

## **SUPPLEMENTARY MATERIALS**

### **Time duration and health care resource use during cancer diagnoses in the United States:**

#### **A large claims database analysis**

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**Supplemental Table 1. Cancer Types Included and Identification Codes**

<b>Cancer Type</b>	<b>ICD-10-CM Diagnosis Codes</b>
Anal	C21.x
Bladder (including urinary bladder and urothelial)	C65.x, C66.x, C67.x
Breast	C50.xxx
Cervical	C53.x
Colorectal	C18.x, C19, C20
Esophagus	C15.x
Gallbladder	C23
Head and neck	C76.x
Kidney	C64.x
Leukemias	C91.xx, C92.xx, C93.xx, C94.xx
Liver (including bile duct)	C22.x, C78.x
Lung (including bronchus)	C34.xx
Lymphomas	C81.xx, C82.xx, C83.xx, C84.xx, C85.xx
Multiple myeloma	C90.xx
Ovarian	C56.x
Pancreas	C25.x
Prostate	C61
Stomach	C16.x
Thyroid	C73
Uterus	C54.x, C55

**Supplemental Table 2. Diagnostic Test Codes**

Diagnostic-related HRU Category	CPT Codes
<b>Imaging</b>	
CT	0042T, 0501T, 0502T, 0503T, 0504T, 0554T, 0555T, 0556T, 0557T, 0558T, 0633T, 0634T, 0635T, 0636T, 0637T, 0638T, 61751, 62284, 64451, 64625, 70450, 70460, 70470, 70480, 70481, 70482, 70486, 70487, 70488, 70490, 70491, 70492, 71250, 71260, 71270, 71271, 71275, 72125, 72126, 72127, 72128, 72129, 72130, 72131, 72132, 72133, 72191, 72192, 72193, 72194, 73200, 73201, 73202, 73560, 73562, 73700, 73701, 73702, 74150, 74160, 74170, 74174, 74175, 74176, 74177, 74178, 74261, 74262, 74263, 75571, 75572, 75573, 75635, 75989, 76376, 76377, 76380, 76497, 77011, 77012, 77013, 77014, 77078, 78072, 78830, 78832
MRI	S8037, 70336, 70540, 70542, 70543, 70544, 70547, 70549, 70551, 70552, 70553, 72141, 72146, 72156, 72157, 72158, 72159, 72195, 72196, 72197, 72198, 73218, 73219, 73220, 73221, 73222, 73223, 73225, 73718, 73719, 73720, 73721, 73722, 73723, 73725, 74181, 74182, 74183, 74185, 75557, 75559, 75561, 75563, 75565, 76376, 76377, 76390, 76391, 76498, 77049
Nuclear Medicine (including imaging [thyroid, parathyroid, adrenal, bone marrow, spleen, lymphatic and lymph nodes, liver, spleen, hepatobiliary system, salivary, gastric mucosa, gastric emptying, acute gastrointestinal blood loss, intestine, bone and/or joint, non-cardiac vascular flow, myocardial perfusion, acute venous thrombosis, myocardial, cardiac blood pool, pulmonary ventilation, brain, cerebrospinal fluid flow, kidney, testicular] and other diagnostic nuclear medicine procedures)	78012, 78013, 78014, 78015, 78016, 78018, 78020, 78070, 78071, 78072, 78075, 78099, 78102, 78103, 78104, 78110, 78111, 78120, 78121, 78122, 78130, 78140, 78185, 78191, 78195, 78199, 78201, 78202, 78215, 78216, 78226, 78227, 78230, 78231, 78232, 78258, 78261, 78262, 78264, 78265, 78266, 78267, 78268, 78278, 78282, 78290, 78291, 78299, 78300, 78305, 78306, 78315, 78350, 78351, 78399, 78414, 78428, 78445, 78451, 78452, 78453, 78454, 78456, 78457, 78458, 78459, 78466, 78468, 78469, 78472, 78473, 78481, 78483, 78491, 78492, 78494, 78496, 78499, 78579, 78580, 78582, 78597, 78598, 78599, 78600, 78601, 78605, 78606, 78608, 78609, 78610, 78630, 78635, 78645, 78650, 78660, 78699, 78700, 78701, 78707, 78708, 78709, 78725, 78730, 78740, 78761, 78799, 78800, 78801, 78802, 78803, 78804, 78808, 78830, 78831, 78832, 78835, 78999
PET	78429, 78430, 78431, 78433, 78811, 78812, 78813
PET-CT	78814, 78815, 78816
Radiology (including radiological examinations, x-rays, angiograms, mammograms, lymphangiography, shuntogram, splenoportography, and venography)	0348T, 0349T, 0350T, 36251, 36252, 36253, 36254, 70030, 70100, 70110, 70120, 70130, 70134, 70140, 70150, 70160, 70190, 70200, 70210, 70220, 70240, 70250, 70260, 70300, 70310, 70320, 70328, 70330, 70355, 70360, 70370, 70380, 71045, 71046, 71047, 71048, 71100, 71101, 71110, 71111, 71120, 71130, 72020, 72040, 72050, 72052, 72070, 72072, 72074, 72080, 72081, 72082, 72083, 72084, 72100, 72110, 72114, 72120, 72170, 72190, 72200, 72202, 72220, 73000, 73010, 73020, 73030, 73040, 73050, 73060, 73070, 73080, 73085, 73090, 73092, 73100, 73110, 73115, 73120, 73130, 73140, 73501, 73502, 73503, 73521, 73522, 73523, 73525, 73551, 73552, 73560, 73562, 73564, 73565, 73580, 73590, 73592, 73600, 73610, 73615, 73620, 73630, 73650, 73660, 74018, 74019, 74021, 74022, 74210, 74220, 74221, 74230, 74240, 74241, 74245, 74246, 74247, 74248, 74249, 74250, 74251, 74270, 74280, 74400, 74410, 74415, 74420, 74470, 75774, 75801, 75803, 75805, 75807, 75809, 75810, 75820, 75822, 75825, 75827, 75831, 75833, 75840, 75842, 75860, 75870, 75872, 75880, 75885, 75887, 75889, 75891, 75893, 76010, 76080, 76098, 76100, 76101, 76102, 77062, 77063, 77065, 77066, 77067, 77074, 77075, 77076, 78264, G0279, G9557

