Multi-morbidity in Leicester an overview

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Multimorbidity Drives Cost

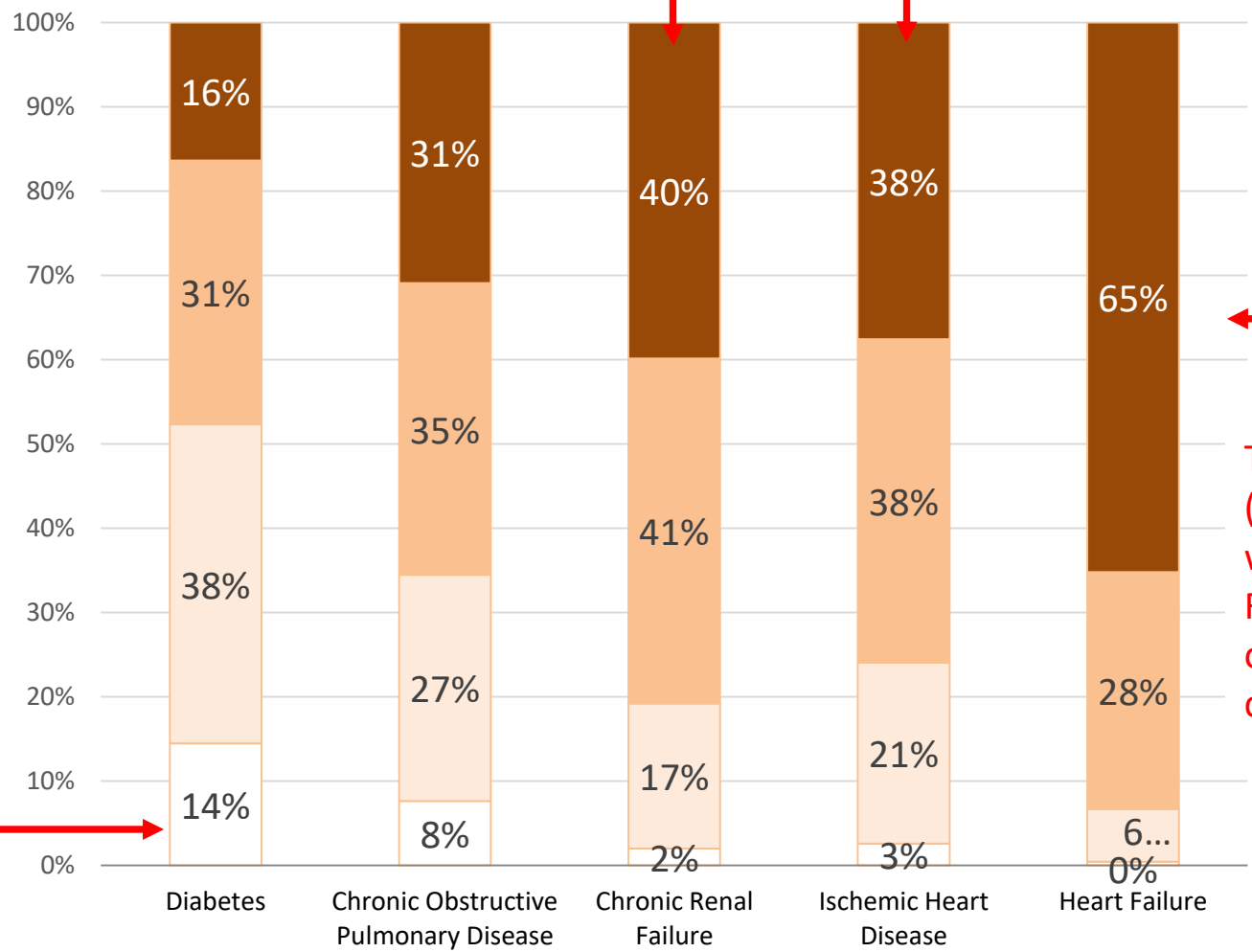Increasing multimorbidity is associated with higher costs and resource use:

