KDIGO 2012 BP Guideline: Under Pressure

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KDIGO Controversies Conference
Blood Pressure Management in CKD

7th – 10th September 2017
Edinburgh, Scotland

Disclosures

- AstraZeneca
- Amgen
- Boehringer Ingleheim
- Janssen
- Merck
- Vifor Fresenius

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Blood pressure in chronic kidney disease stage 5D—report from a Kidney Disease: Improving Global Outcomes controversies conference

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Kidney International (2010) **77,** 273–284; doi:10.1038/ki.2009.469; published online 16 December 2009

2012 BP Guideline: Contributors

Guideline Co Chairs

- Gavin Becker (Australia)
- David Wheeler (UK)

Work Group Non Diabetes

- Mark Sarnak (USA) Chair
- Cibele Rodrigues (Brazil)
- Hallvard Holdaas (Transplant) (Norway)

Work Group Diabetes

- Charlie Tomson (UK) Chair
- Dick de Zeeuw (Netherlands)
- Guntram Schernthaner (Austria)
- Carmine Zoccali (Italy)

Work Group Diet & Lifestyle

- Vlado Perkovic (Australia) Chair
- Toshiro Fujita (ISH) (Japan)
- Suzanne Oparil (JNC8) (USA)
- Susan Furth (Pediatrics) (USA)

Evidence Review Team

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- Ashish Upadhyay
- Amy Earley
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KDIGO Staff

- Michael Cheung, Tom Manley
- Sean Slifer

KDIGO Chairs

- Kai-Uwe Eckardt (Germany)
- Bertram Kasiske (USA)

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2012 BP Guideline: Populations

- CKD Stages 1-5 not on dialysis
- Specific groups
  - Diabetes and Non-diabetes
  - Kidney transplant recipients
  - Children (<19)
  - Elderly

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Kidney inter. Suppl. 2012;2:337-414

Interventions and Comparators

- Lifestyle modifications vs. placebo
- Blood pressure lowering agent vs. Placebo
- Drug Regimen A vs. Drug Regimen B
- Achieved target A/B vs. Achieved target C/D

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Kidney inter. Suppl. 2012;2:337-414

Outcomes

- BP (lifestyle modifications only)
- Kidney – GFR, albuminuria, Dialysis
- Cardiovascular events
- Mortality

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BP Guideline: Not in scope

- Patients receiving dialysis (stage 5D CKD)
- Prevention: patients with eGFR >60 ml/ min/1.73m^2 without albuminuria*
- How to measure BP*
- Technical aspects of ambulatory BP monitoring or self measured BP*
- In depth pharmacological reviews*
- Management of renal artery stenosis*

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*refer to prior guidelines as appropriate

BP Guideline Work Group Timetable

- Jan 16th -17th 2010 Work Group Meeting 1 Boston
- May 8th – 9th 2010 Work Group Meeting 2 London
- Sep 11th-12th 2010 Work Group Meeting 3 New York
- Jan 2011 Draft Document
- July 2011 Publication date