Diagnostic-related HRU Category	CPT Codes
Ultrasound	76506, 76510, 76511, 76512, 76513, 76514, 76516, 76519, 76529, 76536, 76604, 76641, 76642, 76700, 76705, 76706, 76770, 76775, 76776, 76800, 76801, 76802, 76805, 76810, 76811, 76812, 76813, 76814, 76815, 76816, 76817, 76818, 76819, 76820, 76821, 76825, 76826, 76827, 76828, 76830, 76831, 76856, 76857, 76870, 76872, 76873, 76881, 76882, 76885, 76886, 76932, 76936, 76937, 76940, 76941, 76942, 76945, 76946, 76948, 76965, 76975, 76977, 76978, 76979, 76981, 76982, 76983, 76998, 76999
<b>Endoscopy</b>	
Endoscopy without biopsy	0288T, 0651T, 29848, 31231, 31233, 31235, 31238, 31239, 31240, 31241, 31253, 31254, 31255, 31256, 31257, 31259, 31267, 31276, 31287, 31288, 31290, 31291, 31292, 31293, 31294, 31295, 31296, 31297, 31298, 3130F, 3132F, 3140F, 3141F, 31615, 31622, 31623, 31624, 31625, 31626, 31627, 31628, 31629, 31630, 31631, 31632, 31633, 31634, 31635, 31636, 31637, 31638, 31640, 31641, 31643, 31645, 31646, 33265, 33266, 33508, 37500, 37501, 43191, 43197, 43200, 43235, 43260, 43262, 43264, 44360, 44363, 44364, 44366, 44370, 44372, 44373, 44376, 44378, 44379, 44385, 44388, 45300, 45303, 45305, 45307, 45308, 45309, 45315, 45317, 45320, 45321, 45327, 45330, 45331, 45332, 45333, 45334, 45335, 45337, 45338, 45340, 45341, 45342, 45347, 45349, 45350, 45378, 45379, 45380, 45381, 45382, 45384, 45385, 45386, 45388, 45389, 45390, 45391, 45392, 45393, 45398, 46000, 46601, 46604, 46606, 46607, 46608, 46610, 46611, 46612, 46614, 46615, 47550, 47552, 47554, 47555, 47556, 49320, 50080, 50081, 50551, 50553, 50561, 50562, 50570, 50572, 50575, 50580, 50951, 50953, 50961, 50970, 50972, 50980, 56820, 57420, 57452, 58555, 62160, 62161, 62162, 62164, 62165, 74220, 74230, 91110, 91111, 96570, 96571, G0104, G0105, G0121
Endoscopy with biopsy	0653T, 3126F, 3150F, 29800, 29805, 29830, 29840, 29860, 29870, 29900, 31237, 31510, 31535, 31536, 31576, 31625, 31628, 31629, 31632, 31633, 31652, 31653, 31717, 32601, 32604, 32606, 32607, 32608, 32609, 38570, 38572, 38573, 39401, 39402, 43193, 43198, 43202, 43216, 43231, 43232, 43238, 43239, 43242, 43250, 43261, 44361, 44365, 44369, 44377, 44382, 44386, 44389, 44392, 44407, 45305, 45308, 45315, 45320, 45331, 45333, 45342, 45380, 45384, 45392, 45392, 46606, 46607, 46610, 46612, 46615, 47553, 49321, 50555, 50557, 50574, 50576, 50955, 50957, 50974, 50976, 52007, 52204, 52224, 52250, 52354, 56821, 57421, 57454, 57455, 57460, 58110, 58548, 58558, 60650
<b>Biopsy</b>	
Biopsy (Other biopsy included site-specific biopsy [e.g., breast or skin] as well as fine needle aspiration)	G0364, C1830, 0053U, 0087U, 0088U, 00100, 00120, 00124, 00126, 00164, 00170, 00172, 00174, 00176, 0200T, 0201T, 00322, 00454, 00522, 00702, 00792, 00940, 00942, 00944, 00948, 00950, 00952, 01112, 1160F, 3350F, 10004, 10005, 10006, 10007, 10008, 10009, 10010, 10011, 10012, 10021, 10022, 11102, 11103, 11104, 11105, 11106, 11107, 11400, 11401, 11402, 11403, 11404, 11406, 11420, 11421, 11422, 11423, 11424, 11426, 11440, 11441, 11442, 11443, 11444, 11446, 11450, 11451, 11462, 11463, 11470, 11471, 11600, 11601, 11602, 11603, 11604, 11606, 11620, 11621, 11622, 11623, 11624, 11626, 11640, 11641, 11642, 11643, 11644, 11646, 11755, 19081, 19082, 19083, 19084, 19085, 19086, 19100, 19101, 20200, 20205, 20206, 20220, 20225, 20240, 20245, 20250, 20251, 21550, 21920, 21925, 22510, 22511, 22512, 22513, 22514, 22515, 23065, 23066, 23100, 23101, 23105, 23106, 24065, 24066, 24100, 24101, 25065, 25066, 25100, 25101, 26100, 26105, 26110, 27040, 27041,