LTC Count	Number of patients	% of patients	Average (mean)								
			Emergency admissions	Elective Admissions	A&E attendances	Outpatient attendances	Total APC cost	Emergency admission cost	Unique Prescription types	Risk of Emergency Admission	Risk of Persistent High Cost
0	250,269	61.7%	0.0	0.0	0.3	0.4	£ 50.55	£ 34.56	1.0	6%	1%
1	69,065	17.0%	0.1	0.1	0.4	1.1	£ 169.42	£ 90.81	2.8	12%	3%
2	32,849	8.1%	0.1	0.2	0.4	1.8	£ 301.89	£ 138.95	4.8	17%	7%
3	19,067	4.7%	0.2	0.3	0.5	2.4	£ 490.95	£ 214.77	6.7	22%	13%
4	12,041	3.0%	0.2	0.4	0.5	3.0	£ 664.20	£ 310.83	8.3	27%	20%
5	7,739	1.9%	0.4	0.5	0.7	3.8	£ 995.25	£ 483.40	9.9	33%	29%
6	4,893	1.2%	0.5	0.7	0.7	4.5	£ 1,318.20	£ 702.84	11.3	39%	37%
7	3,289	0.8%	0.7	0.8	0.9	5.3	£ 1,867.63	£ 1,108.36	12.5	46%	45%
8+	6,452	1.6%	1.4	1.0	1.6	6.9	£ 3,795.74	£ 2,716.70	15.1	61%	61%
Total	405,664	100%	0.1	0.1	0.3	1.1	£ 237.66	£ 137.25	2.7	11%	5%

Multimorbidity is the norm…
…and varies by condition type

Chronic condition and co-morbidity count

Legend:
- ☐ Single Condition
- ☐ 1-3 conditions
- ☐ 4-6 conditions
- ■ 7+ conditions

Annotations:

Two-fifths (c.40%) of people with CRF or with IHD have 7 or more chronic conditions

Two-thirds (65%) of people with Heart Failure have 7 or more chronic conditions

14% of people with diabetes have no other chronic condition

Chart data:

	Diabetes	Chronic Obstructive Pulmonary Disease	Chronic Renal Failure	Ischemic Heart Disease	Heart Failure
7+ conditions	16%	31%	40%	38%	65%
4-6 conditions	31%	35%	41%	38%	28%
1-3 conditions	38%	27%	17%	21%	6…
Single Condition	14%	8%	2%	3%	0%

Multimorbidity Drives Cost – adults

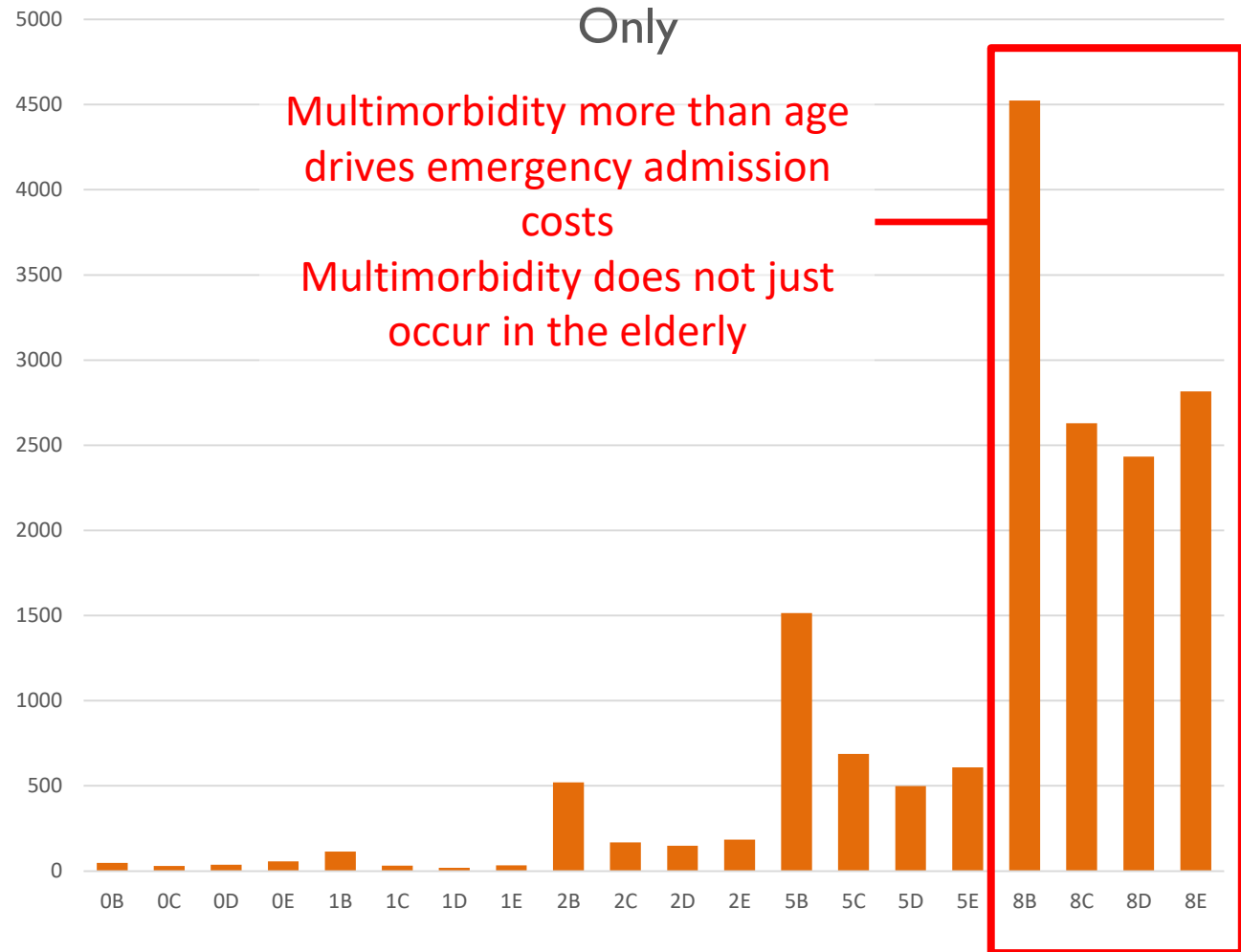Segments created by combining age of patient and the number of chronic conditions they have:

