Chronic Kidney Disease is Common and Expensive and Interacts with Diabetes and Cardiovascular Disease in the Dually-Enrolled Population

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Chronic Kidney Disease (CKD) in the U.S.

- 9% Prevalence in adult population
- Fewer than 1 in 5 aware they have it *
- Primary complications:
  - Cardiovascular disease
  - Progression to End-Stage Renal Disease (ESRD)
- Early detection and appropriate management of CKD can reduce CV complications and delay progression to ESRD

* Coresh, *J Am Soc Nephrol*. 2005;16:180-188.

Medicare/Medicaid Dually-Enrolled Population

- 17% of the Medicare population;
  28% of Medicare costs (1997)
- 15% of the Medicaid population;
  41% of Medicaid costs (2002)
- States pay a portion of Medicaid costs
- High burden of chronic disease
- CKD absent from most descriptions of chronic disease burden

Study objective

Analyze the prevalence and Medicare costs for patients diagnosed with each of the following diseases, including study of patients carrying more than one of the diagnoses: CKD, diabetes (DM), congestive heart failure (CHF), and ESRD.

Methods: Data sources and cohorts

Data source: 2004 Medicare 5% sample

Medicare cohort:

- Part A and part B coverage throughout 2004
- Survived entire year
- Not enrolled in Medicare Advantage

Dually-Enrolled cohort:

- As above, plus:
- State buy-in of Part B premium all 12 months

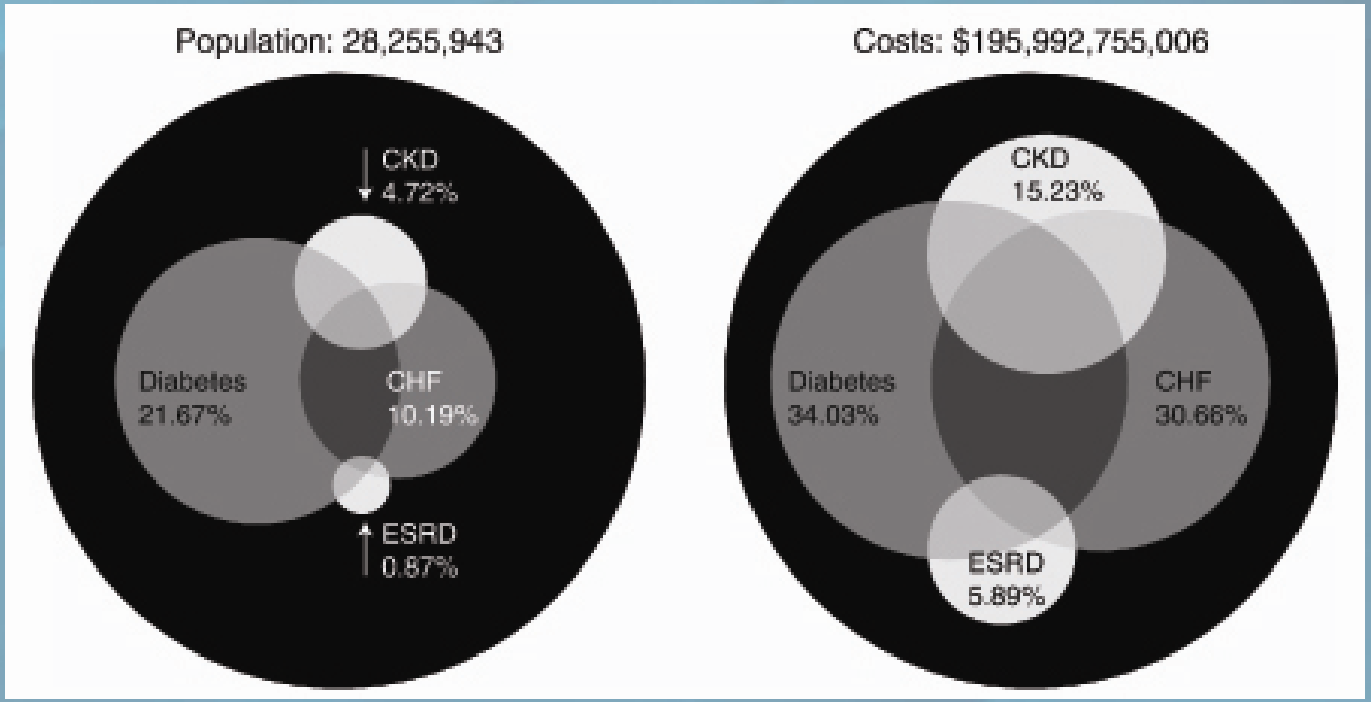
Methods: Determining disease status

- CKD, DM, CHF diagnosis based on presence of 1+ inpt/SNF/HH claim or 2+ physician/supplier or hospital outpatient claims
- ESRD status determined from Medicare ESRD registry

