



Simposio SIGG-SIN
CONOSCIAMO IL PAZIENTE ANZIANO CON MALATTIA RENALE CRONICA?

Il controllo della progressione della MRC nell'anziano

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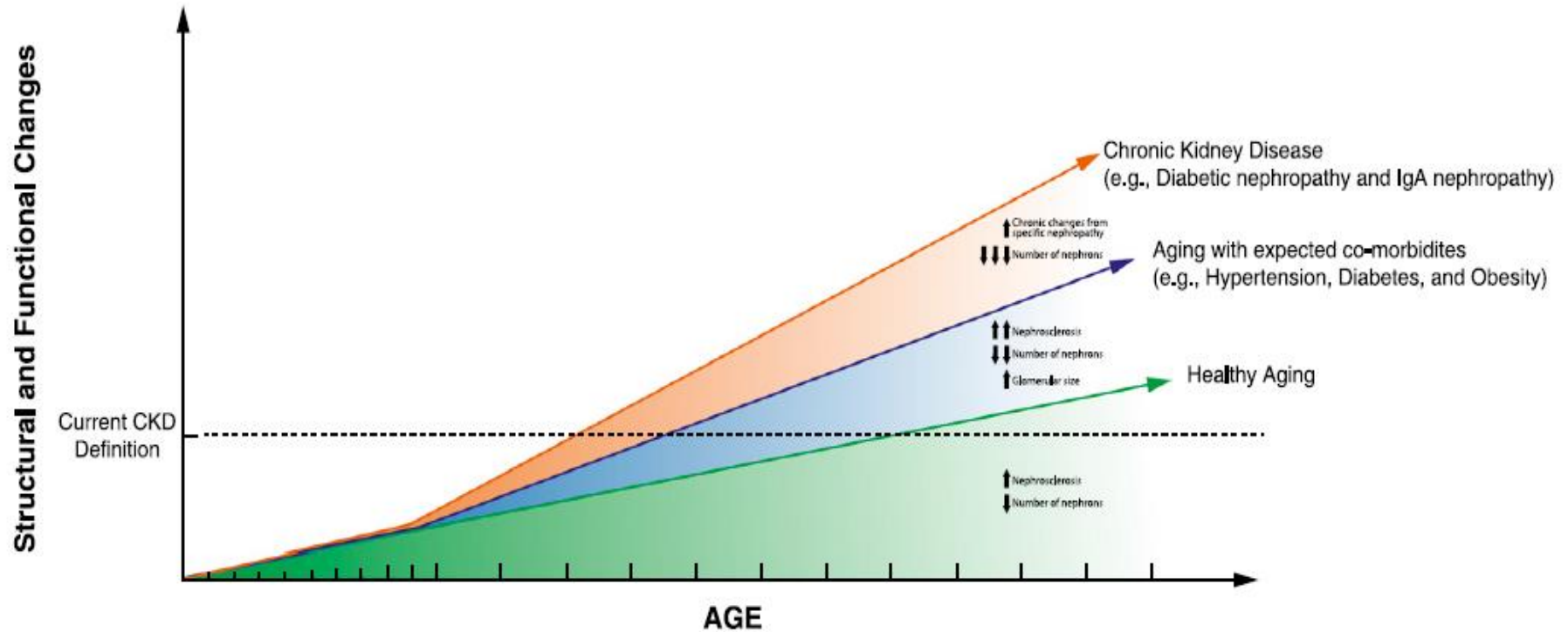
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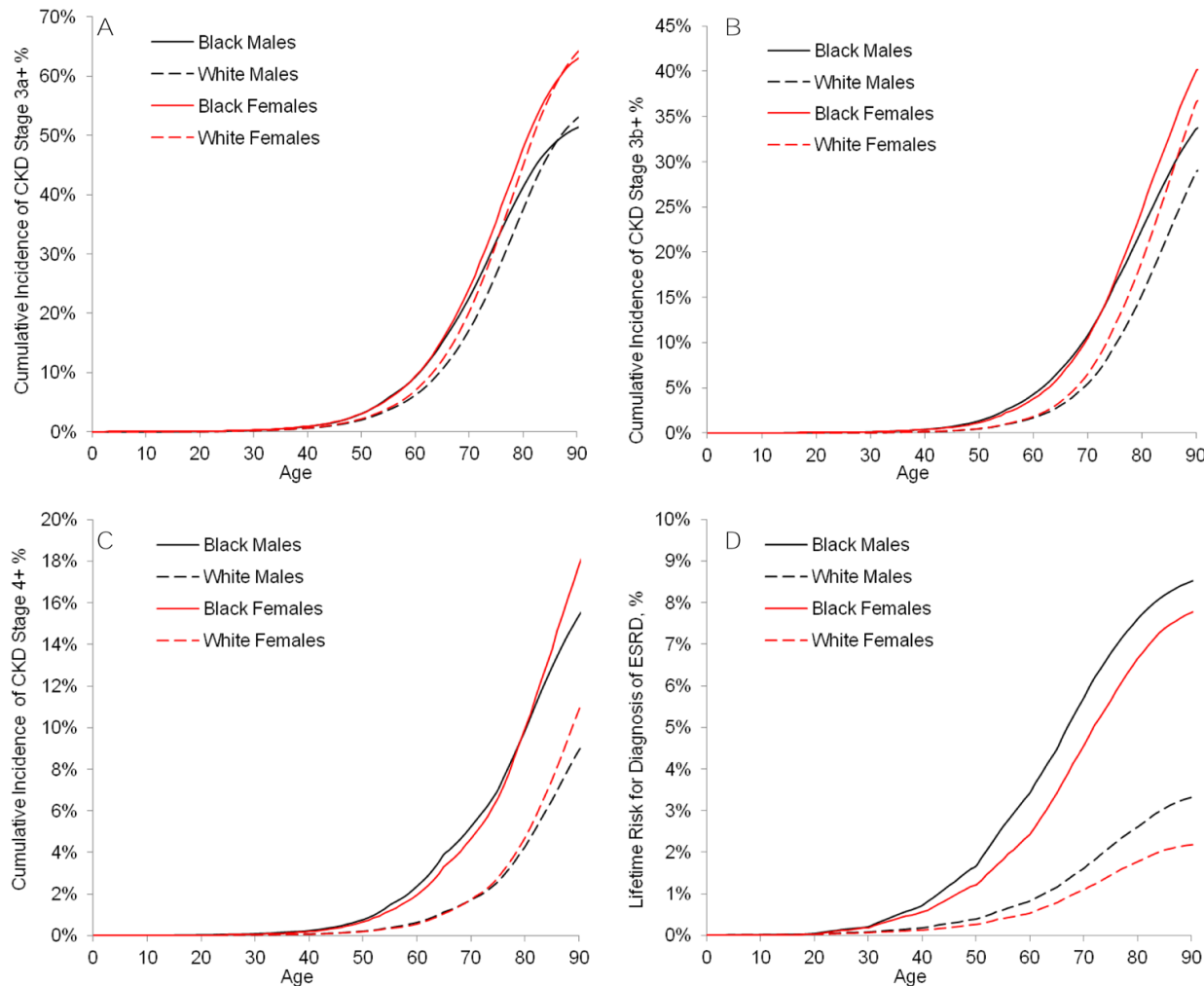
Structural and Functional Changes in Human Kidneys with Healthy Aging

J Am Soc Nephrol 28:



Lifetime Incidence of CKD Stages 3–5 in the United States

Am J Kidney Dis. 2013



estimated lifetime risk of CKD stage 3a+ was over 50%, lower than that of hypertension (83%–90%), but higher than that of diabetes (33%–39%), coronary heart disease (32%–49% for a 40-year-old), and invasive cancer (38%–45%).

**Prognosi della
Malattia Renale Cronica (MRC)
in relazione alla categoria di VGF
e albuminuria: KDIGO 2012**

				Categorie di albuminuria persistente Descrizione e livello		
				A1	A2	A3
				Da normale a leggermente aumentata	Moderatamente aumentata	Severamente aumentata
				<30 mg/g <3 mg/mmol	30-300 mg/g 3-30 mg/mmol	>300 mg/g >30 mg/mmol
Categorie di VGF (ml/min/ 1.73m ²) Descrizione e livello	G1	Normale o aumentato	≥90			
	G2	Lievemente ridotto	60-89			
	G3a	Da lievemente a moderatamente ridotto	45-59			
	G3b	Da moderatamente a severamente ridotto	30-44			
	G4	Severamente ridotto	15-29			
	G5	Insufficienza renale	<15			

Nephron 2016;134:25–29

				Persistent albuminuria categories Description and range		
				A1	A2	A3
				Normal to mildly increased	Moderately increased	Severely increased
				<30 mg/g <3 mg/mmol	30–300 mg/g 3–30 mg/mmol	>300 mg/g >30 mg/mmol
GFR categories (ml/min/1.73 m ²) Description and range	G1	Normal or high	≥90	Green	Yellow	Orange
	G2	Mildly decreased	60–89	Green	Yellow	Orange
	G3a	Mildly to moderately decreased	45–59	<div> <div>>65 years</div> <div>≤65 years</div> </div>	Orange	Red
	G3b	Moderately to severely decreased	30–44	Orange	Red	Red
	G4	Severely decreased	15–29	Red	Red	Red
	G5	Kidney failure	<15	Red	Red	Red

Green: low risk (if no other markers of kidney disease, no CKD); Yellow: moderately increased risk;
Orange: high risk; Red: very high risk.

Age and Association of Kidney Measures With Mortality and End-stage Renal Disease

JAMA. 2012;308(22):2349-2360

Figure 1. Adjusted Hazard Ratios (HRs) for All-Cause Mortality and Mean Mortality Rates According to eGFR and ACR Within Each Age Category