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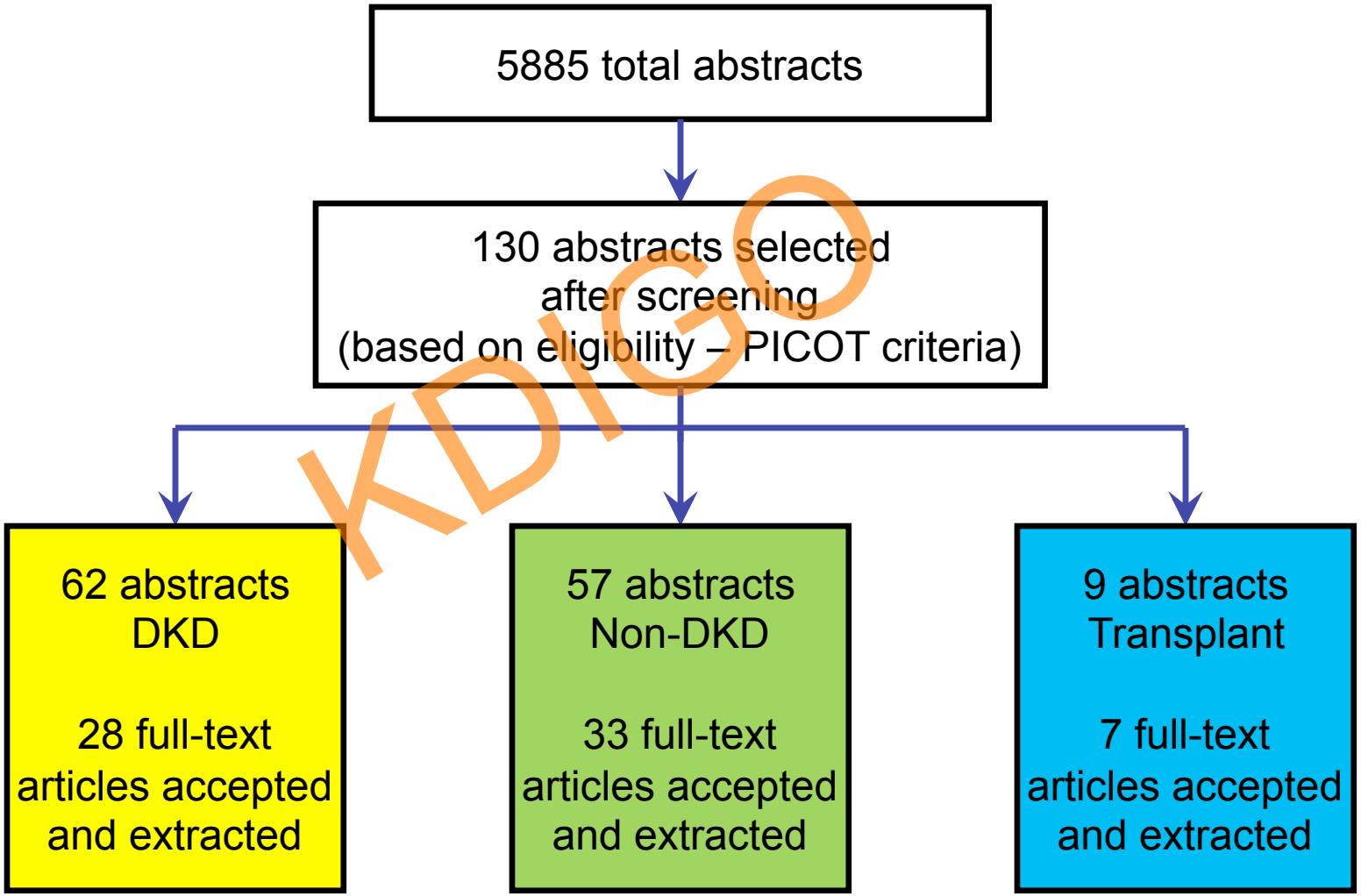
KDIGO 2012 BP Guideline: Literature Yield



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KDIGO 2012 BP Guideline: Summary

- Lifestyle modifications as per no CKD
- ≤140/90 mmHg
- ≤130/80 mmHg if albuminuria (>3 mg/mmol)
- ACE or ARB if albuminuria (>3 mg/mmol)
- Individualize treatment

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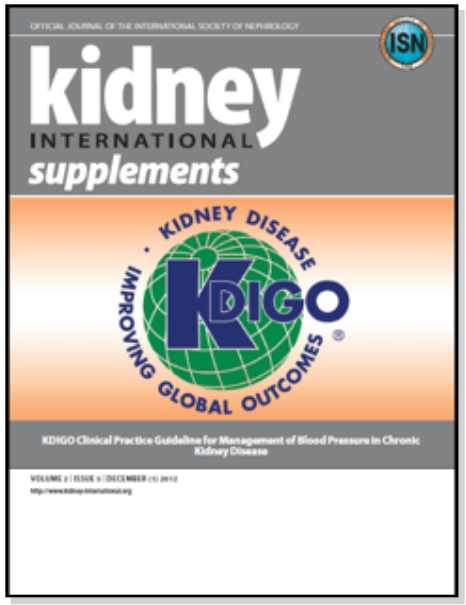