Diagnostic-related HRU Category	CPT Codes
	27050, 27052, 27323, 27324, 27330, 27331, 27613, 27614, 27620, 28050, 28052, 28054, 30100, 31050, 31051, 31652, 31653, 32096, 32097, 32098, 32400, 32408, 37200, 37609, 38220, 38221, 38222, 38500, 38505, 38510, 38520, 38525, 38530, 38531, 39000, 39010, 40490, 40808, 40940, 41100, 41105, 41108, 42100, 42400, 42405, 42800, 42804, 42806, 43605, 44010, 44020, 44025, 44100, 45100, 47000, 47001, 47100, 47543, 47700, 48100, 48102, 49000, 49010, 49180, 50200, 50205, 50606, 53200, 54100, 54105, 54435, 54500, 54505, 54800, 54865, 55700, 55705, 55706, 55812, 55842, 55862, 56605, 56606, 57100, 57105, 57109, 57500, 57531, 58100, 58210, 58900, 58960, 60100, 60540, 60545, 61140, 61575, 61576, 61750, 61751, 62269, 63275, 63276, 63277, 63278, 63280, 63281, 63282, 63283, 63285, 63286, 63287, 63290, 64795, 65410, 67346, 67400, 67450, 67810, 68100, 68510, 68525, 69100, 69105, 75970, 76932, 76942, 77002, 77012, 77021, 81551, 88233, 88300, 88302, 88304, 88305, 88307, 88309, 89290, 89291, 93505
<b>Laboratory</b>	
General urine and serum	G0476, 0096U, 80047, 80048, 80053, 80076, 81000, 81001, 81003, 83615, 84155, 84165, 84702, 84703, 84704, 85007, 85008, 85025, 85027, 85651, 85652, 86294, 86316, 86677, 87086, 87088, 88104, 88108, 88112, 88120, 88121, 88341, 88342, 480277
Genetic tests	3170F, 81162, 81163, 81164, 81165, 81166, 81167, 81212, 81215, 81216, 81217, 81445, 81479, 81519, 87623, 87624, 87625, 88182, 88184, 88185, 88187, 88188, 88189, 88360, S3711
Non-genetic cancer-specific tests	82105, 82106, 82378, 84152, 84153, 84154, 86140, 86141, 86304, 86664, 86665, 480376

**Supplemental Table 3. Index Date and First Diagnostic Test Date Definition Rationale**

<b>Date</b>	<b>Definition Rationale and Further Details</b>
<b>Index date</b>	The look-back period was restricted to 4-weeks to reduce misattribution of the reason for the visit as being linked to signs and symptoms related to cancer. In the case that the office visit was used to identify the index date, the visit date closest to the first diagnostic test date was selected.
<b>First Diagnostic Test Date</b>	The 60-day gap between diagnostic tests was chosen to allow for potential scheduling delays, follow-up office visits, and other events that may have caused a delay between tests in the same diagnostic pathway.