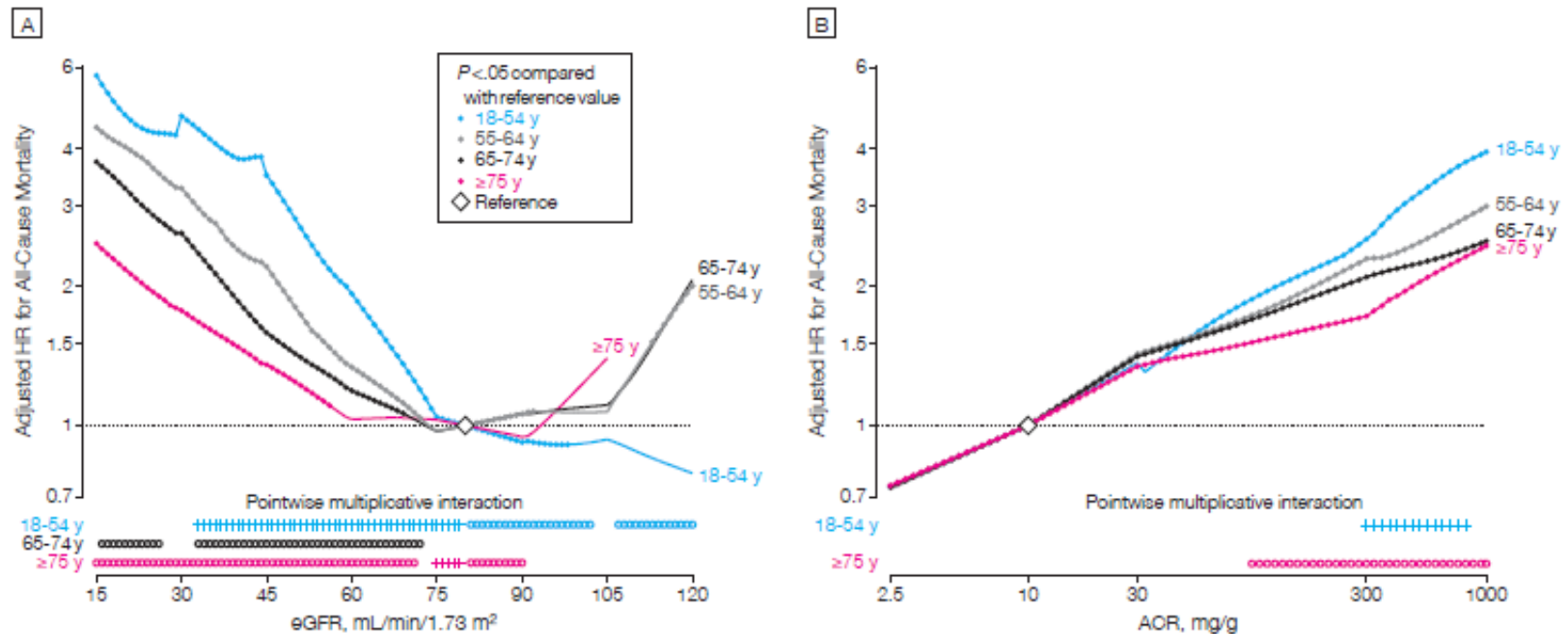
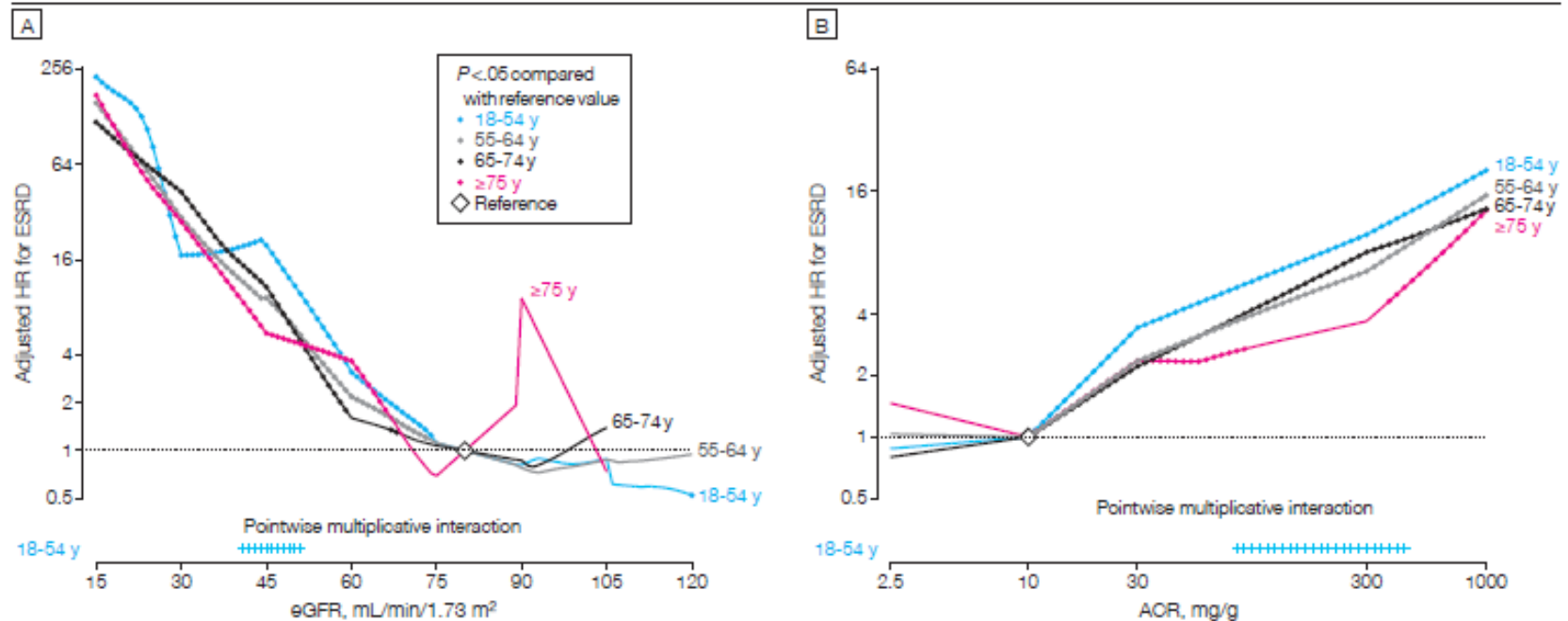


Figure 2. Adjusted Hazard Ratios (HRs) and Mean Incidence Rates for ESRD According to eGFR and ACR Within Each Age Category

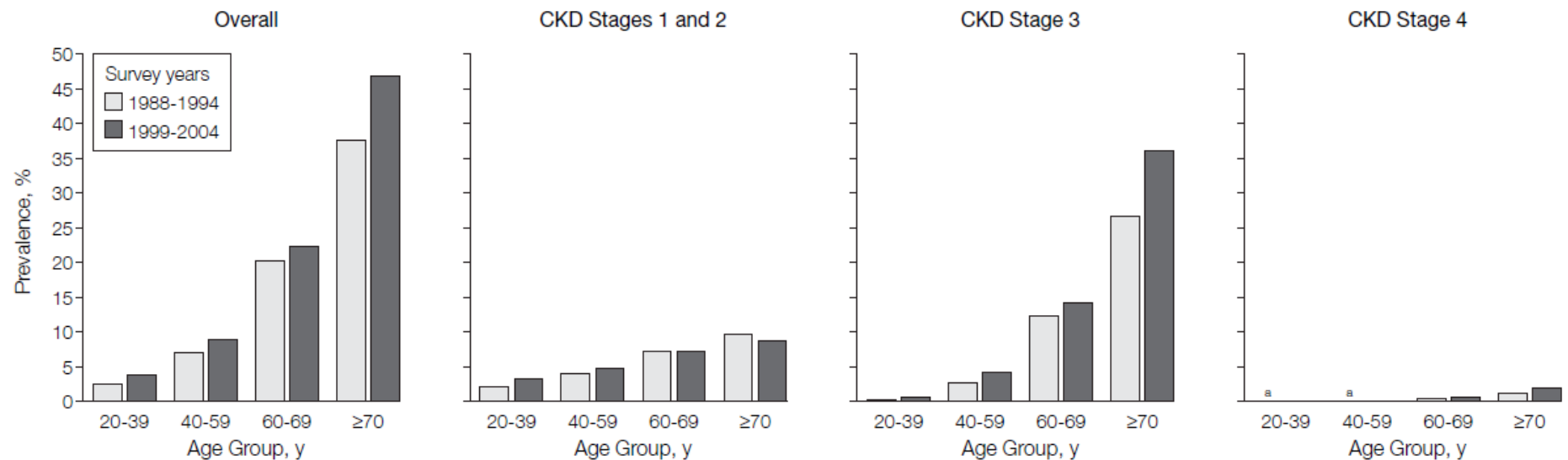


Conclusions Both low eGFR and high albuminuria were independently associated with mortality and ESRD regardless of age across a wide range of populations. Mortality showed lower relative risk but higher absolute risk differences at older age.

Prevalence of Chronic Kidney Disease in the United States

JAMA. 2007;298(17):2038-2047

Figure 2. Prevalence of Chronic Kidney Disease (CKD) Stages by Age Group in NHANES 1988-1994 and 1999-2004



The high prevalence of CKD overall, and particularly among older individuals and persons with hypertension and diabetes, suggests that CKD needs to be a central part of future public health planning

Selection bias in epidemiology of geriatric CKD

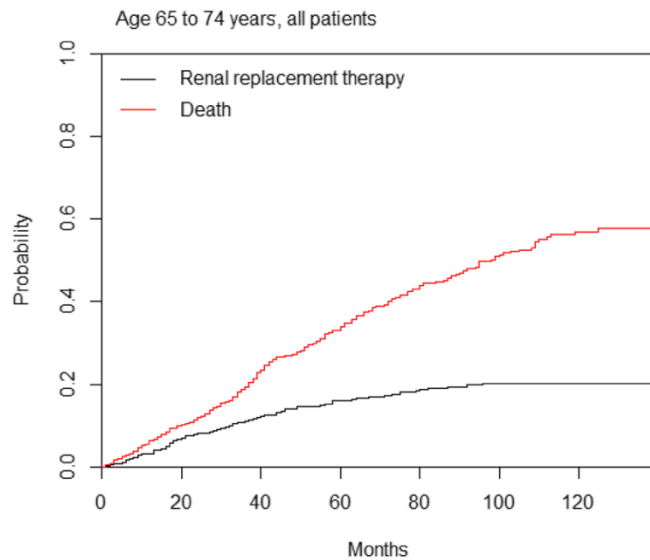
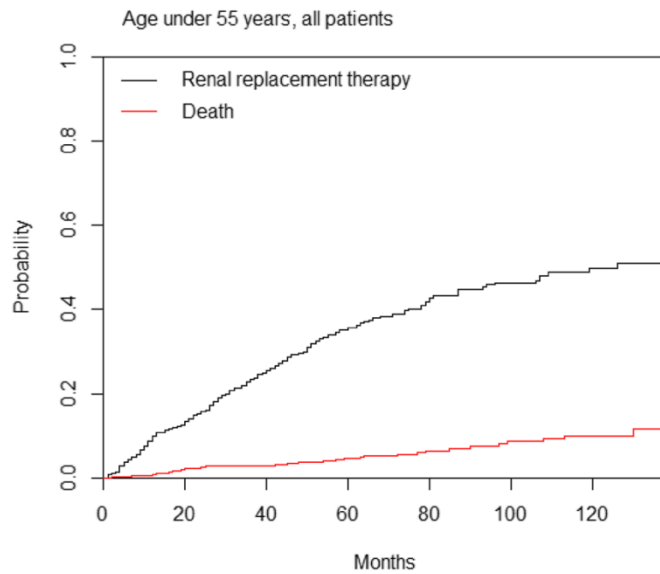
When evaluating the epidemiology of kidney diseases in geriatric population, at least three main selection bias should be considered:

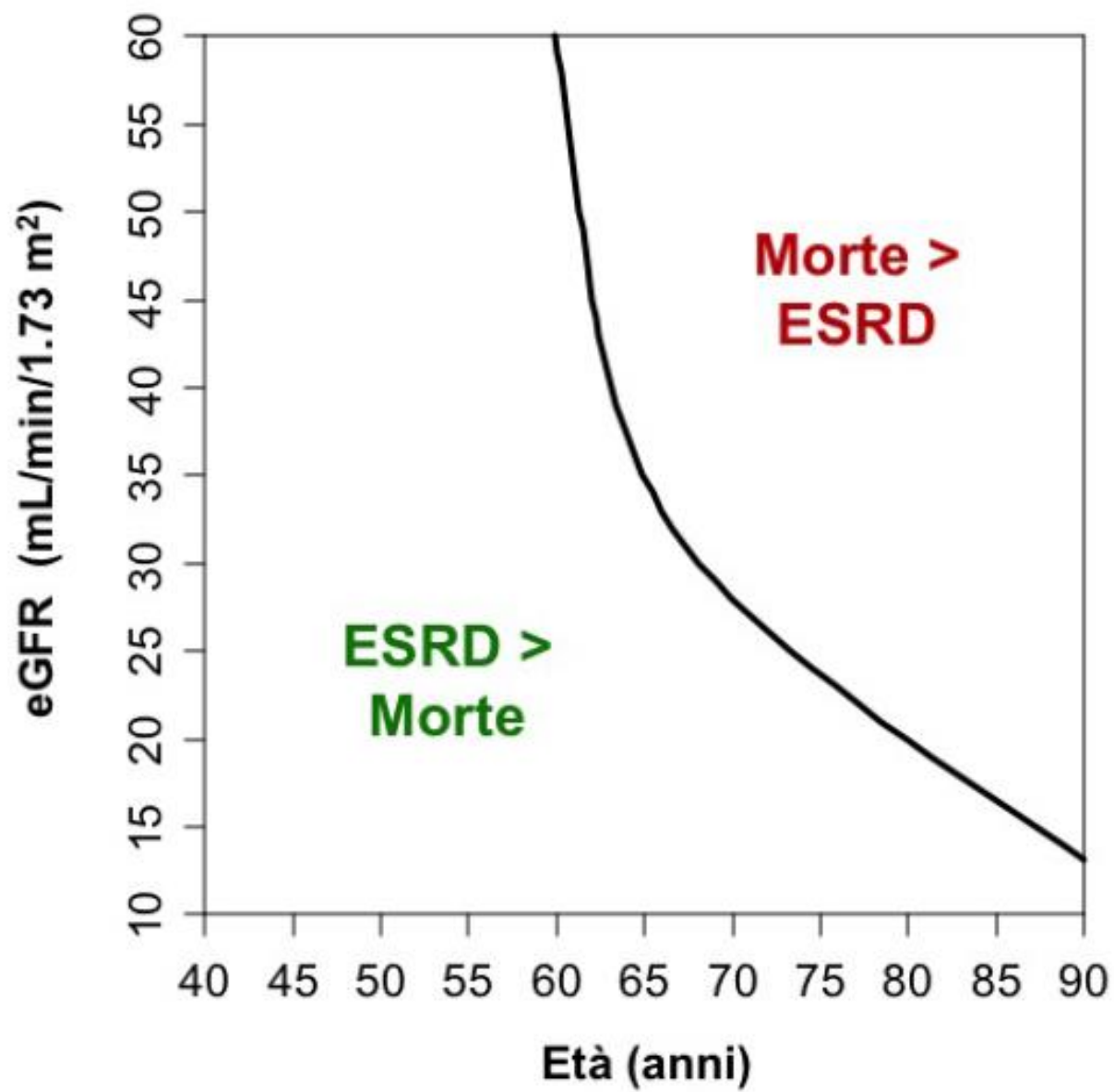
- a) the lack of overt symptoms and/or misleading laboratory parameters;**
- b) elderly patients showing early signs of renal disease are rarely referred to a Nephrologist;**
- c) elderly patients under the Nephrologist's care rarely undergo a renal biopsy.**