KDIGO Blood Pressure Work Group:
Kidney Inter. Suppl. 2012;2:337-414

KDIGO blood pressure target: Recommendations in stage 1-5 CKD

Alb:Cr ratio mg/mmol	BP Target CKD No Diabetes	BP Target CKD with Diabetes
<3 (A1, normo)	≤ 140/90 (1B)	≤ 140/90 (1B)
3-30 (A2, micro)	≤ 130/80 (2D)	≤ 130/80 (2D)
>30 (A3, macro)	≤ 130/80 (2C)	≤ 130/80 (2D)

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KDIGO Blood Pressure Work Group: Kidney Inter. Suppl. 2012;2:337-414

KDIGO blood pressure agents: Recommendations in stage 1-5 CKD

Alb:Cr ratio mg/mmol	BP Target CKD No Diabetes	BP Target CKD with Diabetes
<3 (A1, normo)	No recommendation	No recommendation
3-30 (A2, micro)	ACE or ARB (2D)	ACE or ARB (2D)
>30 (A3, macro)	ACE or ARB (1B)	ACE or ARB (1B)

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Controversies

- Should we maximise blockade of the renin-angiotensin system (aldosterone antagonists, direct renin inhibitors)?
- Should albuminuria reduction be a target for treatment with antihypertensive therapies?
- Should ACE and ARB be discontinued in stage 5 CKD because they compromise residual kidney function?
- Are there genetic/racial differences that need to be taken into account when treating blood pressure in CKD?

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Future perspectives

- Renal data from ACCORD
- SPRINT trial

- Research recommendations

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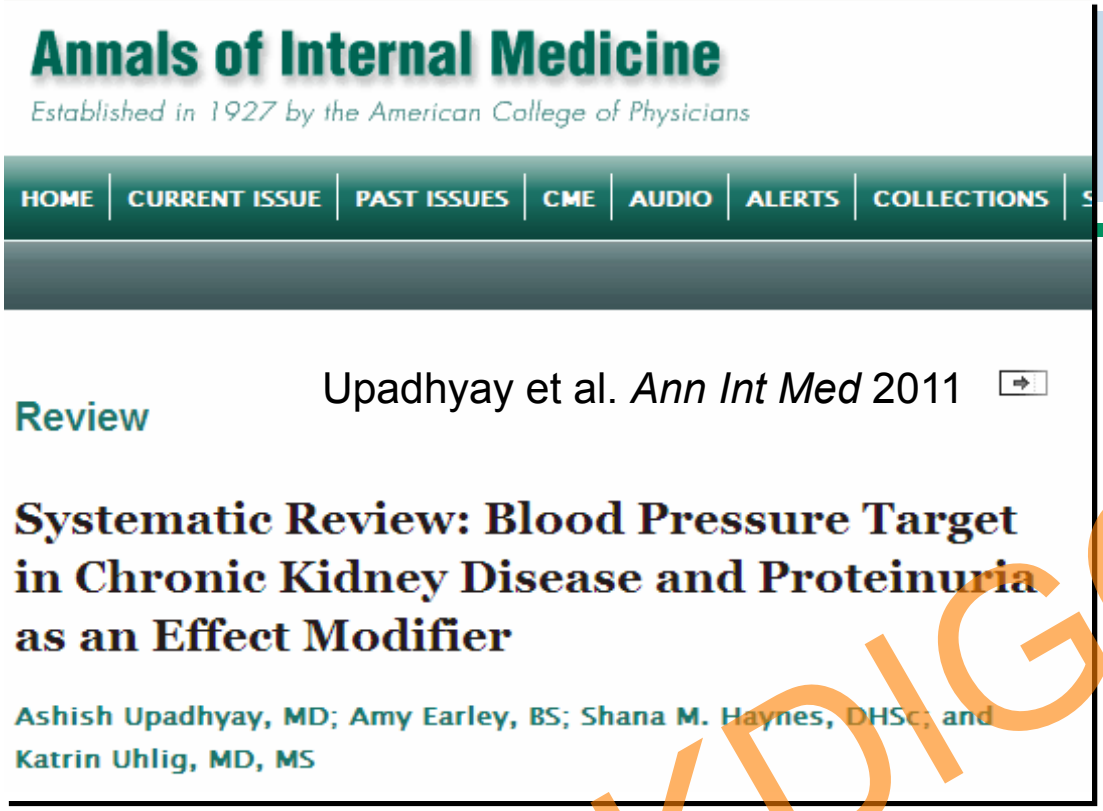