**Supplemental Table 4. TTD for All Cancer Patients and by Cancer Type**

<b>Cancer Type</b>	<b>N</b>	<b>Mean (days)</b>	<b>Median (days)</b>	<b>SE (days)</b>	<b>SD (days)</b>
<b>All Cancers<sup>a</sup></b>	<b>458,818</b>	<b>156.2</b>	<b>118.0</b>	<b>0.3</b>	<b>164.9</b>
Anal	1,387	176.7	138.0	4.2	156.1
Bladder <sup>b</sup>	39,949	121.6	102.0	0.8	149.3
Breast	120,859	135.5	100.0	0.4	130.8
Cervical	1,545	158.3	113.0	3.1	154.1
Colorectal	22,649	167.8	136.0	0.9	172.0
Esophagus	2,041	177.6	158.0	2.1	159.3
Gallbladder	385	170.5	113.0	9.6	170.7
Head and Neck	2,198	172.9	120.0	3.5	163.2
Kidney	38,322	157.7	99.0	1.6	167.6
Leukemia (Any)	15,741	170.4	98.0	1.5	187.4
Liver	4,201	181.6	135.0	3.1	185.3
Lung <sup>c</sup>	59,801	168.2	100.0	0.6	164.2
Lymphoma (Any)	19,103	182.5	120.0	1.3	184.5
Multiple Myeloma	5,490	229.0	194.0	1.9	119.7
Ovarian	4,334	151.5	115.0	2.1	179.4
Pancreas	3,061	131.2	90.0	3.8	184.6
Prostate	88,417	132.6	91.0	0.6	141.3
Stomach	1,491	205.7	161.0	5.2	154.9
Thyroid	18,525	124.6	81.0	1.2	138.0
Uterus	9,319	158.7	106.0	1.6	154.8

<sup>a</sup>“All cancers” includes 20 cancer types; <sup>b</sup> Bladder includes urothelial; <sup>c</sup>Lung includes bronchus; <sup>d</sup> Liver includes bile duct

**Supplementary Table 5. Diagnostic-related Health Care Resource Utilization During the Diagnostic Pathway by TTD Among Those Diagnosed with Bladder Cancer**

Bladder Cancer <sup>a</sup> N= 39,949	Time to Diagnosis <sup>c</sup>				Absolute Difference in % Diagnostic Resource Users “0 to 30 days” vs “>180 days”	Times Change in % Diagnostic Resource Users “0 to 30 days” vs “>180 days”
	0-30 Days (N=12,996)	>30-90 Days (N=17,603)	>90-180 Days (N=7,341)	>180 Days (N=2,009)		
	%	%	%	%		
<b>Imaging<sup>b</sup></b>						
CT	67.5	66.9	62.4	97.9	30.4	1.5x
PET/PET-CT	1.6	1.9	3.5	15.7	14.1	9.8x
MRI	10.2	9.6	13.5	32.8	22.6	3.2x
Nuclear medicine <sup>c</sup>	7.3	7.6	11.3	29.3	22.0	4.0x
Radiology <sup>d</sup>	76.6	90.7	76.9	77.1	0.5	1.0x
Ultrasound	84.3	90.5	93.3	81	-3.3	1.0x
<b>Endoscopy</b>						
Endoscopy without biopsy	22.9	18.6	53.5	66.1	43.2	2.9x
Endoscopy with biopsy	14.7	13.5	17.7	36.4	21.7	2.5x
<b>Other Biopsies</b>						
	30.8	28.7	36.8	76.1	45.3	2.5x
<b>Laboratory<sup>b</sup></b>						
Genetic Tests	2.0	1.8	2.8	8.5	6.5	4.3x
General urine & serum tests	95.8	98.5	98.1	92.2	-3.6	1.0x
Non-genetic cancer-specific lab tests	72.4	72.8	73.4	78.7	6.3	1.1x