SIN-SIGG joined Position Paper about CKD in the elderly

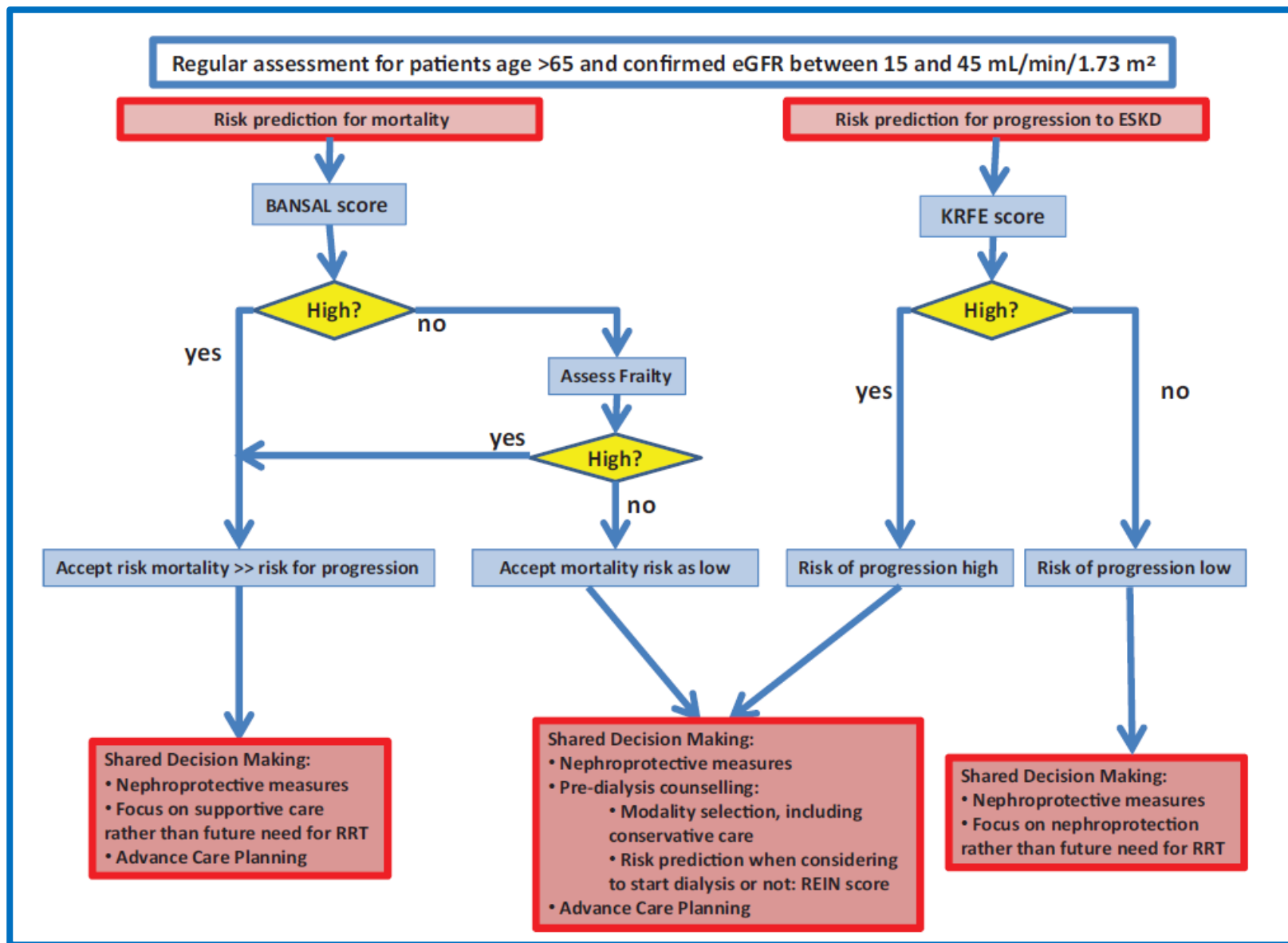
submitted

Journal of Nephrology (2018) 31:931–939





Clinical Practice Guideline on management of older patients with chronic kidney disease stage 3b or higher (eGFR<45 mL/min/1.73 m²): a summary document from the European Renal Best Practice Group **ERA-EDTA 2017**

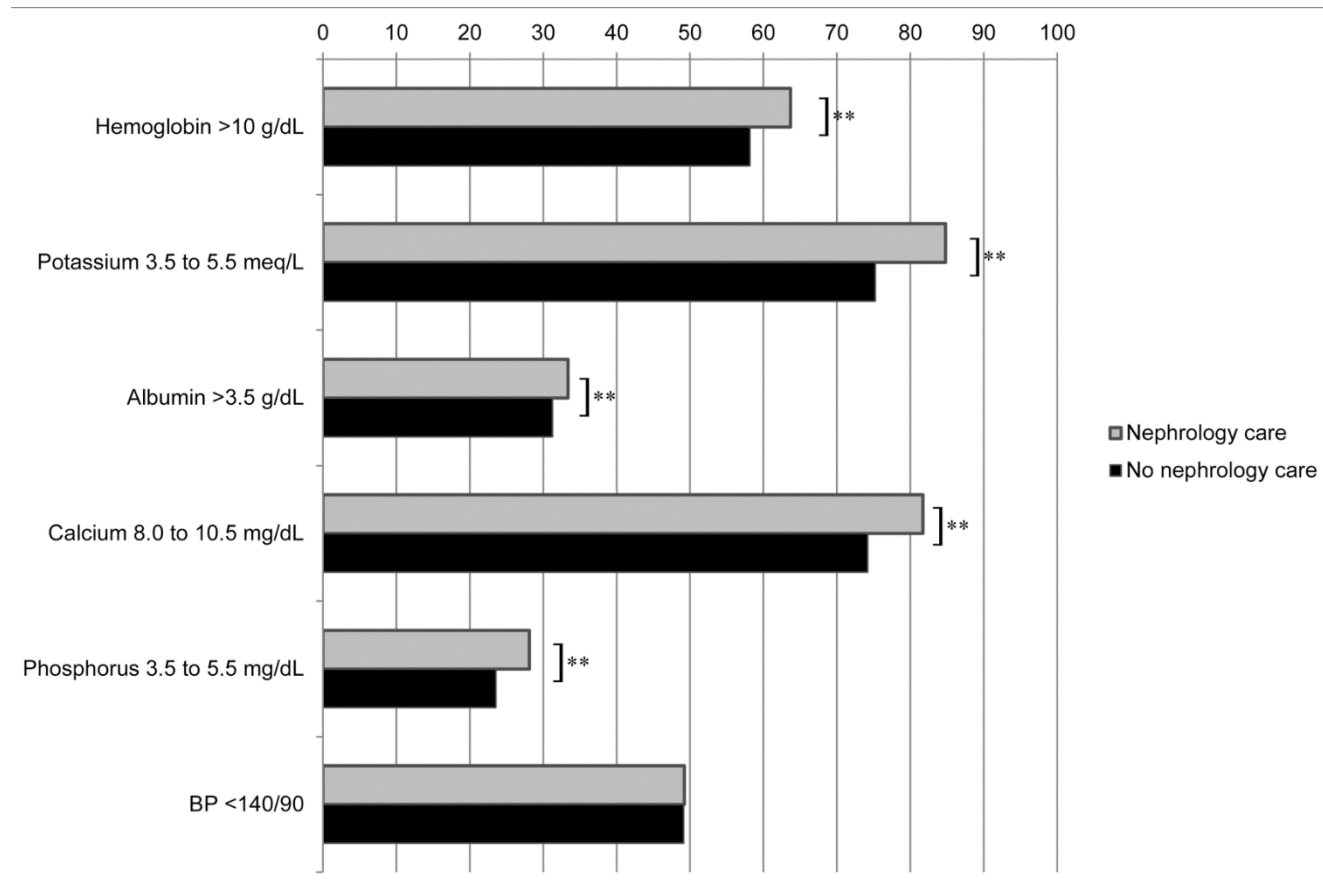


Approccio decisionale basato sulla classificazione del rischio di progressione secondo KFRE e del GFR

(tratto da Tangri, Nephrol Dial Transplant 2017)

Classificazione eGFR	Approccio gestionale	Classificazione del rischio – KFRE –
Stadio 3b 45-30 ml/min	Passaggio dal MMG al nefrologo	3% a 5 anni
Stadio 4 30-15 ml/min	Nefroprotezione	10% a 2 anni
Stadio 5 >15 ml/min	Preparazione alla terapia sostitutiva e al trapianto	40% a 2 anni

Receipt of Nephrology Care and Clinical Outcomes Among Veterans With Advanced CKD

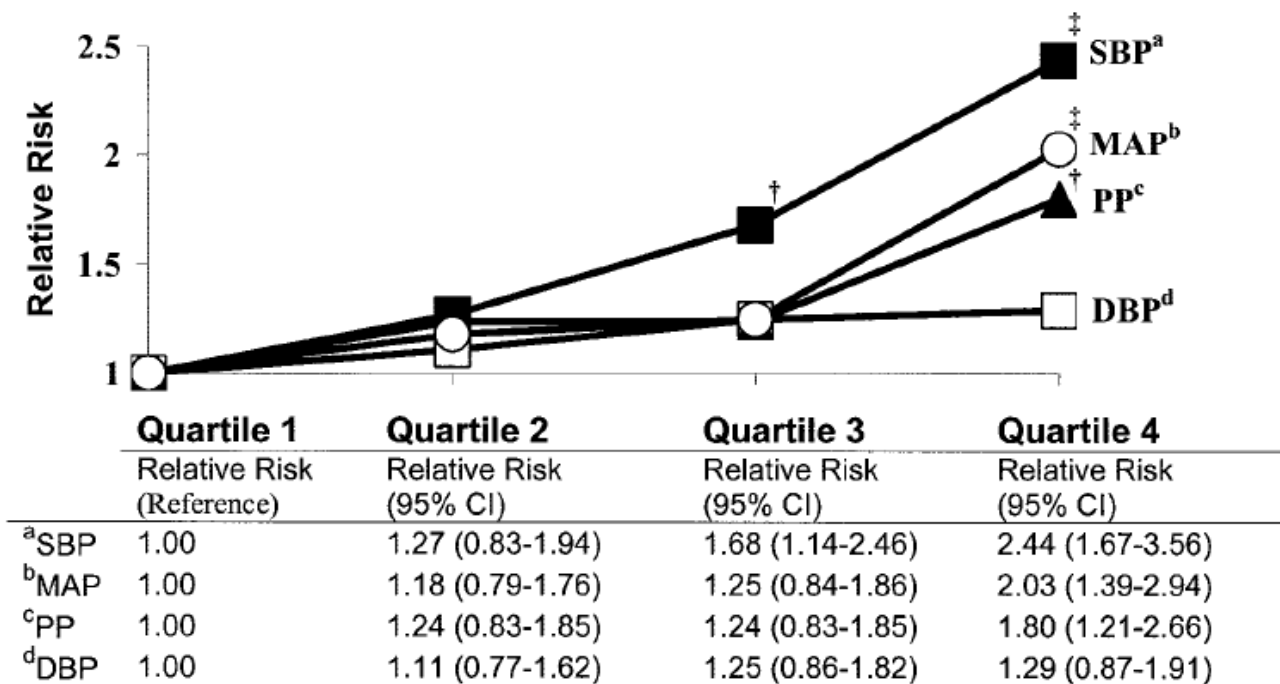


MANAGEMENT OF RISK FACTORS FOR PROGRESSION OF CKD

- **Hypertension**
- **Diabetes**
- **Proteinuria**
- **Acute Kidney Injury**
- **Comorbidità**

Blood Pressure and Decline in Kidney Function: Findings from the Systolic Hypertension in the Elderly Program (SHEP)

J Am Soc Nephrol 13: 2776–2782, 2002



* Each model adjusted for age, gender, ethnicity, history of diabetes, history of cardiovascular disease, and current smoking.