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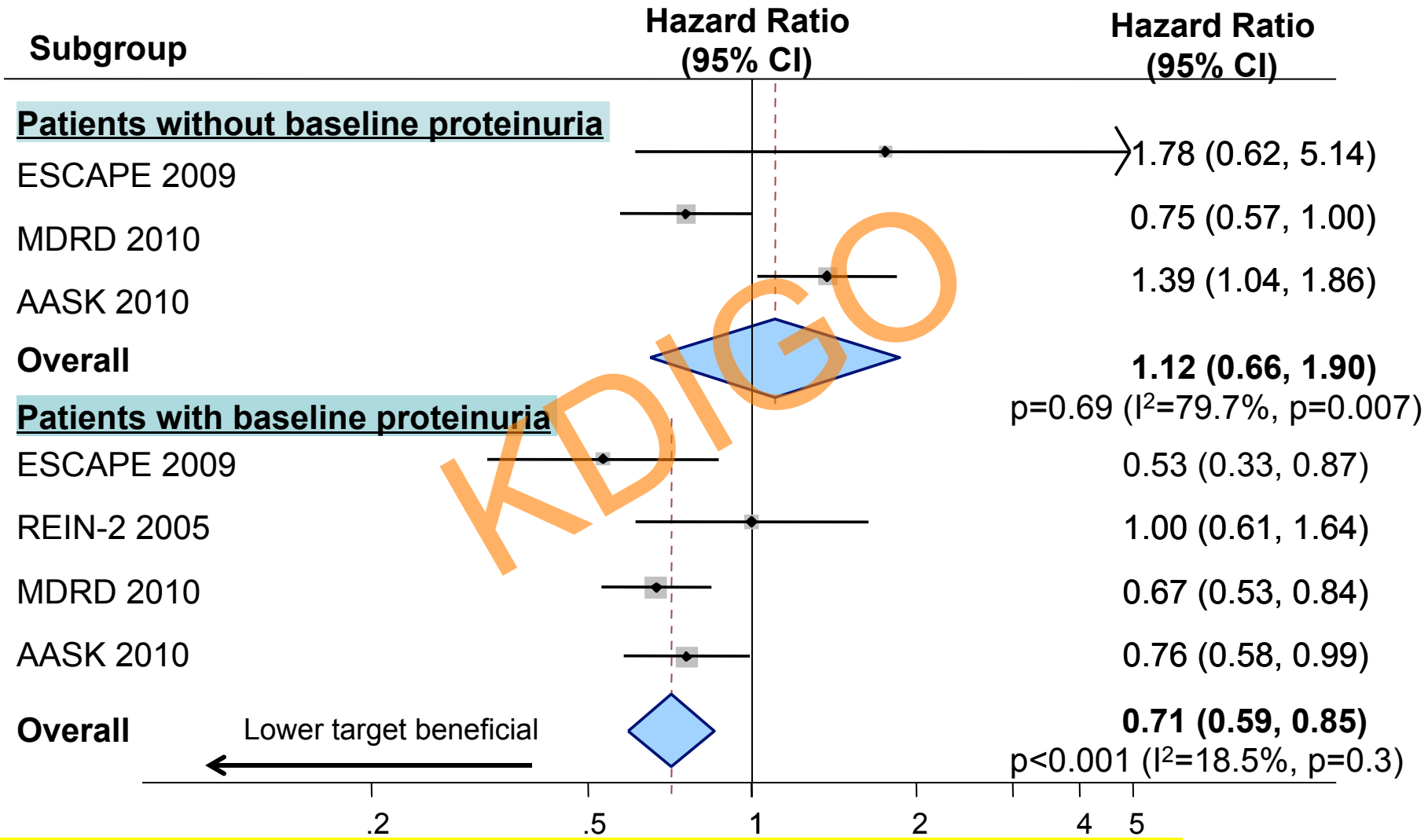
- Three trials with a total of 2272 participants were included.
- Lower blood pressure target of <130/80 mm Hg no more beneficial than a target of <140/90 mm Hg.
- Participants in the low target groups had a slightly higher rate of adverse events.
- Lower target may be beneficial in subgroups with proteinuria greater than 300 mg/d.