Number denotes number of chronic conditions:
- 0 = 0
- 1 = 1
- 2 = 2 to 4
- 5 = 5 to 7
- 8 = 8 or more

Letter denotes age band:
- A = 0-17
- B = 18-44
- C = 45-64
- D = 65-79
- E = 80+

Mean Emergency Cost by Segment - Adults Only

Multimorbidity more than age drives emergency admission costs
Multimorbidity does not just occur in the elderly

Not All Patients with a Particular LTC are the Same

Diabetes & multimorbidity:

	Number of patients	% of patients	Average (mean values)								
			A&E attendances	Outpatient attendances	Elective Admissions	Emergency admissions	Total APC cost	Emergency admission cost	Unique Prescription types	Risk of Persistent High Cost	Risk of Emergency Admission
Diabetes only	4,391	14.5%	0.3	1.3	0.0	0.0	£ 66	£ 40	4.2	5%	13%
Diabetes + 1 other LTC	6,021	19.8%	0.2	1.4	0.1	0.0	£ 103	£ 45	6.0	8%	15%
Diabetes + 2 other LTC	5,462	18.0%	0.3	1.9	0.2	0.1	£ 215	£ 94	7.8	13%	19%
Diabetes + 3 other LTC	4,198	13.8%	0.4	2.6	0.2	0.1	£ 355	£ 157	9.6	21%	24%
Diabetes + 4 other LTC	3,184	10.5%	0.5	3.3	0.4	0.2	£ 602	£ 270	10.8	29%	30%
Diabetes + 5 other LTC	2,116	7.0%	0.5	4.2	0.5	0.3	£ 893	£ 421	12.2	37%	36%
Diabetes + 6 other LTC	1,535	5.1%	0.8	5.0	0.6	0.5	£ 1,384	£ 859	13.7	46%	44%
Diabetes + 7 other LTC	1,085	3.6%	0.9	5.6	0.8	0.7	£ 2,104	£ 1,211	14.4	54%	50%
Diabetes + 8 or more LTC	2,344	7.7%	1.7	7.6	1.0	1.6	£ 4,133	£ 3,085	17.1	70%	65%
Total	30,337	100%	0.5	2.9	0.3	0.3	£ 708	£ 436	9.0	23%	26%