†P value <0.01 for comparison with Quartile 1.

‡P value <0.001 for comparison with Quartile 1.

Treatment of high blood pressure in elderly and octogenarians: European Society of Hypertension statement on blood pressure targets.

Blood Press. 2016 Dec;25(6):333-336

- 1) In elderly hypertensives with SBP ≥ 160 mmHg there is solid evidence to recommend reducing SBP to between 140 mmHg and 150 mmHg.
- 2) In fit elderly patients less than 80 years old treatment may be considered at SBP ≥ 140 mmHg with a target SBP < 140 mmHg if treatment is well tolerated.
- 3) In fit individuals older than 80 years with an initial SBP ≥ 160 mmHg it is recommended to reduce SBP to between 150 mmHg and 140 mmHg.
- 4) In frail elderly patients, it is recommended to base treatment decisions on comorbidity and carefully monitor the effects of treatment.
- 5) Continuation of well-tolerated antihypertensive treatment should be considered when a treated individual becomes octogenarian.
- 6) All hypertensive agents are recommended and can be used in the elderly, although diuretics and calcium antagonists may be preferred in isolated systolic hypertension.

Management of Hypertension in the Elderly and Frail Elderly

High Blood Pressure & Cardiovascular Prevention 2017

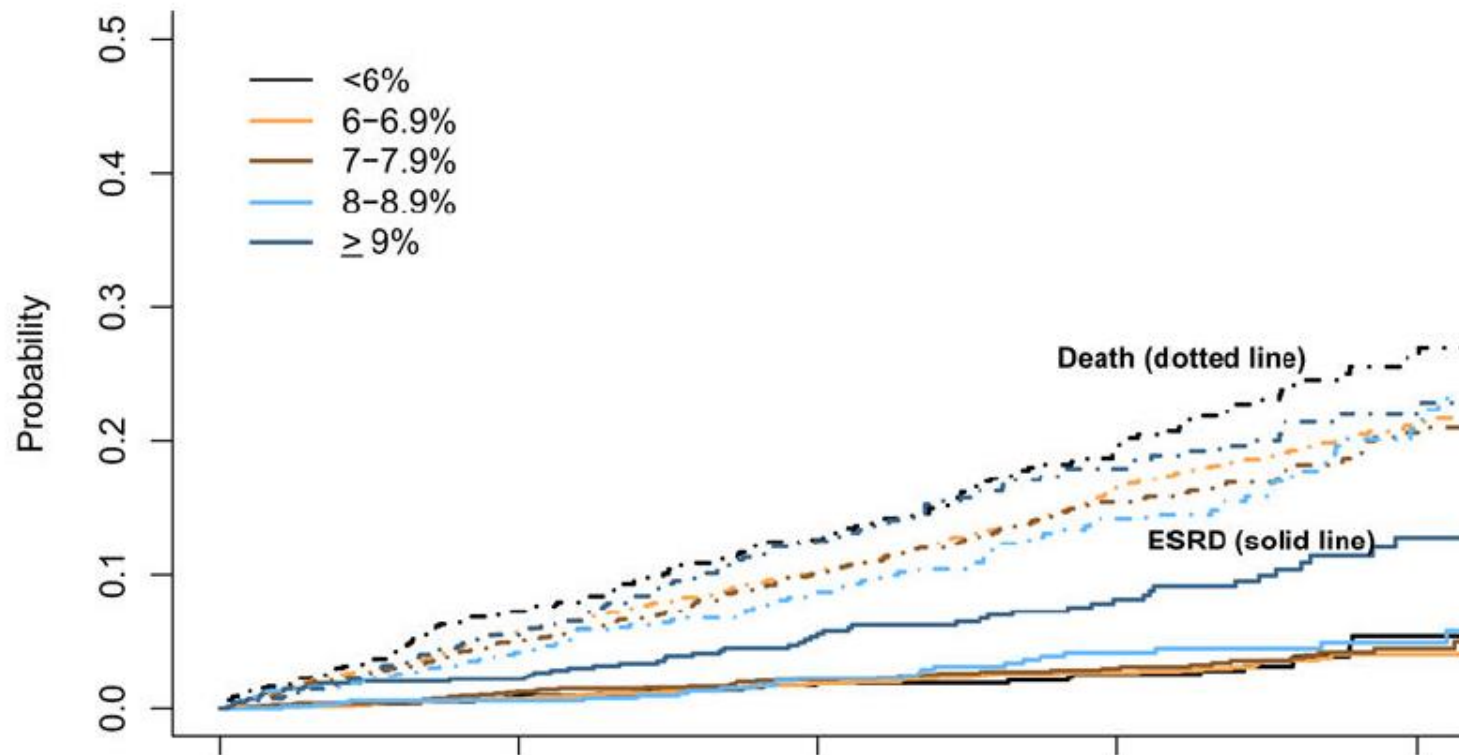
European guidelines recommend antihypertensive treatment in elderly hypertensive patients with a systolic blood pressure ≥ 160 mmHg, with a systolic target between 140 and 150 mmHg.

In fit elderly patients <80 years treatment may be considered at a systolic level ≥ 140 mmHg with a target SBP <140 mmHg if treatment is well tolerated

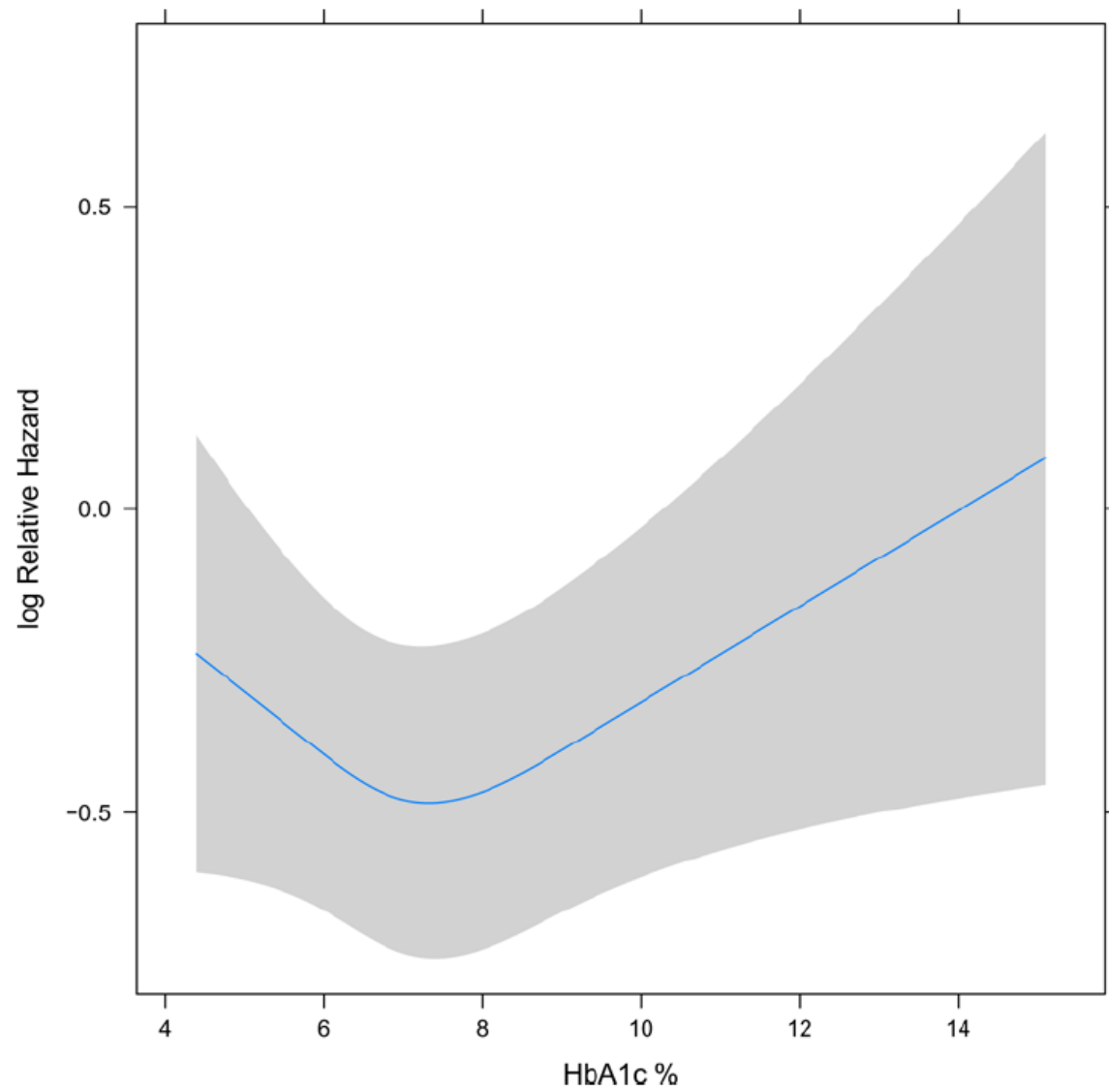
- (1) the blood pressure threshold at which antihypertensive drug should be initiated,**
- (2) the blood pressure targets of the therapeutic intervention, and**
- (3) the approach to frail elderly hypertensive patients.**

Diabetes Control and the Risks of ESRD and Mortality in Patients With CKD

Am J Kidney Dis. 2017

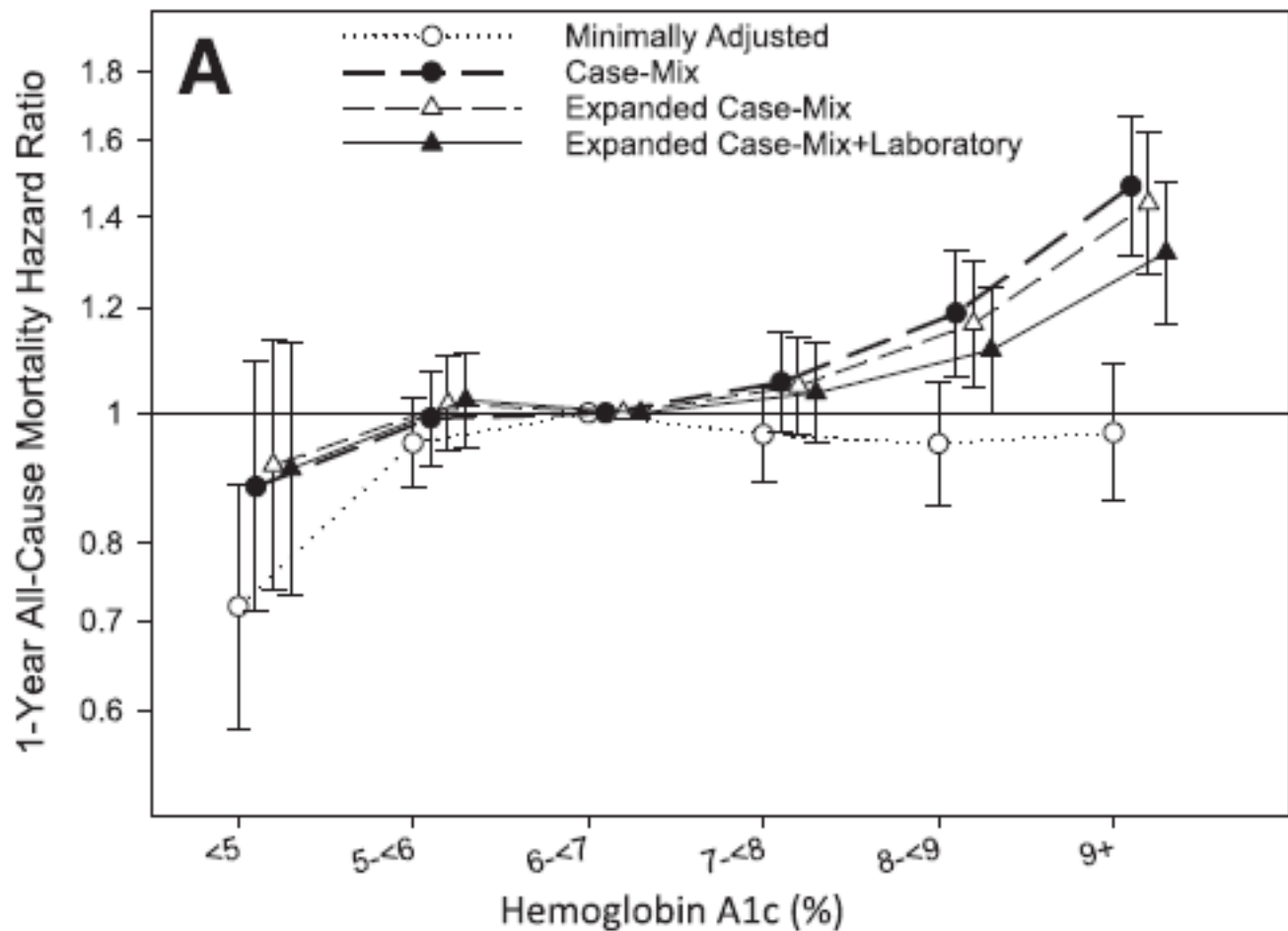


Cumulative incidence curves for end-stage renal disease (ESRD) and death among patients with chronic kidney disease across hemoglobin A1c categories using competing risks.