Meta analysis: Subgroup analysis for kidney outcome by baseline proteinuria (0.3g/day)



Heterogeneity proteinuric vs. non proteinuric p=0.006

Mean achieved systolic blood pressures 131.7 vs. 141.5 mmHg

Lv *et al*, CMAJ, 2013;185:949-957

JNC8 committee recommendations

Recommendation 4

In the population aged ≥18 years with chronic kidney disease (CKD), initiate pharmacologic treatment to lower BP at SBP ≥140 mm Hg or DBP ≥90 mm Hg and treat to goal SBP <140 mm Hg and goal DBP <90 mm Hg. (Expert Opinion – Grade E)

Recommendation 8

In the population aged ≥18 years with CKD, initial (or add-on) antihypertensive treatment should include an ACEI or ARB to improve kidney outcomes. This applies to all CKD patients with hypertension regardless of race or diabetes status. (Moderate Recommendation – Grade B)

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James PA et al, JAMA 2014;311:507-520

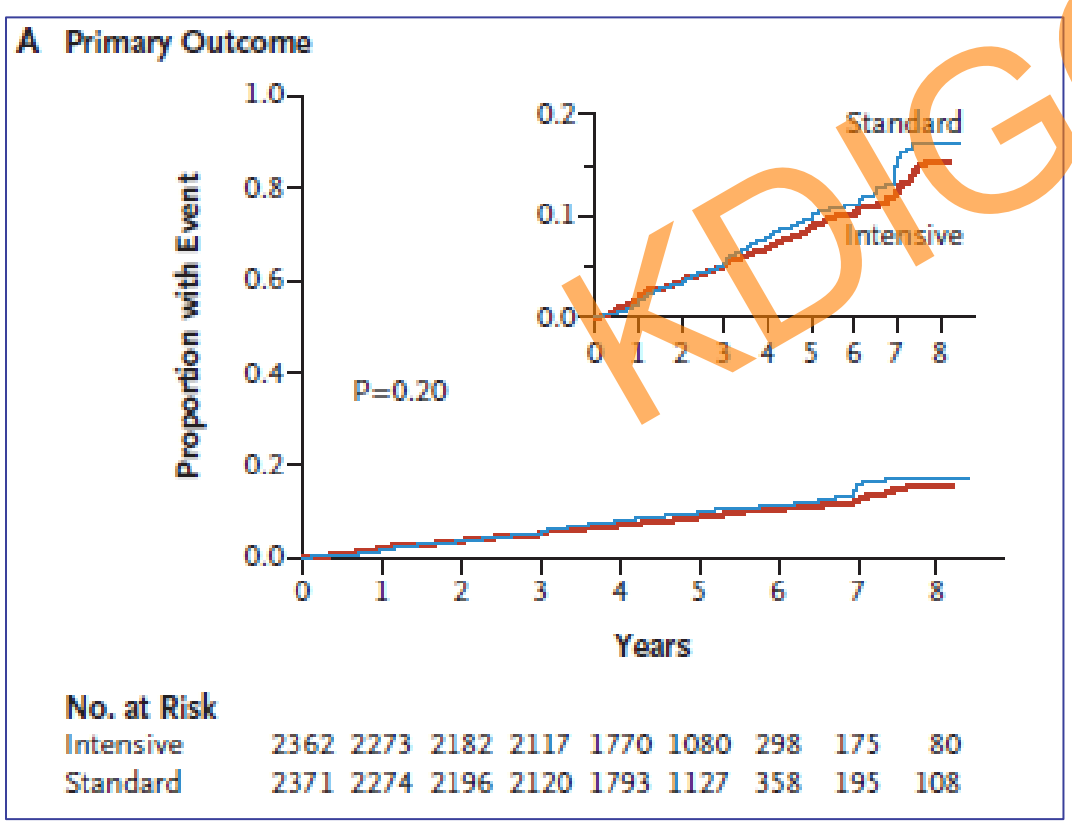
ACCORD study of BP targets in diabetes

ORIGINAL ARTICLE

Effects of Intensive Blood-Pressure Control in Type 2 Diabetes Mellitus

The ACCORD Study Group*

P = 4733 patients with type 2 diabetes
I = BP target <140 mmHg
C = BP target <120 mmHg
O = Cardiovascular events



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Kidney Events:

>1 x GFR < 30 ml/min/1.73m^2
Intensive therapy 38%
Standard therapy 32% (p=0.46)

The ACCORD Study Group
NEJM 2010;362:1575-85

SPRINT

Systolic Blood Pressure Intervention Trial

BMJ

19th Sept 2015

"US Officials said on 9th September that they decided to halt the study after an interim analysis of the data indicated that treating patients to achieve a target systolic BP of 120 mmHg instead of ….140 mmHg cut the rate of cardiovascular events"

