reports from ultrasound core biopsy and stereotactic core biopsy, and then determine the percentage of these cases that underwent surgical excision and correlate the core biopsy result with the subsequent excisional biopsy results.

Pathology results were subdivided into benign papilloma without surgery, benign papilloma with negative excisional biopsy, papilloma with adjacent atypia or adjacent malignancy (in situ or invasive), papilloma with intrinsinc atypia, and papillomas harboring carcinoma in situ or invasive carcinoma. Our initial search encompassed all lesions including the terms papilloma, papillary lesion, and papillary tissue. The initial search led to a very large sample size with nonspecific results. Subsequently, the search was limited to intraductal papilloma and papillary lesion. Two pathologists independently reexamined the pathology slides of all the original core biopsies which later on excisional biopsy revealed atypia or malignancy. If any of these original core biopsies revealed at least focal atypia these cases were excluded from the study.

Descriptive statistics were used to report our results.

RESULTS
Table 1. Breakdown of papilloma cases and subsequent findings from 2010-2016.

<table>
<thead>
<tr>
<th>Year</th>
<th>Papilloma</th>
<th>Atypia</th>
<th>Malignancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>100</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>2011</td>
<td>150</td>
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<tr>
<td>2012</td>
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</tr>
<tr>
<td>2015</td>
<td>350</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td>2016</td>
<td>400</td>
<td>90</td>
<td>70</td>
</tr>
</tbody>
</table>

Of the 390 cases in our data population, 7 patients had an initial diagnosis of intraductal papilloma or papillary lesion on core biopsy and malignancy (in situ or invasive mammary carcinoma) on subsequent excisional biopsy following double blinded pathologic review of biopsy specimens. One patient was excluded from the study due to inconsistencies between initial core biopsy and final excisional biopsy pathology results.

3 of the 7 patients had a biopsy proven lesion that demonstrated initial biopsy with papilloma diagnosis. On imaging follow up, a malignancy developed within the existing lesion on repeat core biopsy.

4 of the 7 patients were excluded due inconsistencies between radiology and pathology diagnoses. 3 of the 7 cases had different sites biopsied on the initial and subsequent biopsies. One patient was excluded because the patient had simultaneous triple site biopsy, with one site demonstrating a papillary lesion and another site yielding ductal carcinoma in situ. See Figure 1.

CONCLUSIONS
Our data is compatible with a 1.3% (3 of 236 cases) risk of upstaging core biopsy diagnosis of intraductal papilloma to malignancy on subsequent excisional biopsy. This value is below the threshold of the 2% or less risk associated with a BI-RADS 3 designation for an imaging finding that would typically be followed up with 6-month imaging reassessment. These data adds additional support to the increasingly viable concept of a more conservative approach to patients after a core biopsy diagnosis of intraductal papilloma.

Regardless of the above results; clinical judgment should be considered. Conservative versus surgical management may be influenced by clinical presentation, risk status (prior history of cancer or atypia, family history) and imaging findings (mass lesion, potential imaging/pathologic discordance, or breast density) to make the appropriate next diagnostic step.

REFERENCES
5. Case courtesy of Dr. Alexandra Stanislawsky, Radiopaedia.org, rID: 31416