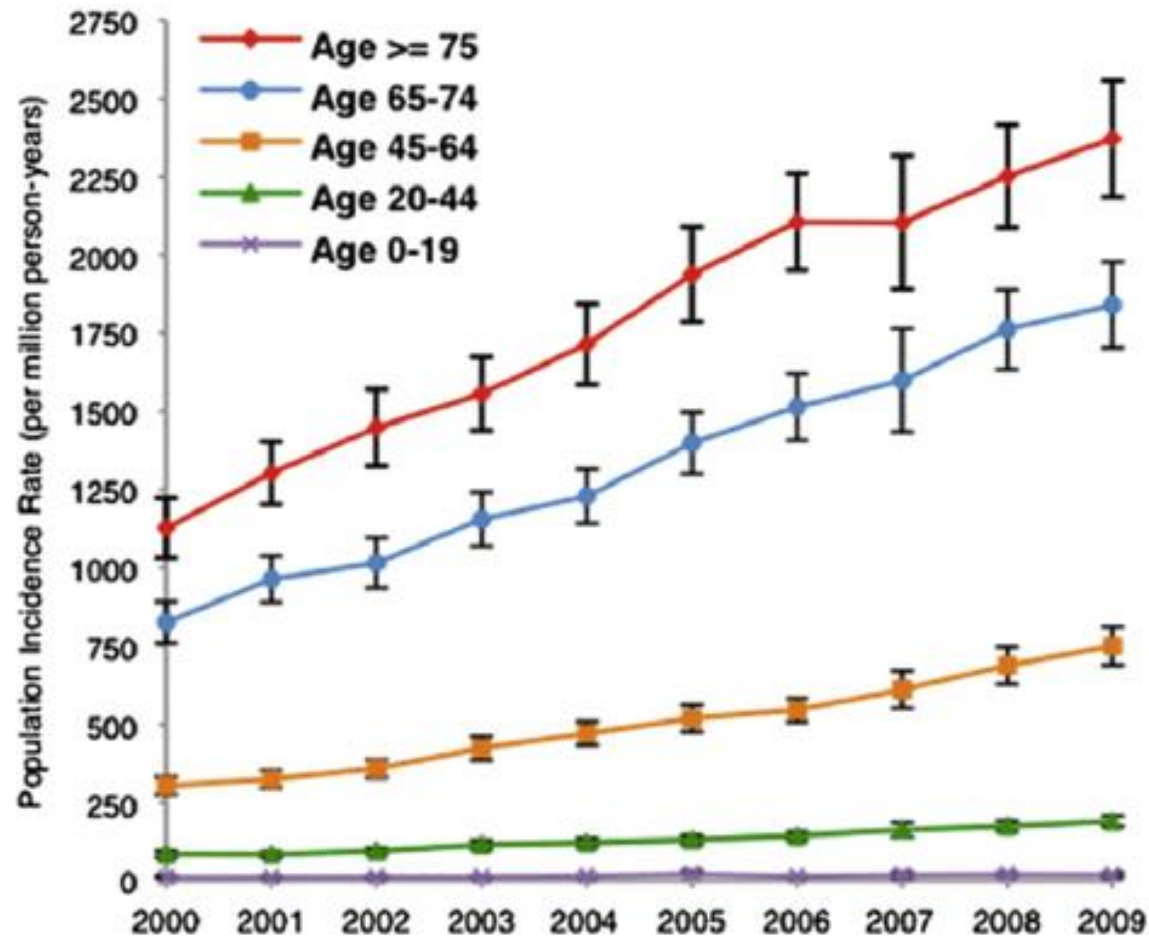


Association of Glycemic Status During Progression of Chronic Kidney Disease With Early Dialysis Mortality in Patients With Diabetes

Diabetes Care, 2017



Acute Kidney Injury in the Elderly



NATURAL HISTORY OF AKI

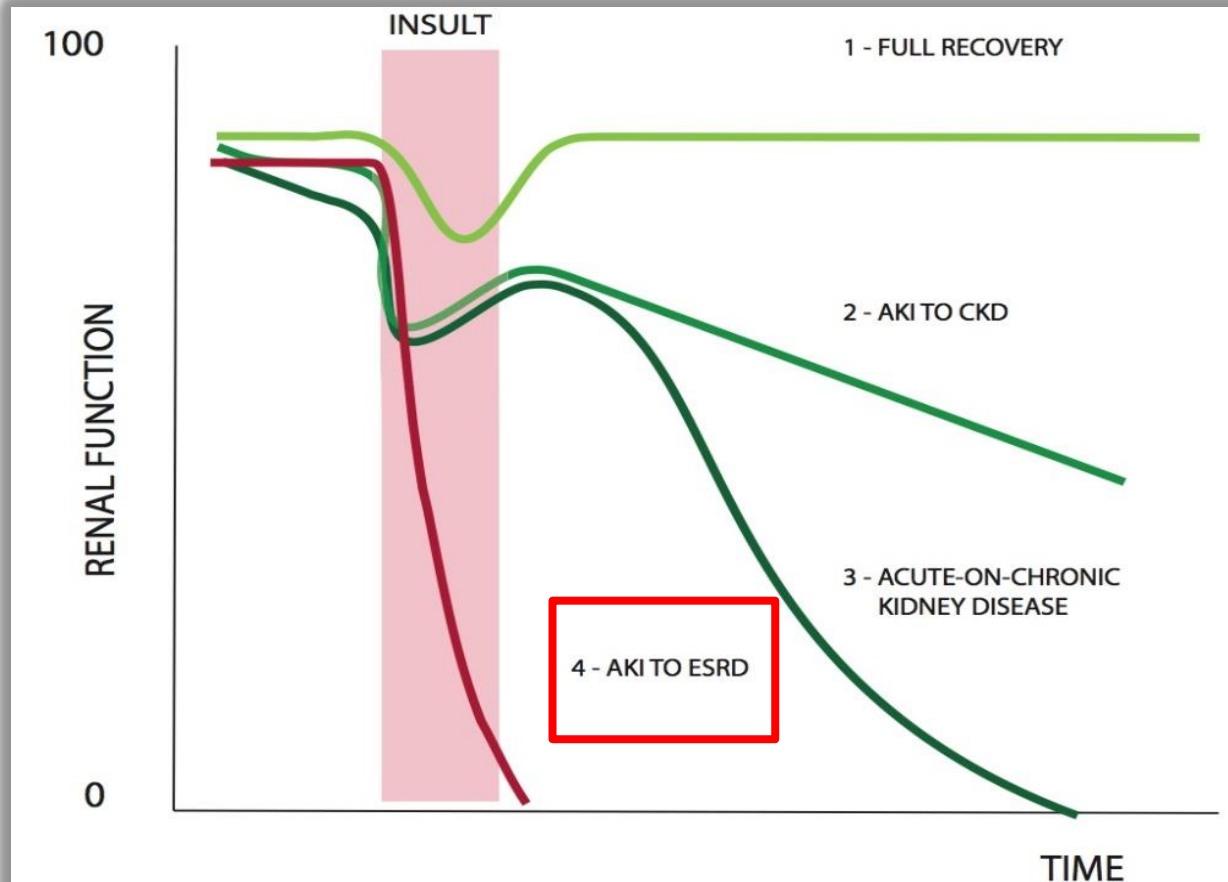
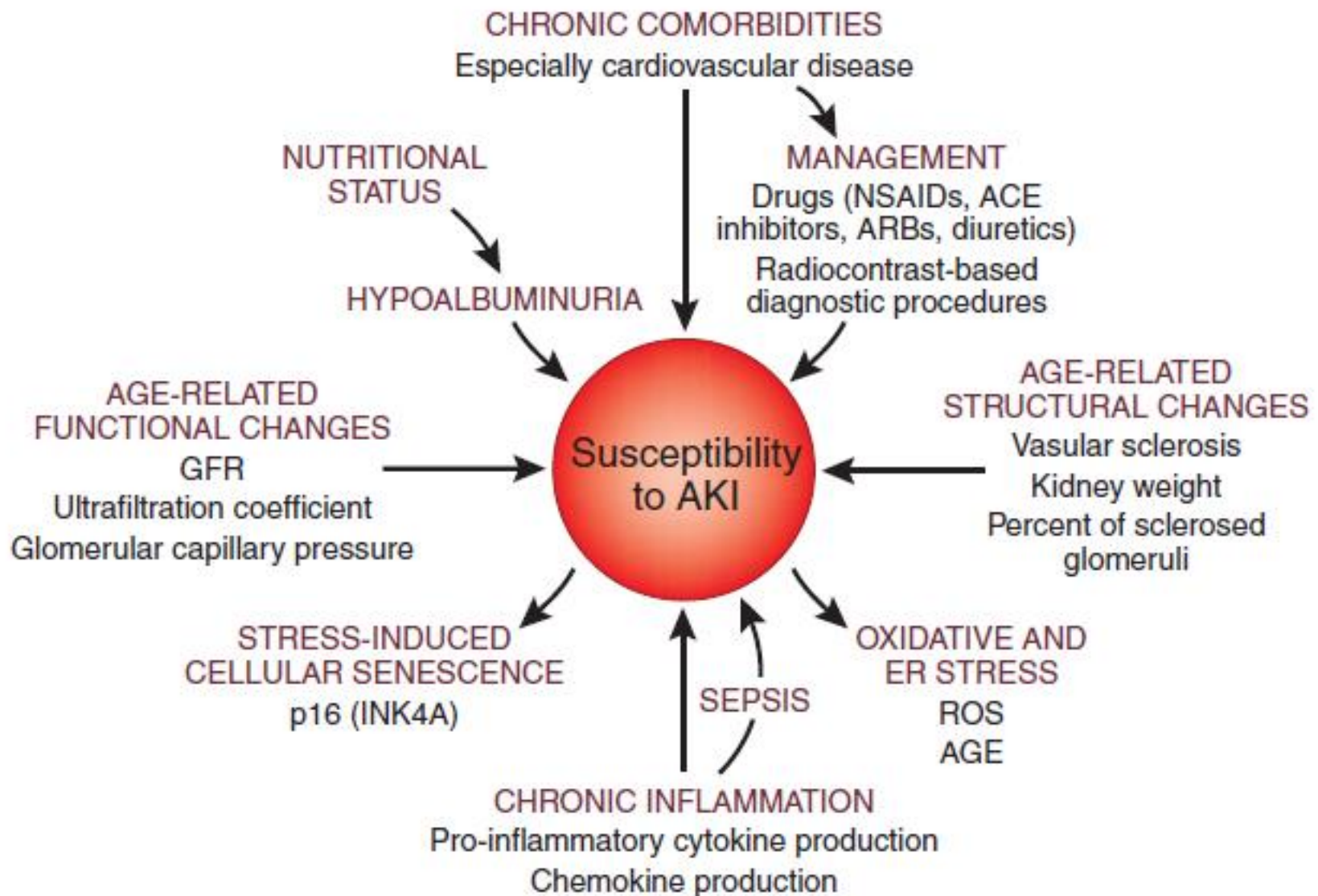


Figure 2. Natural history of AKI. Patients who develop AKI may experience (1) complete recovery of renal function, (2) development of progressive chronic kidney disease (CKD), (3) exacerbation of the rate of progression of preexisting CKD; or (4) irreversible loss of kidney function and evolve into ESRD.