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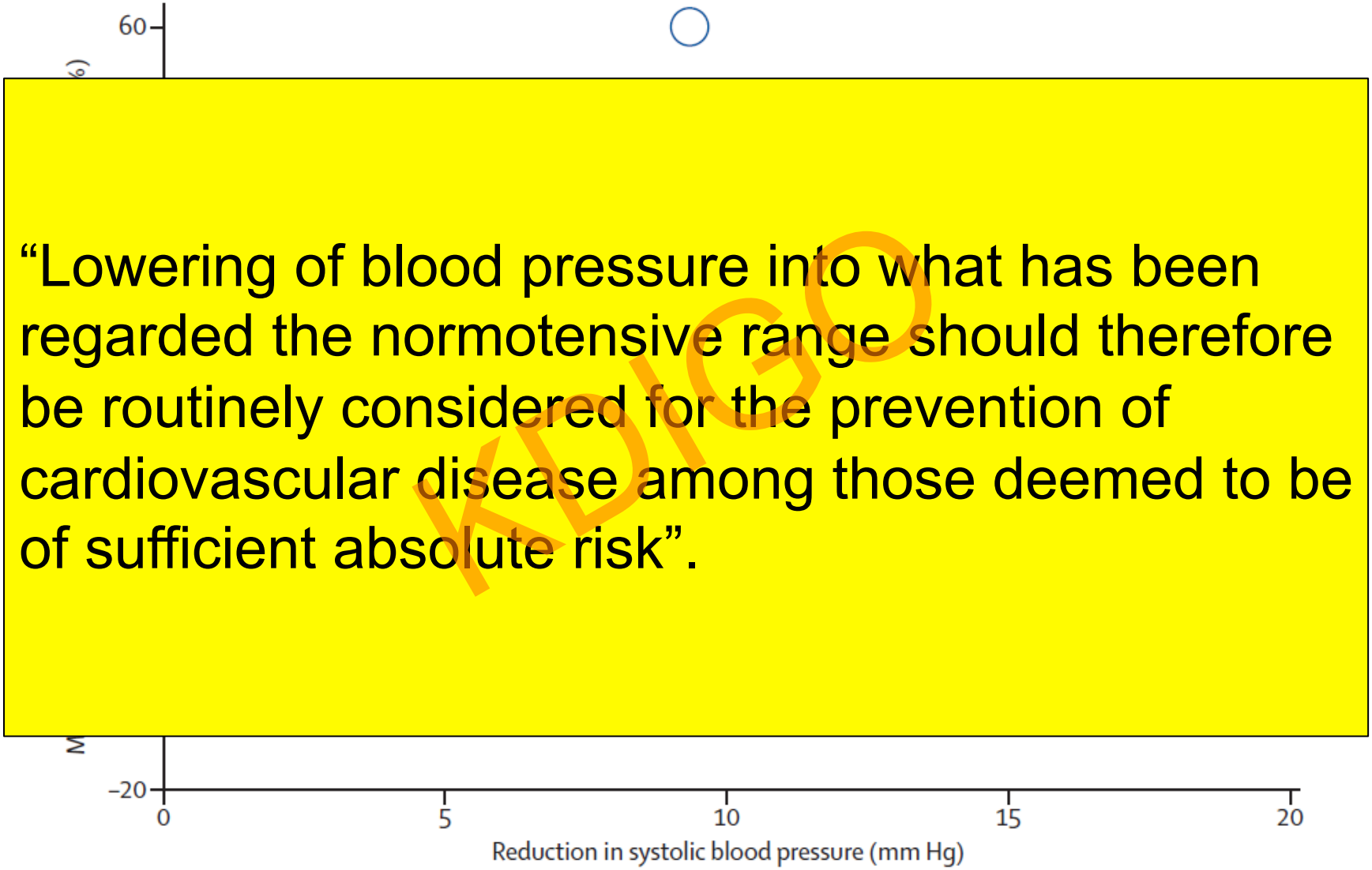
Lower Blood Pressure Guidelines Could Be 'Lifesaving,' Federal Study reveals

The New York Times

By GINA KOLATASEPT. 11, 2015

New meta-analysis: Lower is better



"Lowering of blood pressure into what has been regarded the normotensive range should therefore be routinely considered for the prevention of cardiovascular disease among those deemed to be of sufficient absolute risk".

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Ettehad D et al Lancet 2016;387:957-67

New evidence that changes current KDIGO recommendations