<sup>a</sup>Bladder includes urothelial; <sup>b</sup>The number of imaging or laboratory procedures were counted as 1 if multiple claims for the same procedure or test were present on the same day; <sup>c</sup> Nuclear medicine includes imaging (thyroid, parathyroid, adrenal, bone marrow, spleen, lymphatic and lymph nodes, liver, spleen, hepatobiliary system, salivary, gastric mucosa, gastric emptying, acute gastrointestinal blood loss, intestine, bone and/or joint, non-cardiac vascular flow, myocardial perfusion, acute venous thrombosis, myocardial, cardiac blood pool, pulmonary ventilation, brain, cerebrospinal fluid flow, kidney, testicular) and other diagnostic nuclear medicine procedures (full code list in supplemental materials); <sup>d</sup>Radiology includes radiological examinations, x-rays, angiograms, mammograms, tomosynthesis, lymphangiography, shuntogram, splenoportography, and venography. <sup>e</sup> Time to diagnosis cohorts had variable follow-up periods. CT, computerized tomography; MRI, magnetic resonance imaging; PET, positron emission tomography



**Supplementary Table 6. Diagnostic-related Health Care Resource Utilization During the Diagnostic Pathway by TTD Among Those Diagnosed with Breast Cancer**

Breast Cancer Patients Diagnosed N= 120,859	Time to Diagnosis <sup>d</sup>				Absolute Difference in % Diagnostic Resource Users “0 to 30 days” vs “>180 days”	Times Change in % Diagnostic Resource Users “0 to 30 days” vs “>180 days”
	0-30 Days (N=53,790)	>30-90 Days (N=50,834)	>90-180 Days (N=10724)	>180 Days (N=5,511)		
	%	%	%	%		
<b>Imaging<sup>a</sup></b>						
CT	22.2	24	60.8	66.9	44.7	3.0x
PET/PET-CT	3.2	3.8	11.1	32.4	29.2	10.1x
MRI	29.6	13.1	35.5	60	30.4	2.0x
Nuclear medicine <sup>b</sup>	9.5	11.3	31.6	59.8	50.3	6.3x
Radiology <sup>c</sup>	75.5	77.8	91.5	93.3	17.8	1.2x
Ultrasound	36.9	32.4	45.0	51.5	14.6	1.4x
<b>Endoscopy</b>						
Endoscopy without biopsy	0.0	0.0	0.0	0.0	0.0	-
Endoscopy with biopsy	43.9	46.7	64.6	27.7	-16.2	0.6x
<b>Other Biopsies</b>						
	53.5	56.3	78.5	98.3	44.8	1.8x
<b>Laboratory<sup>a</sup></b>						
Genetic Tests	31.9	16.0	46.5	70.0	38.1	2.2x
General urine & serum tests	99.9	99.3	97.9	100.0	0.1	1.0x
Non-genetic cancer-specific lab tests	12.1	11.8	29.2	49.8	37.7	4.4x

<sup>a</sup> The number of imaging or laboratory procedures were counted as 1 if multiple claims for the same procedure or test were present on the same day; <sup>b</sup> Nuclear medicine includes imaging (thyroid, parathyroid, adrenal, bone marrow, spleen, lymphatic and lymph nodes, liver, spleen, hepatobiliary system, salivary, gastric mucosa, gastric emptying, acute gastrointestinal blood loss, intestine, bone and/or joint, non-cardiac vascular flow, myocardial perfusion, acute venous thrombosis, myocardial, cardiac blood pool, pulmonary ventilation, brain, cerebrospinal fluid flow, kidney, testicular) and other diagnostic nuclear medicine procedures (full code list in supplemental materials); <sup>c</sup> Radiology includes radiological examinations, x-rays, angiograms, mammograms, tomosynthesis, lymphangiography, shuntogram, splenoportography, and venography. <sup>d</sup> Time to diagnosis cohorts had variable follow-up periods. CT, computerized tomography; MRI, magnetic resonance imaging; PET, positron emission tomography

**Supplementary Table 7. Diagnostic-related Health Care Resource Utilization During the Diagnostic Pathway by TTD Among Those Diagnosed with Colorectal Cancer**