Newsome BB et al: Long-term risk of mortality and end-stage renal disease among the elderly after small increases in serum creatinine level during hospitalization for acute myocardial infarction

Arch Intern Med 168: 609, 2008

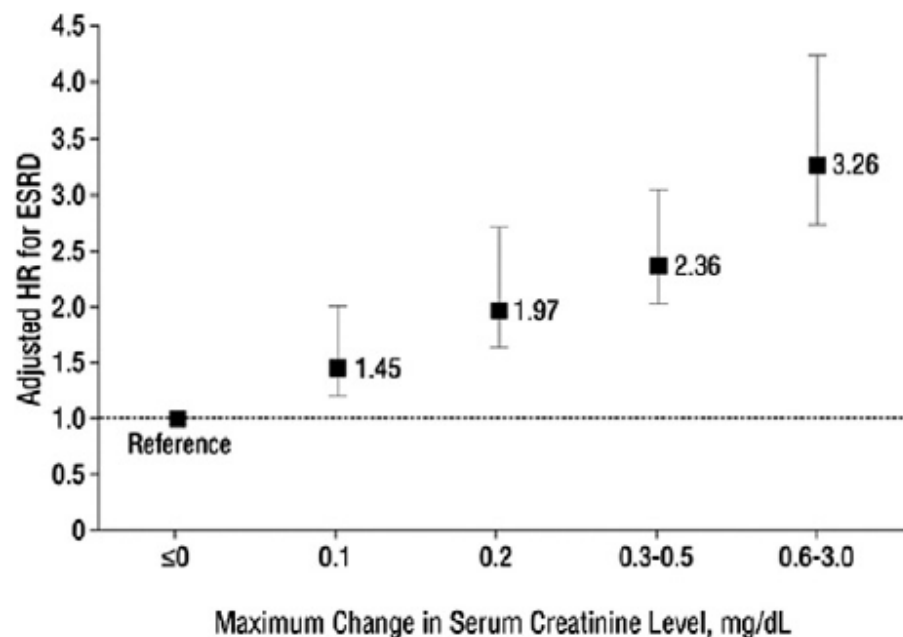
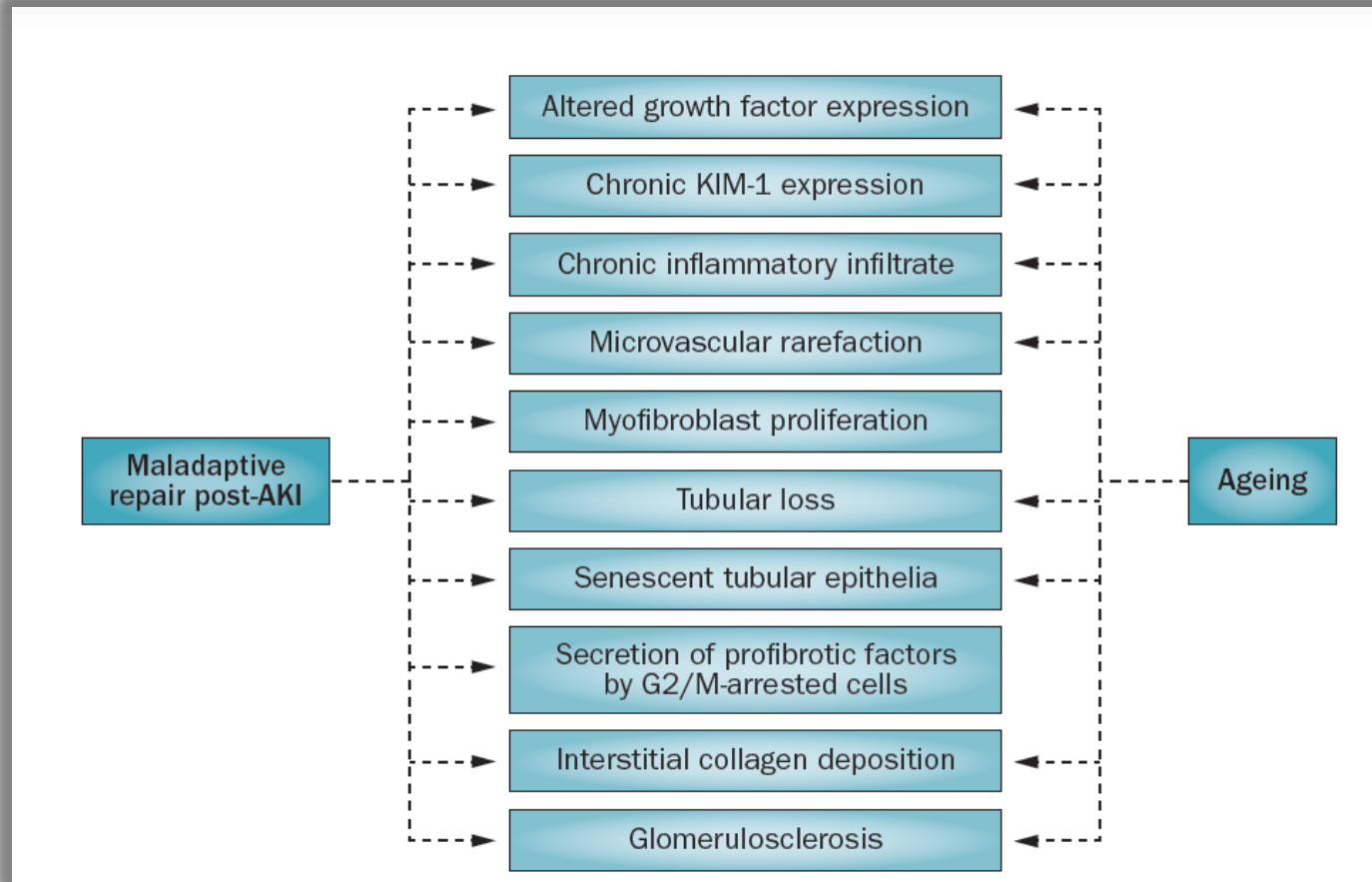


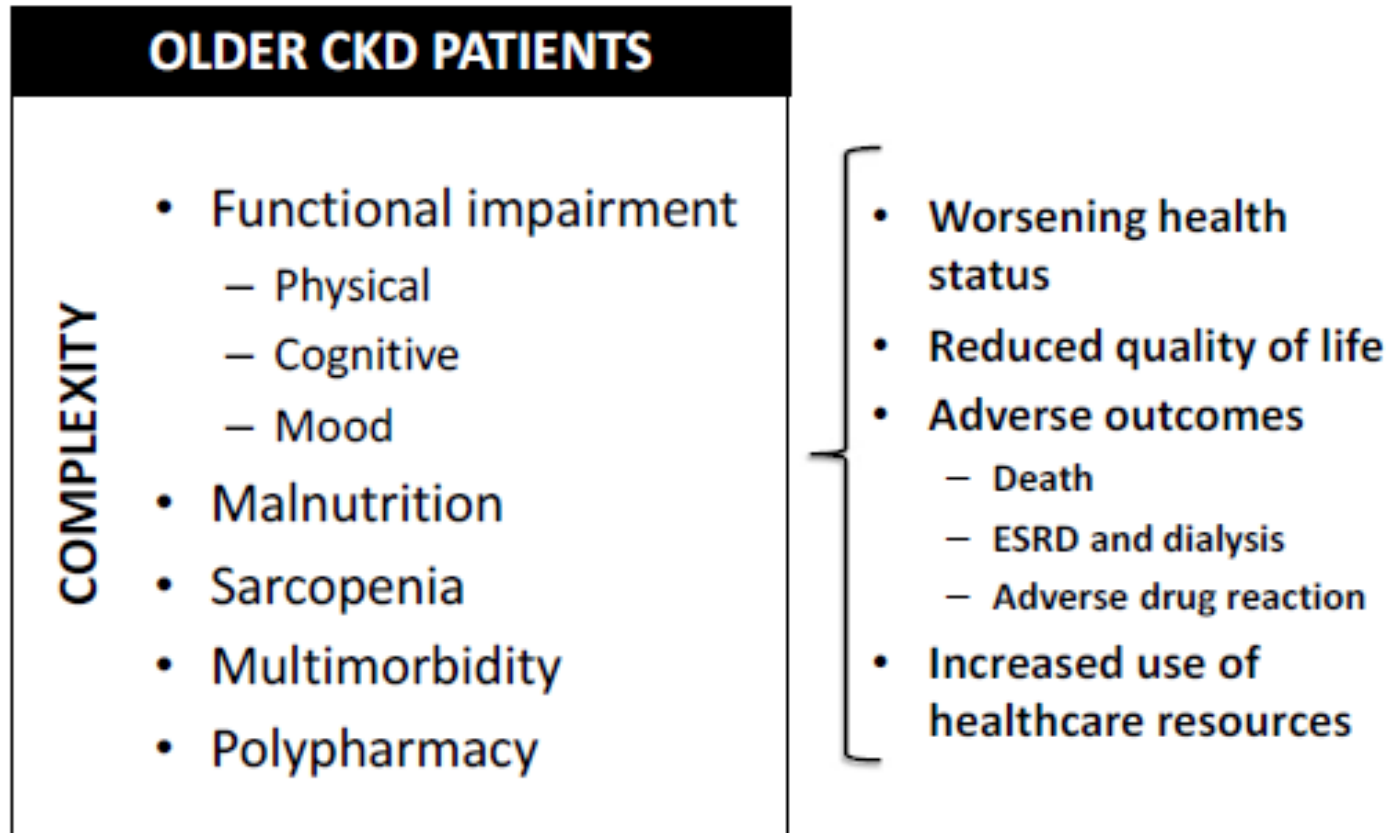
Figure 5. Adjusted hazard ratios (HRs) and 95% confidence intervals for end-stage renal disease (ESRD) according to maximum level of serum creatinine level increase during hospitalization. Data from Cooperative Cardiovascular Project, 1994-2004. Reproduced from Newsome et al⁴² with permission of the American Medical Association.