David C Wheeler
University College London, UK
KDIGO Co Chair

American Society of Nephrology 2015

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KDIGO 2012 BP Guideline: Reflection

- Recommendations divorced from evidence
- Unclear where data were extrapolated
- ± Diabetes does not really matter
- Pharmacopoeia unnecessary
- Implementation strategy?

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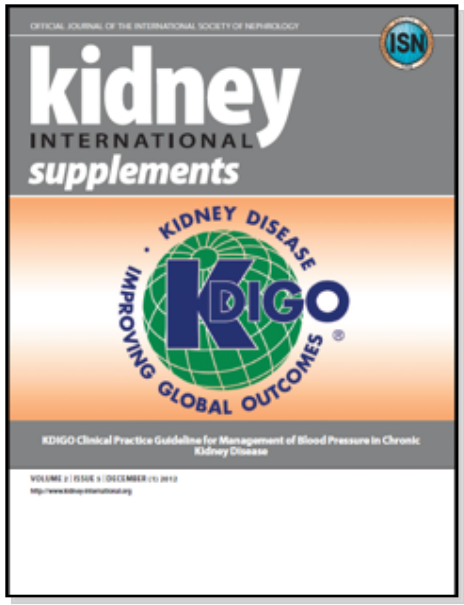

KDIGO Blood Pressure Work Group:
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KDIGO 2017 Guideline Update

Kidney Disease: Improving Global Outcomes