Long Term Condition Count by Age Band

LTC Count	00-04	05-11	12-17	18-34	35-44	45-54	55-64	65-69	70-74	75-79	80-84	85+	Total	% of Total
0	21,104	33,189	24,231	95,219	39,310	22,200	10,260	2,144	1,213	595	365	439	250,269	61.7%
1	2,301	4,200	3,755	18,766	12,142	12,395	9,395	2,614	1,640	879	555	423	69,065	17.0%
2	343	686	660	5,307	4,411	6,712	7,443	2,879	1,962	1,107	753	586	32,849	8.1%
3	88	162	175	1,766	1,724	3,281	4,933	2,316	1,798	1,294	827	703	19,067	4.7%
4	36	59	59	641	740	1,694	2,951	1,658	1,475	1,088	822	818	12,041	3.0%
5	13	36	17	265	327	802	1,659	1,113	1,046	916	791	754	7,739	1.9%
6	13	12	9	99	151	405	986	705	658	648	583	624	4,893	1.2%
7	6	3	9	63	73	217	539	404	457	472	495	551	3,289	0.8%
8+	4	12	9	68	95	302	865	711	871	1,030	1,109	1,376	6,452	1.6%
Total	23,908	38,359	28,924	122,194	58,973	48,008	39,031	14,544	11,120	8,029	6,300	6,274	405,664	100%

Segmenting Emergency Admissions – by *Volume*

% of No. of Emergency Admissions Segment

Older People with 5 or more LTCs, 5243, 20%

Children with no LTCs, 4209, 16%

Children with 1-4

Children with 5 or more LTCs, 92, 0%

Older People with 1-4 LTCs, 1242, 5%

Older people with no LTCs, 337, 1%

AOWA with 5 or more LTCs, 2790, 10%

AOWA with no LTCs, 5630, 21%

AOWA with 1-4 LTCs, 5765, 21%

- Children – 0-17 years
- AOWA – adults of working age 18-64 years
- Older people- 65 years and older
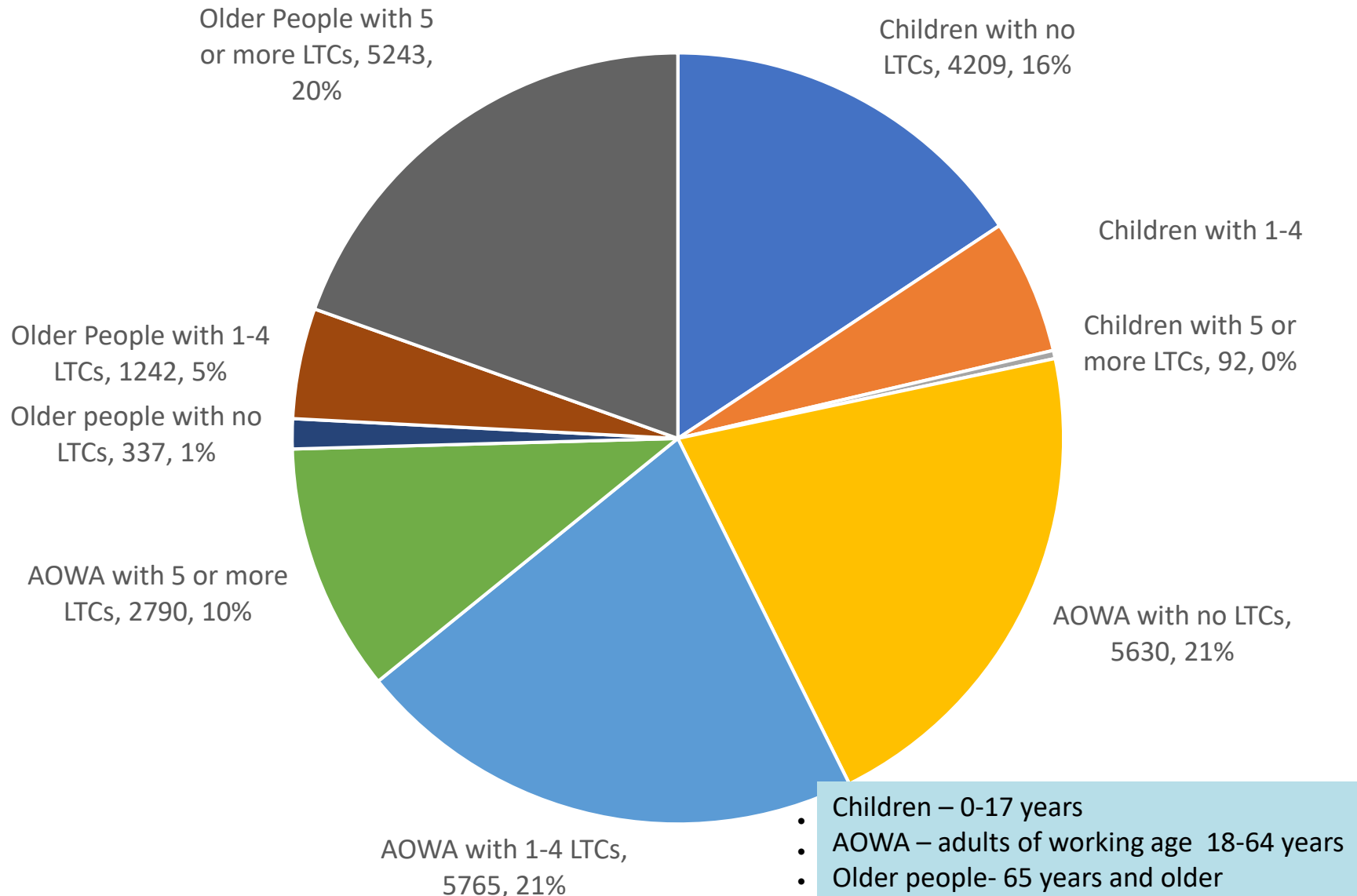
Segmenting Emergency Admissions – by *Cost*