Mechanisms of maladaptive repair after AKI leading to accelerated kidney ageing and CKD

David A. Ferenbach and Joseph V. Bonventre

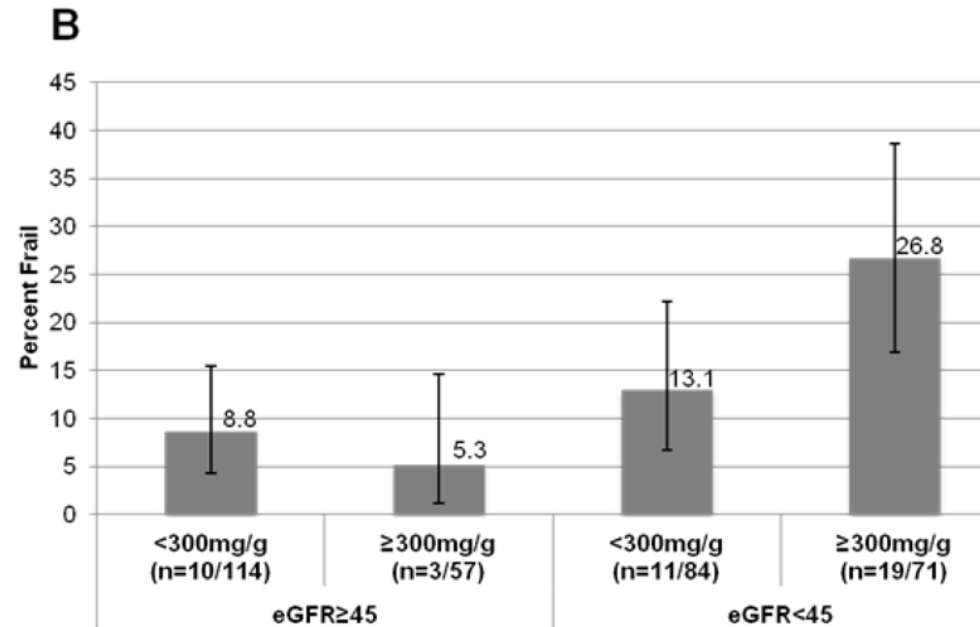
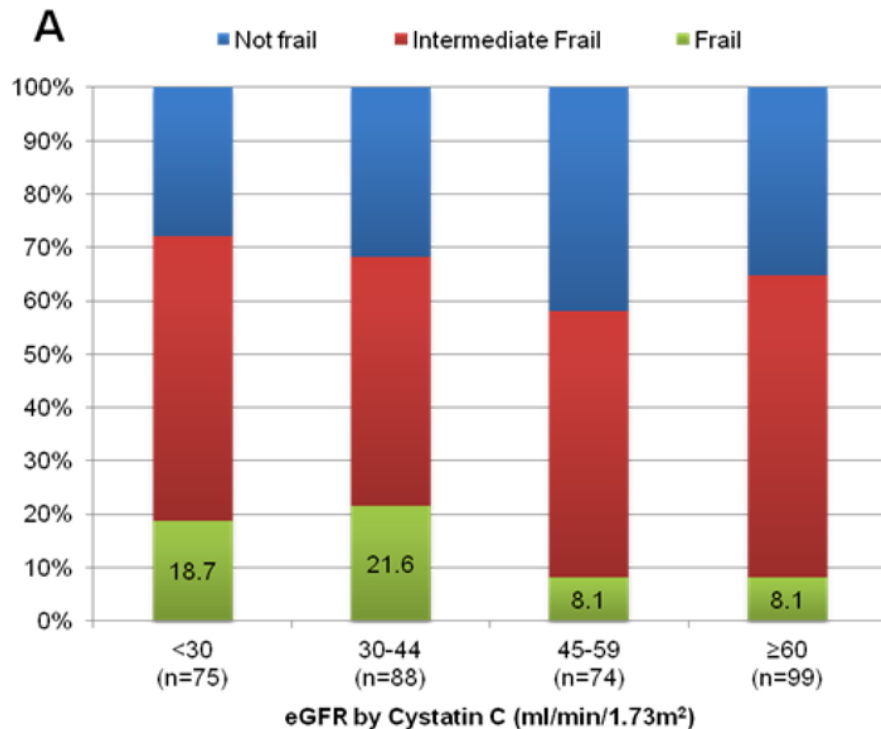


Besides increasing the risk of ESRD, morbidity and mortality, CKD also affect outcomes relevant to older people



A Prospective Study of Frailty in Nephrology-Referred Patients With CKD

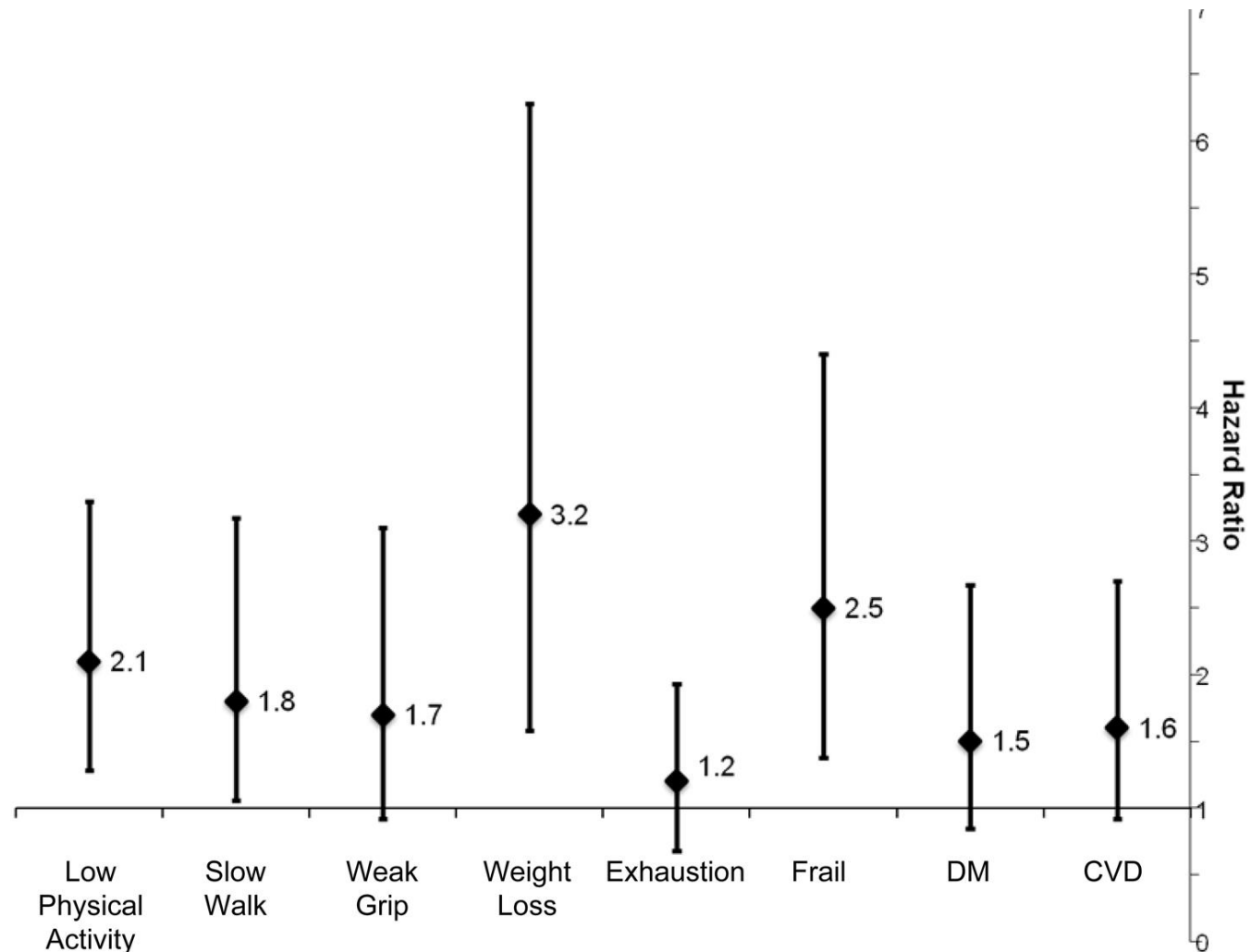
Am J Kidney Dis. 2012 December ; 60(6): 912–921



Frailty is relatively common among middle-aged CKD patients and is associated with lower eGFR_{cys} as well as increased risk of death or dialysis

Forest plot of adjusted hazard ratios for death or dialysis comparing individual frailty components to the frailty phenotype and co-morbidities

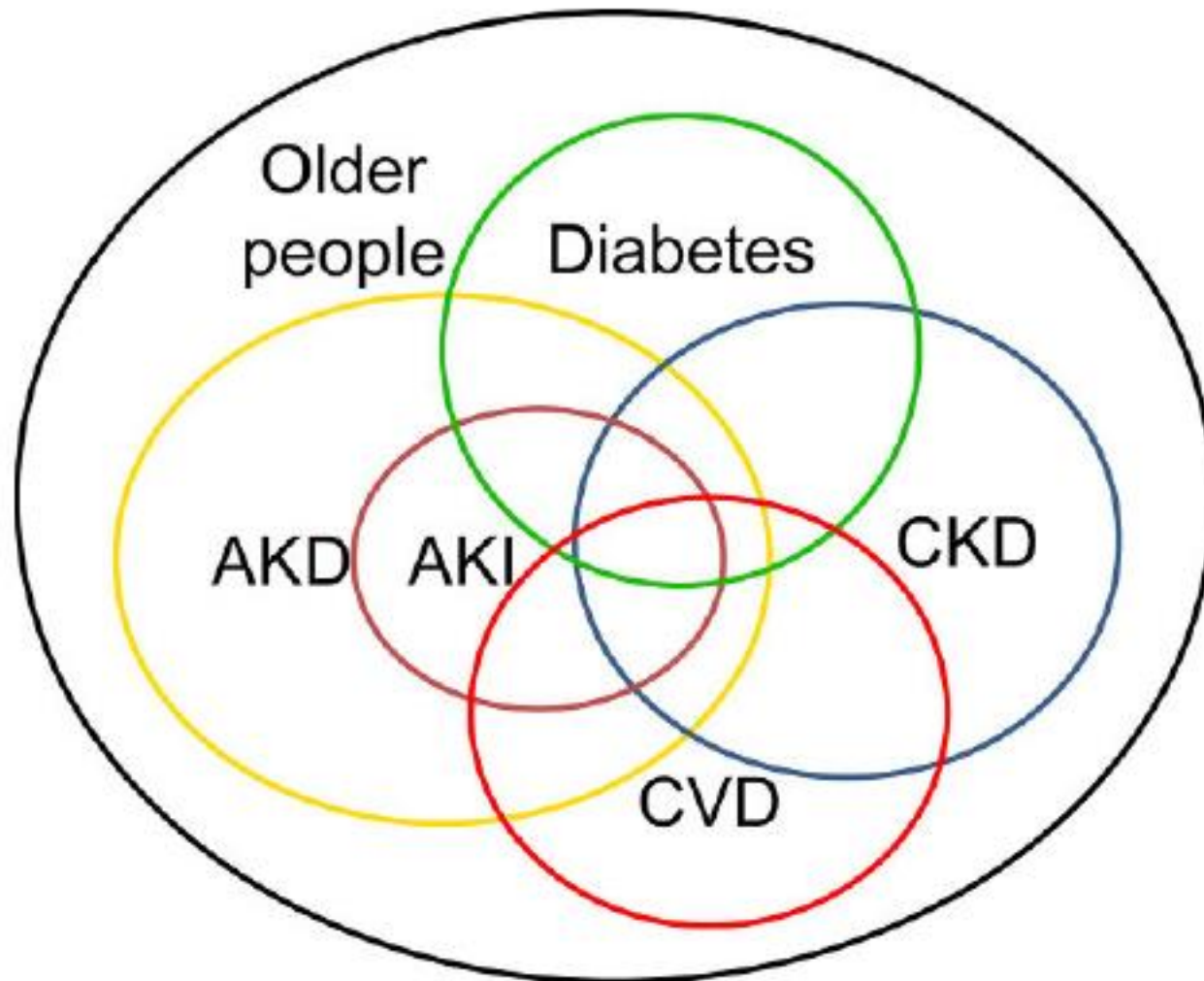
Am J Kidney Dis. 2012 December ; 60(6): 912–921



Integrating Guidelines, CKD, Multimorbidity, and Older Adults

Paul E. Stevens, FRCP,¹ Edmund J. Lamb, PhD,² and Adeera Levin, MD³


Narrative Review Am J Kidney Dis. 2015;65(3):494-501



Box 1. Evidence-Based Indications for Renin-Angiotensin System Blockade From Clinical Practice Guidelines

- CKD and proteinuria (>1 g/d) irrespective of blood pressure
- Hypertension and proteinuria (ACR > 300 mg/g or 30 mg/mmol)
- Diabetes and proteinuria (ACR > 30 mg/g or 3 mg/mmol)
- Resistant hypertension at any age
- Chronic heart failure
- Post acute myocardial infarction

Diabetes, hypertension, and proteinuria are all predictors of progression of CKD, and guidelines strongly recommend treatment with RAS blockade to prevent or ameliorate progression of CKD. However, the evidence-based recommendations for RAS blockade encompass more than just kidney disease

- 
- Define Health Question
 - Search and Screen Guidelines
 - Assess Guidelines
 - Decide and Select
 - Draft Integrated Guideline
 - External Review and Pilot