Colorectal Cancer Patients Diagnosed N= 22,649	Time to Diagnosis <sup>d</sup>				Absolute Difference in % Diagnostic Resource Users “0 to 30 days” vs “>180 days”	Times Change in % Diagnostic Resource Users “0 to 30 days” vs “>180 days”
	0-30 Days (N=1,679)	>30-90 Days (N=2,721)	>90-180 Days (N=8,147)	>180 Days (N=10,102)		
	%	%	%	%		
<b>Imaging<sup>a</sup></b>						
CT	68.7	80.2	93.3	93.3	24.6	1.4x
PET/PET-CT	41.2	35.3	7.9	7.9	-33.3	0.2x
MRI	99.4	84.8	87.4	87.4	-12.0	0.9x
Nuclear medicine <sup>b</sup>	54.3	35.9	8.0	8.0	-46.3	0.1x
Radiology <sup>c</sup>	99.4	95.3	91.6	91.6	-7.8	0.9x
Ultrasound	0.0	0.0	0.0	0.0	0.0	-
<b>Endoscopy</b>						
Endoscopy without biopsy	58.8	56.0	31.2	54.1	-4.7	0.9x
Endoscopy with biopsy	95.2	92.0	80.1	85.5	-9.7	0.9x
<b>Other Biopsies</b>						
	74.9	78.6	78.9	85.2	10.3	1.1x
<b>Laboratory<sup>a</sup></b>						
Genetic Tests	36.7	22.4	9.4	10.6	-26.1	0.3x
General urine & serum tests	95.4	96.2	96.9	92.9	-2.5	1.0x
Non-genetic cancer-specific lab tests	77.9	94.7	78.0	87.8	9.9	1.1x

<sup>a</sup> The number of imaging or laboratory procedures were counted as 1 if multiple claims for the same procedure or test were present on the same day; <sup>b</sup> Nuclear medicine includes imaging (thyroid, parathyroid, adrenal, bone marrow, spleen, lymphatic and lymph nodes, liver, spleen, hepatobiliary system, salivary, gastric mucosa, gastric emptying, acute gastrointestinal blood loss, intestine, bone and/or joint, non-cardiac vascular flow, myocardial perfusion, acute venous thrombosis, myocardial, cardiac blood pool, pulmonary ventilation, brain, cerebrospinal fluid flow, kidney, testicular) and other diagnostic nuclear medicine procedures (full code list in supplemental materials); <sup>c</sup> Radiology includes radiological examinations, x-rays, angiograms, mammograms, tomosynthesis, lymphangiography, shuntogram, splenoportography, and venography. <sup>d</sup> Time to diagnosis cohorts had variable follow-up periods. CT, computerized tomography; MRI, magnetic resonance imaging; PET, positron emission tomography

**Supplementary Table 8. Diagnostic-related Health Care Resource Utilization During the Diagnostic Pathway by TTD Among Those Diagnosed with Lung Cancer**

Lung Cancer <sup>a</sup> Patients Diagnosed N= 59,801	Time to Diagnosis <sup>c</sup>				Absolute Difference in % Diagnostic Resource Users “0 to 30 days” vs “>180 days”	Times Change in % Diagnostic Resource Users “0 to 30 days” vs “>180 days”
	0-30 Days (N=18,732)	>30-90 Days (N=29,834)	>90-180 Days (N=5,724)	>180 Days (N=5,511)		
	%	%	%	%		
<b>Imaging<sup>b</sup></b>						
CT	58.5	73.1	81.2	77.0	18.5	1.3x
PET/PET-CT	13.0	11.1	50.2	53.2	40.2	4.1x
MRI	22.1	25.9	42.4	48.9	26.8	2.2x
Nuclear medicine <sup>c</sup>	6.5	5.3	22.5	23.8	17.3	3.7x
Radiology <sup>d</sup>	23.5	18.7	78.2	72.5	49.0	3.1x
Ultrasound	61.5	67.5	60.3	64.1	2.6	1.0x
<b>Endoscopy</b>						
Endoscopy without biopsy	45.5	57.2	65.2	60.3	14.8	1.3x
Endoscopy with biopsy	7.9	6.7	32.1	32.5	24.6	4.1x
<b>Other Biopsies</b>						
	45.4	25.4	66.8	64.4	19.0	1.4x
<b>Laboratory<sup>b</sup></b>						
Genetic Tests	4.5	4.2	20.7	23.0	18.5	5.1x
General urine & serum tests	97.4	91.0	97.8	97.0	-0.4	1.0x
Non-genetic cancer-specific lab tests	9.8	7.6	33.4	34.9	25.1	3.6x

<sup>a</sup> Lung includes bronchus; <sup>b</sup> The number of imaging or laboratory procedures were counted as 1 if multiple claims for the same procedure or test were present on the same day; <sup>c</sup> Nuclear medicine includes imaging (thyroid, parathyroid, adrenal, bone marrow, spleen, lymphatic and lymph nodes, liver, spleen, hepatobiliary system, salivary, gastric mucosa, gastric emptying, acute gastrointestinal blood loss, intestine, bone and/or joint, non-cardiac vascular flow, myocardial perfusion, acute venous thrombosis, myocardial, cardiac blood pool, pulmonary ventilation, brain, cerebrospinal fluid flow, kidney, testicular) and other diagnostic nuclear medicine procedures (full code list in supplemental materials); <sup>d</sup> Radiology includes radiological examinations, x-rays, angiograms, mammograms, tomosynthesis, lymphangiography, shuntogram, splenoportography, and venography. <sup>e</sup> Time to diagnosis cohorts had variable follow-up periods. CT, computerized tomography; MRI, magnetic resonance imaging; PET, positron emission tomography