% of Emergency Admission Costs by Segment

Children with no LTCs
8%

Children with 1-4 LTCs
5%

Children with 5 or more LTCs
2%

AOWA with no LTCs
15%

AOWA with 1-4 LTCs
16%

AOWA with 5 or more LTCs
15%

Older people with no LTCs
1%

Older People with 1-4 LTCs
4%

Older People with 5 or more LTCs
34%
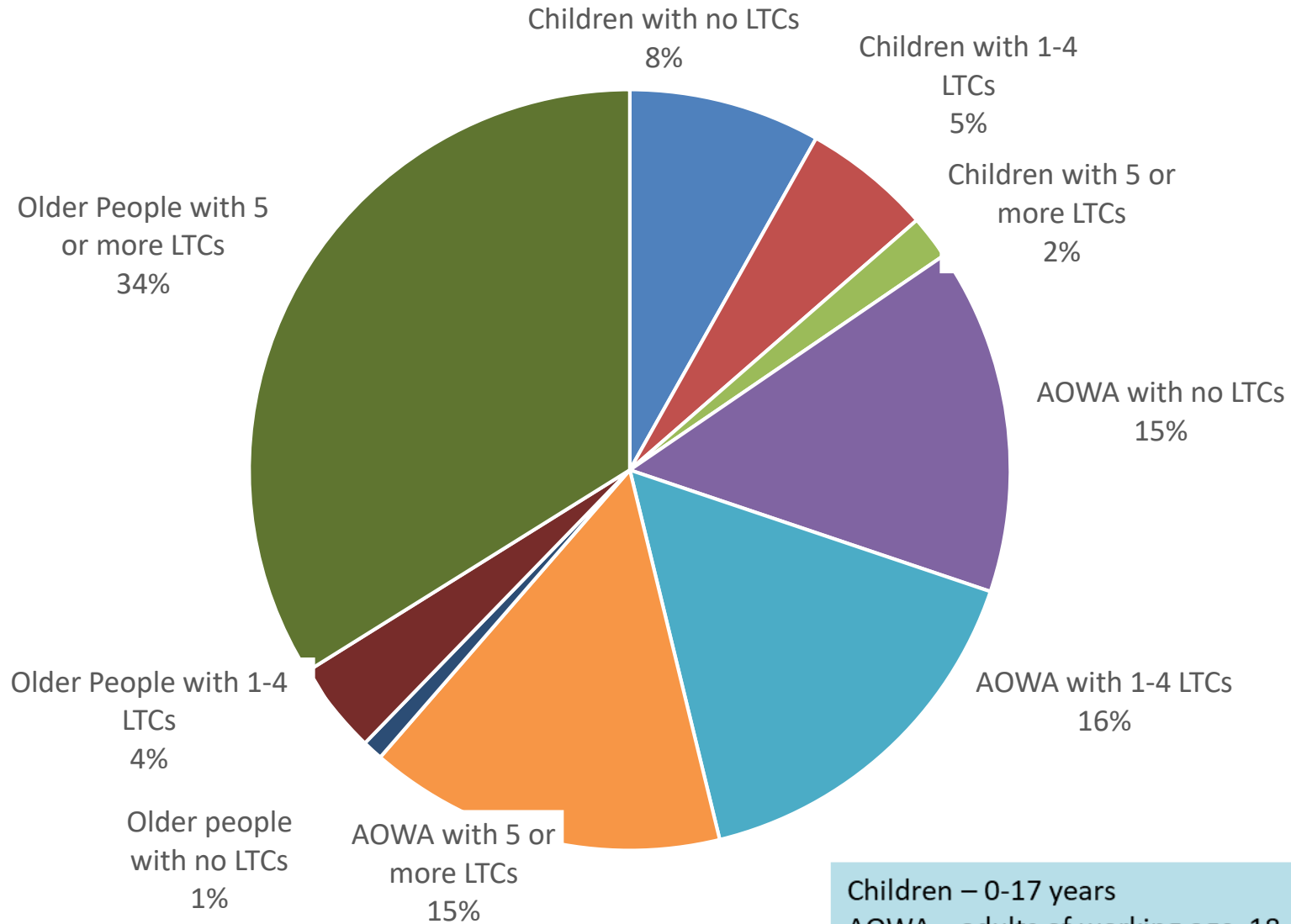
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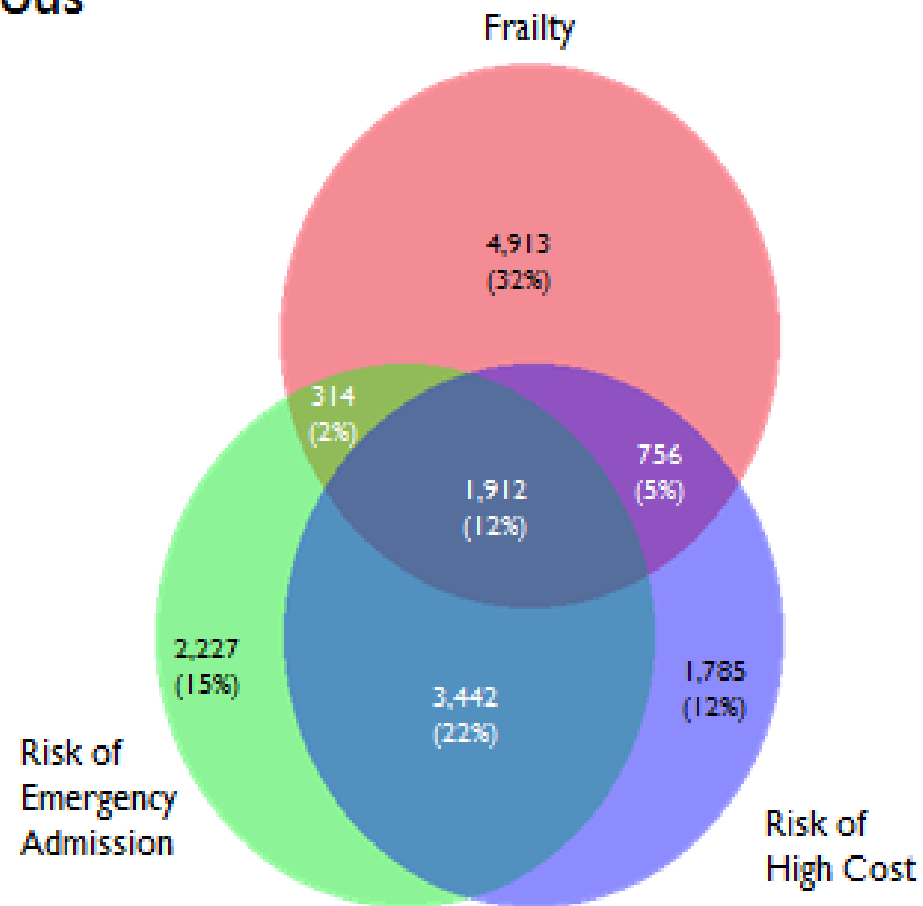Older people- 65 years and older

High Risk Groups are Not Homogeneous

Three cohorts of patients:

- Those who are flagged in the ACG System as having at least one condition associated with frailty (n=7,895)

- Those most at risk of an emergency admission in coming year (n=7,895)

- Those at risk of highest costs in coming year (n=7,895)

Total number of unique individuals = 15,349

- The degree of overlap between these different cohorts or segments isn't as great as people have traditionally thought.

- Therefore need to think about what cohort or segment of the population you are interested in and match the right predictive model or case finding technique to that segment.

Frailty

4,913 (32%)

314 (2%)

756 (5%)

1,912 (12%)

2,227 (15%)

3,442 (22%)

1,785 (12%)

Risk of Emergency Admission

Risk of High Cost

Segments of Venn Diagram are proportional to numbers.
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