Caveats in Integrating Guidance From the Evidence

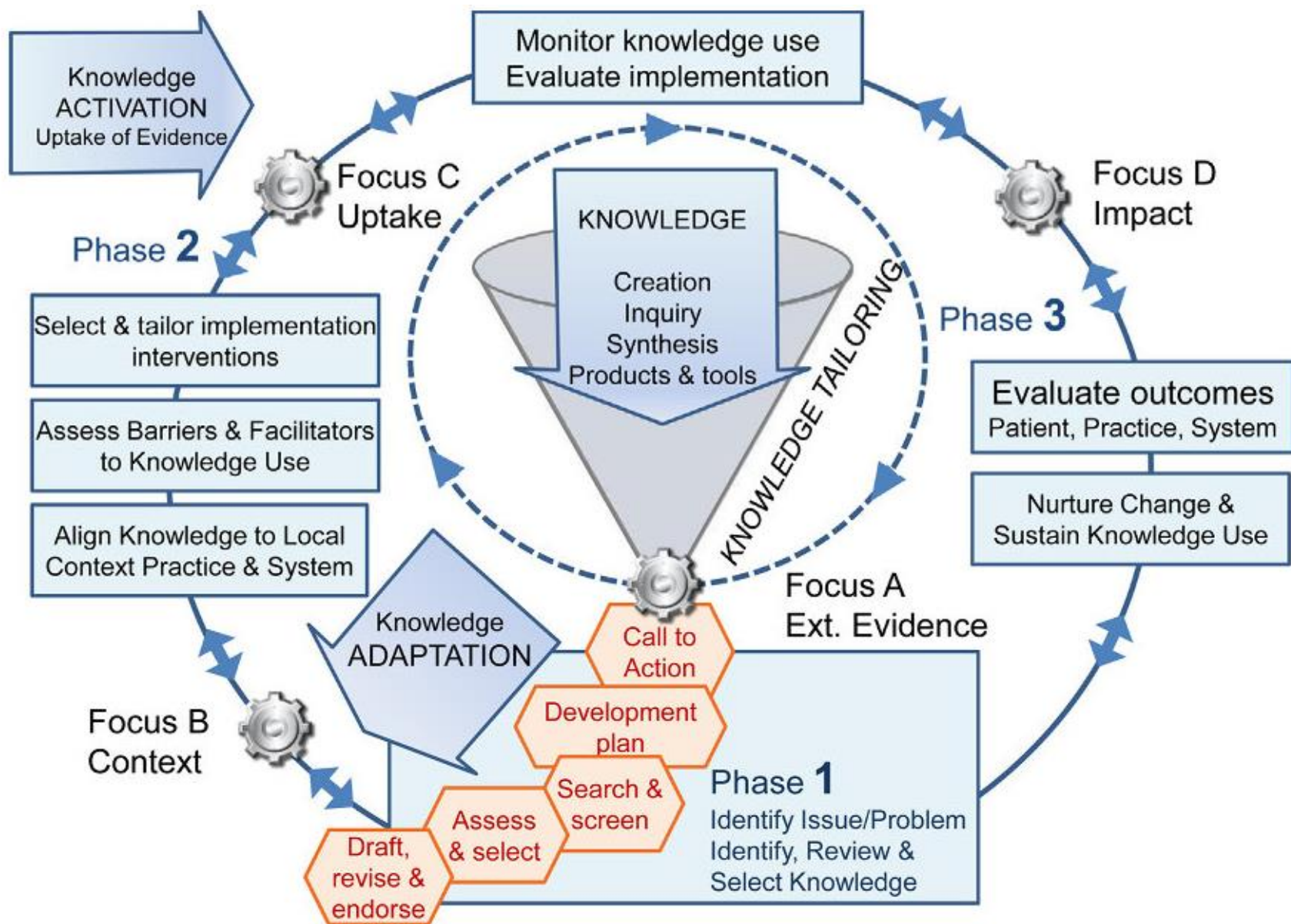
1. What is the applicability of an evidence base that has largely been developed in younger age groups?
2. What is the impact of and interaction between different kidney disease phenotypes?
3. What is the influence of multiple comorbid conditions

The health question is: when should we consider treatment with RAS antagonists in older people with kidney disease?

What does the older people with CKD look like?

What is the relative importance of comorbid conditions?

What implications does that have for treatment?

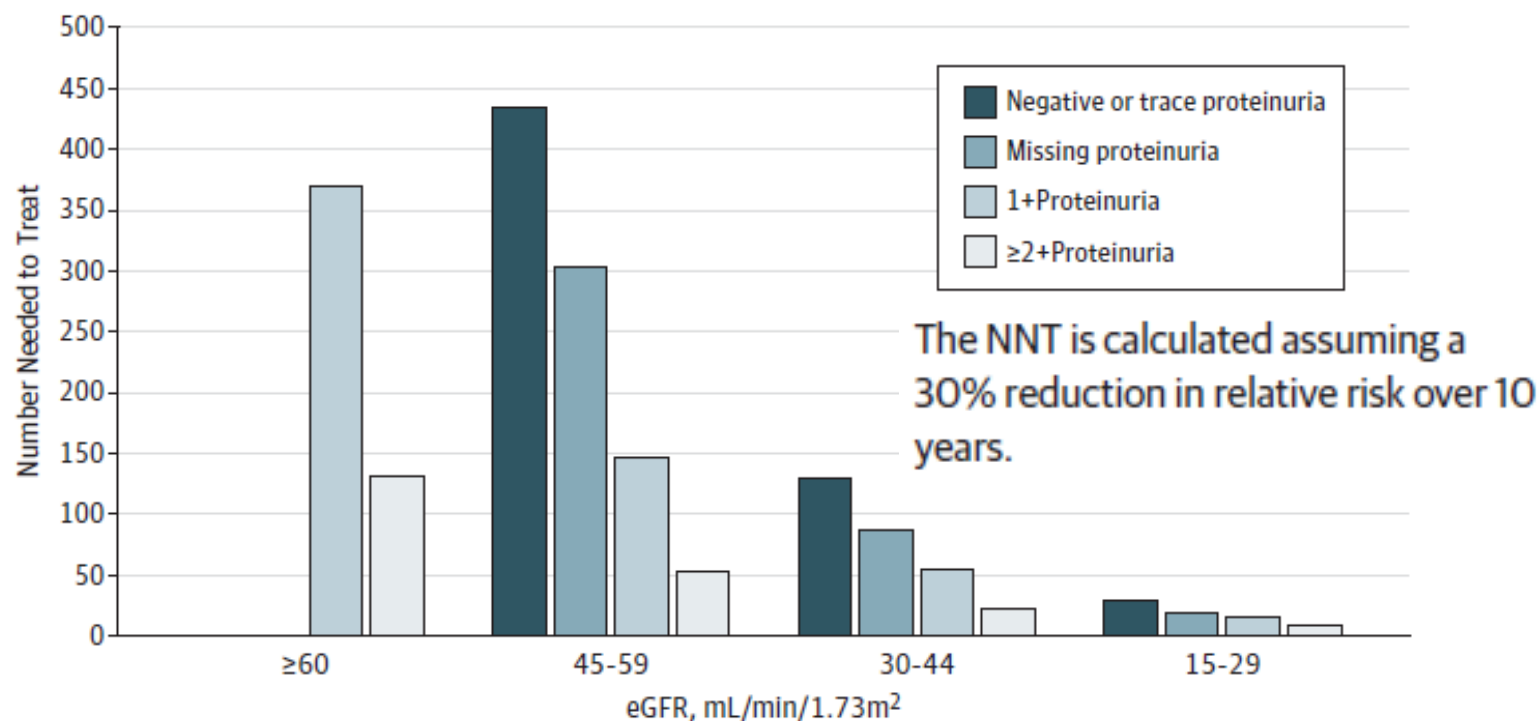


1. Elicit and incorporate patient preferences.
2. Recognize the limitations of the evidence base. Have outcomes relevant to the elderly, such as physical functioning and independent living, been adequately covered by the evidence considered?
3. Consider risks and benefits, burdens, and prognosis before making any clinical management decisions. Clinicians and researchers traditionally focus prognosis on remaining life expectancy, but it is important not to lose sight of functional disability and quality of life when thinking about management decisions.
4. Evaluate treatment complexity and feasibility. Polypharmacy and its relationship to nonadherence are well known, but complex regimens also carry additional risks.
5. Maximize benefit, reduce harm, and improve quality of life.

Interpreting Treatment Effects From Clinical Trials in the Context of Real-World Risk Information

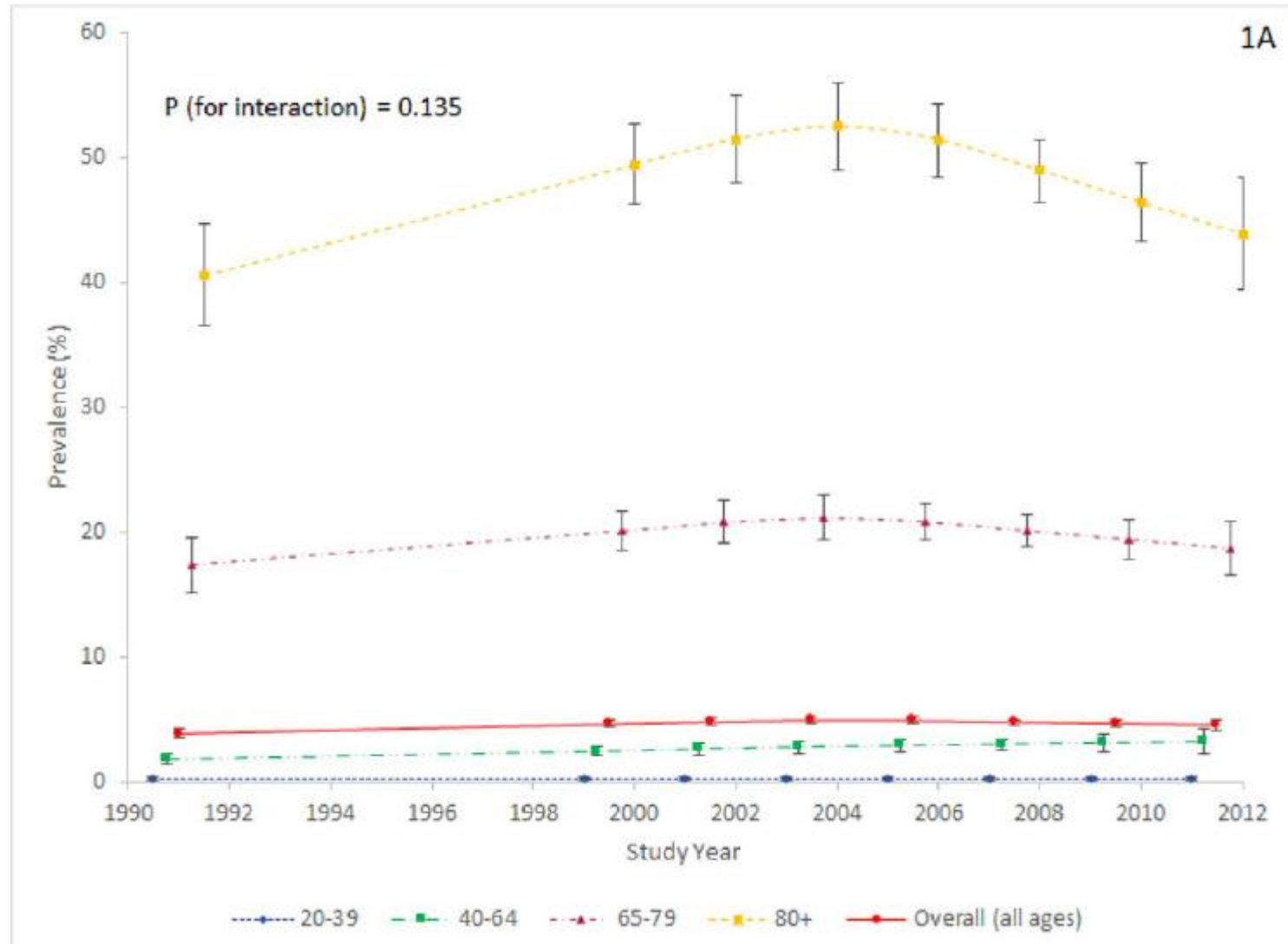
End-Stage Renal Disease Prevention in Older Adults

Figure. Number Needed to Treat (NNT) to Prevent 1 Case of End-Stage Renal Disease (ESRD) Over 10 Years



Trends in prevalence of chronic kidney disease in the United States

Ann Intern Med. 2016 October 04; 165(7): 473–481





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***Older individuals with CKD should be managed
by a multidisciplinary approach
(geriatrician, palliative care and nephrologist)
to achieve a better quality of life.***