**Supplementary Table 9. Diagnostic-related Health Care Resource Utilization During the Diagnostic Pathway by TTD Among Those Diagnosed with Ovarian Cancer**

Ovarian Cancer Patients Diagnosed N= 4,334	Time to Diagnosis <sup>d</sup>				Absolute Difference in % Diagnostic Resource Users “0 to 30 days” vs “>180 days”	Times Change in % Diagnostic Resource Users “0 to 30 days” vs “>180 days”
	0-30 Days (N=1,223)	>30-90 Days (N=1,066)	>90-180 Days (N=1,093)	>180 Days (N=952)		
	%	%	%	%		
<b>Imaging<sup>a</sup></b>						
CT	73.7	80.6	46.7	95.1	21.4	1.3x
PET/PET-CT	12.4	15.5	11.3	33.3	20.9	2.7x
MRI	25.9	27.4	18	36.2	10.3	1.4x
Nuclear medicine <sup>b</sup>	11.2	13.0	8.8	19.9	8.7	1.8x
Radiology <sup>c</sup>	77.8	81.8	44.7	87.9	10.1	1.1x
Ultrasound	9.2	11.3	12.5	18.1	8.9	2.0x
<b>Endoscopy</b>						
Endoscopy without biopsy	0.0	0.0	0.0	0.0	0.0	-
Endoscopy with biopsy	18.5	22.7	14.7	29.5	11.0	1.6x
<b>Other Biopsies</b>						
	66.2	68.9	68.9	79.0	12.8	1.2x
<b>Laboratory<sup>a</sup></b>						
Genetic Tests	27.4	34.4	38.9	42.2	14.8	1.5x
General urine & serum tests	94.3	96.5	89.8	99.8	5.5	1.1x
Non-genetic cancer-specific lab tests	83.0	82.9	83.6	96.6	13.6	1.2x

<sup>a</sup> The number of imaging or laboratory procedures were counted as 1 if multiple claims for the same procedure or test were present on the same day; <sup>b</sup> Nuclear medicine includes imaging (thyroid, parathyroid, adrenal, bone marrow, spleen, lymphatic and lymph nodes, liver, spleen, hepatobiliary system, salivary, gastric mucosa, gastric emptying, acute gastrointestinal blood loss, intestine, bone and/or joint, non-cardiac vascular flow, myocardial perfusion, acute venous thrombosis, myocardial, cardiac blood pool, pulmonary ventilation, brain, cerebrospinal fluid flow, kidney, testicular) and other diagnostic nuclear medicine procedures (full code list in supplemental materials); <sup>c</sup> Radiology includes radiological examinations, x-rays, angiograms, mammograms, tomosynthesis, lymphangiography, shuntogram, splenoportography, and venography. <sup>d</sup> Time to diagnosis cohorts had variable follow-up periods. CT, computerized tomography; MRI, magnetic resonance imaging; PET, positron emission tomography

**Supplementary Table 10. Diagnostic-related Health Care Resource Utilization During the Diagnostic Pathway by TTD Among Those Diagnosed with Pancreas Cancer**

Pancreas Cancer Patients Diagnosed N= 3,061	Time to Diagnosis <sup>d</sup>				Absolute Difference in % Diagnostic Resource Users “0 to 30 days” vs “>180 days”	Times Change in % Diagnostic Resource Users “0 to 30 days” vs “>180 days”
	0-30 Days (N=1,392)	>30-90 Days (N=1,082)	>90-180 Days (N=394)	>180 Days (N=193)		
	%	%	%	%		
<b>Imaging<sup>a</sup></b>						
CT	45.6	73.2	99.0	94.8	49.2	2.1x
PET/PET-CT	9.7	17.2	43.4	99.5	89.8	10.3x
MRI	23.2	35.0	71.3	82.4	59.2	3.6x
Nuclear medicine <sup>b</sup>	8.0	15.7	28.9	90.2	82.2	11.3x
Radiology <sup>c</sup>	39.3	60.4	83.5	98.5	59.2	2.5x
Ultrasound	7.4	4.0	9.6	24.4	17.0	3.3x
<b>Endoscopy</b>						
Endoscopy without biopsy	2.1	1.4	4.6	16.1	14.0	7.7x
Endoscopy with biopsy	36.8	45.3	70.3	99.5	62.7	2.7x
<b>Other Biopsies</b>						
	36.0	55.8	86.6	90.2	54.2	2.5x
<b>Laboratory<sup>a</sup></b>						
Genetic Tests	21	20.9	24.1	84.5	63.5	4.0x
General urine & serum tests	85.6	72.4	94.9	94.3	8.7	1.1x
Non-genetic cancer-specific lab tests	24.4	77	75.9	88.6	64.2	3.6x