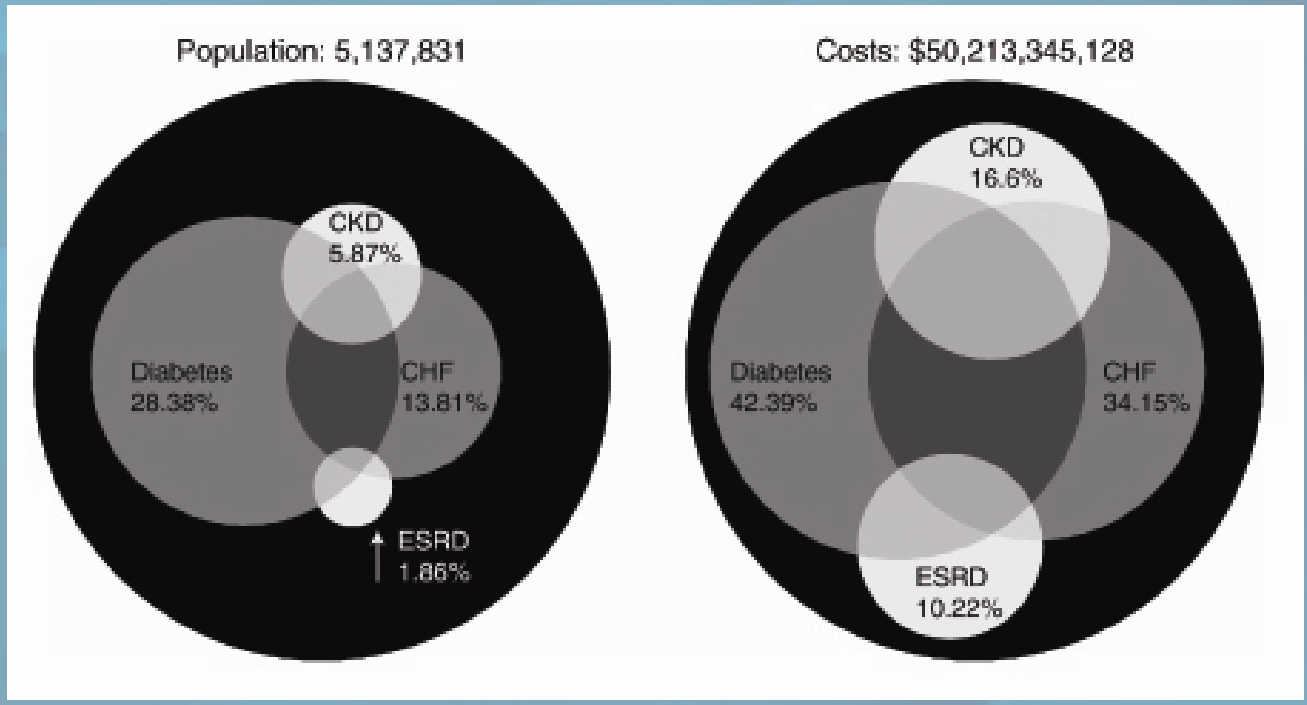
Methods: Calculating counts and costs

- Counts of persons with each diagnosis and with multiple diagnoses computed
- Total Medicare costs calculated for each patient

Medicare 2004 Beneficiaries and 2004 Medicare Costs, United States



Medicare/Medicaid 2004 Dually-Enrolled Beneficiaries and 2004 Medicare Costs, United States



2004 Dually-Enrolled

Patients Diagnosed With	Proportion of all Patients (%)	Proportion of Medicare Costs (%)	Multiplier
All CKD	5.9	16.6	2.8
All DM	28.4	42.4	1.5
All CHF	13.8	34.2	2.5
All ESRD	1.9	10.2	5.5
CKD + DM	3.3	10.3	3.1
CKD + CHF	2.6	10.1	3.9

Ten States with Largest Dually-Enrolled Population, 2004

	CKD		DM		CHF		ESRD	
State	Count (%)	Cost (%)	Count (%)	Cost (%)	Count (%)	Cost (%)	Count (%)	Cost (%)
California	5.7	16.5	29.3	44.3	12.6	33.7	2.3	11.9
Texas	6.4	16.4	33.8	49.5	16.2	37.8	2.6	13.7
Florida	6.6	15.4	29.8	43.5	14.9	32.5	1.6	6.5
New York	4.8	14.7	26.7	40.8	11.1	32.0	2.1	12.3
North Carolina	7.2	18.9	30.7	42.9	13.6	33.4	1.9	11.0
Pennsylvania	5.5	17.5	26.8	40.5	13.2	34.8	1.5	9.2
Tennessee	5.5	15.3	28.1	40.1	14.7	35.6	1.5	8.0
Georgia	6.6	17.6	30.2	44.5	13.7	32.4	2.3	13.0
Ohio	7.5	21.5	29.7	46.3	17.1	40.5	1.6	8.7
Illinois	5.3	15.7	28.8	43.4	15.0	35.7	2.3	11.6

= High values for each disease

= Low values for each disease

Limitations

- Claims-based diagnosis misses some patients with disease
- Sensitivity:
  - CKD = 20 – 40% *
  - DM = 50 – 85% †
  - CHF = 47% ††

* Kern. *Health Serv Res* 2006; 41(2):564-580.
Winkelmayer. *Am J Kidney Dis* 2005; 46(2):225-232.

† Hebert. *Am J Med Qual* 1999; 14(6):270-277.
Rector. *Health Serv Res* 2004; 39(6 Pt 1):1839-1857.

†† Rector. *Health Serv Res* 2004; 39(6 Pt 1):1839-1857.

Limitations

- State buy-in of Part B premium required all 12 months
  - Additional 12% had <12 months buy-in
- Patients who developed ESRD during 2004 excluded so full year of costs available
  - Resulted in 13% undercount

Conclusions

- CKD is an important chronic disease in the dually-enrolled population
- CKD is highly interactive with DM and with CHF
- Cost of care for CKD patients disproportionately high
- State variation in counts and costs of dually-enrolled patients with CKD, DM, CHF, and ESRD
- Enhanced focus on CKD is merited