<sup>a</sup> The number of imaging or laboratory procedures were counted as 1 if multiple claims for the same procedure or test were present on the same day; <sup>b</sup> Nuclear medicine includes imaging (thyroid, parathyroid, adrenal, bone marrow, spleen, lymphatic and lymph nodes, liver, spleen, hepatobiliary system, salivary, gastric mucosa, gastric emptying, acute gastrointestinal blood loss, intestine, bone and/or joint, non-cardiac vascular flow, myocardial perfusion, acute venous thrombosis, myocardial, cardiac blood pool, pulmonary ventilation, brain, cerebrospinal fluid flow, kidney, testicular) and other diagnostic nuclear medicine procedures (full code list in supplemental materials); <sup>c</sup> Radiology includes radiological examinations, x-rays, angiograms, mammograms, tomosynthesis, lymphangiography, shuntogram, splenoportography, and venography. <sup>d</sup> Time to diagnosis cohorts had variable follow-up periods. CT, computerized tomography; MRI, magnetic resonance imaging; PET, positron emission tomography

**Supplementary Table 11. Diagnostic-related Health Care Resource Utilization During the Diagnostic Pathway by TTD Among Those Diagnosed with Prostate Cancer**

Prostate Cancer Patients Diagnosed N= 88,417	Time to Diagnosis <sup>d</sup>				Absolute Difference in % Diagnostic Resource Users “0 to 30 days” vs “>180 days”	Times Change in % Diagnostic Resource Users “0 to 30 days” vs “>180 days”
	0-30 Days (N=34,179)	>30-90 Days (N=24,473)	>90-180 Days (N=17,124)	>180 Days (N=12,641)		
	%	%	%	%		
<b>Imaging<sup>a</sup></b>						
CT	50.0	67.5	50.8	51.9	1.9	1.0x
PET/PET-CT	3.0	4.2	3.5	3.7	0.7	1.2x
MRI	26.4	36.3	27.5	19.3	-7.1	0.7x
Nuclear medicine <sup>b</sup>	24.3	35.9	28.6	21.9	-2.4	0.9x
Radiology <sup>c</sup>	74.4	71.9	81.1	83.4	9.0	1.1x
Ultrasound	14.6	18.7	21.4	21.0	6.4	1.4x
<b>Endoscopy</b>						
Endoscopy without biopsy	6.2	8.1	9.3	10.8	4.6	1.7x
Endoscopy with biopsy	15.1	19.0	13.2	9.9	-5.2	0.7x
<b>Other Biopsies</b>						
	95.1	97.9	94.5	96.4	1.3	1.0x
<b>Laboratory<sup>a</sup></b>						
Genetic Tests	2.9	4.2	3.5	3.2	0.3	1.1x
General urine & serum tests	94.8	99.9	99.2	100.0	5.2	1.1x
Non-genetic cancer-specific lab tests	89.5	99.2	64.1	39.8	-49.7	0.4x

<sup>a</sup> The number of imaging or laboratory procedures were counted as 1 if multiple claims for the same procedure or test were present on the same day; <sup>b</sup> Nuclear medicine includes imaging (thyroid, parathyroid, adrenal, bone marrow, spleen, lymphatic and lymph nodes, liver, spleen, hepatobiliary system, salivary, gastric mucosa, gastric emptying, acute gastrointestinal blood loss, intestine, bone and/or joint, non-cardiac vascular flow, myocardial perfusion, acute venous thrombosis, myocardial, cardiac blood pool, pulmonary ventilation, brain, cerebrospinal fluid flow, kidney, testicular) and other diagnostic nuclear medicine procedures (full code list in supplemental materials); <sup>c</sup> Radiology includes radiological examinations, x-rays, angiograms, mammograms, tomosynthesis, lymphangiography, shuntogram, splenoportography, and venography. <sup>d</sup> Time to diagnosis cohorts had variable follow-up periods. CT, computerized tomography; MRI, magnetic resonance imaging; PET, positron emission tomography