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To Boost or Not to Boost: Exploring blood sugar dilemmas

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Disclosure

• I have no financial relationships with ineligible companies related to this CE activity.

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Learning Objectives

• At the completion of this CE program, the participant will be able to:
  1. Define clinical inertia
  2. Discuss the causes and consequences of clinical inertia in types 2 diabetes
  3. Given a patient case, determine if you would boost or not boost treatment in a patient with type 2 diabetes
  4. Identify the ways that pharmacists can reduce clinical inertia

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Did you know?

• 34.2 million Americans—just over 1 in 10—have diabetes[1]
  • 88 million American adults—approximately 1 in 3—have prediabetes
• Only 1 in 4 US adults with diagnosed diabetes met care goals for hemoglobin **A**1C, **b**lood pressure, and **c**holesterol in 2018[2]
• $1 in every $7 is spent on treating diabetes and its complications[3]

1. Centers for Disease Control and Prevention. National Diabetes Statistics Report, 2020
2. MMWR Morb Mortal Wkly Rep 2020;69:1665–1670
3. *Diabetes Care.* 2018 Mar; dci180007

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Definition

• in·er·tia
  ▪ /iˈnərSHə/
  noun
  A tendency to do nothing or to remain unchanged

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The many definitions of clinical inertia

A disconnect between guidelines and clinical practice

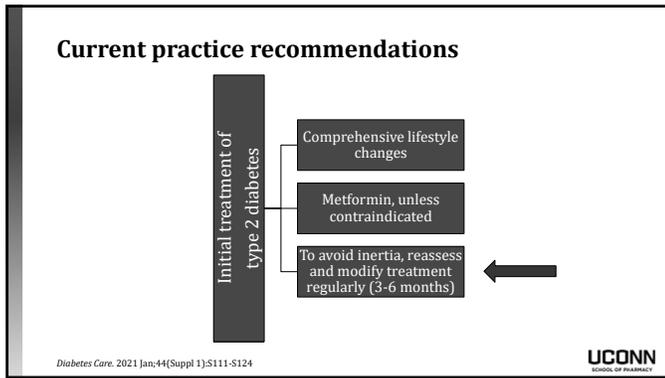Failure to start or intensify treatment when indicated

Failure to de-intensify treatment when indicated
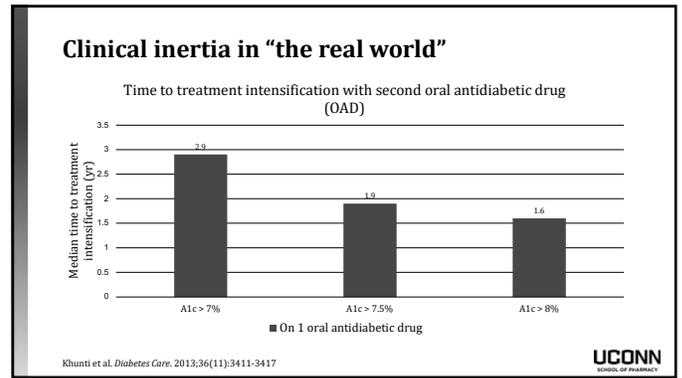
Failure to initiate insulin or establish goals of care

Lack of any intervention that can lead to prevention or progression of diabetes and its complications
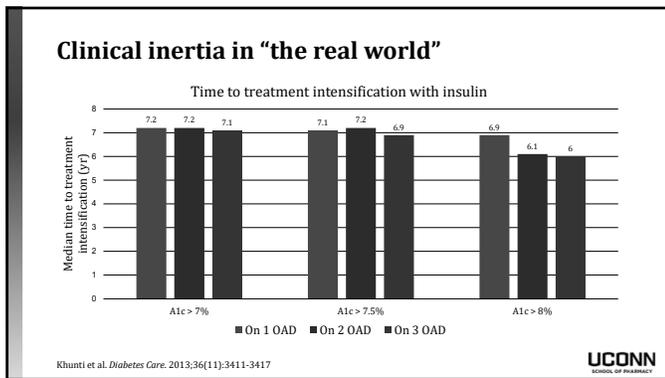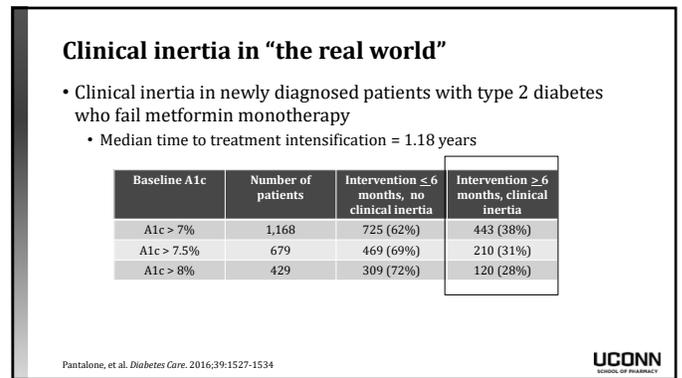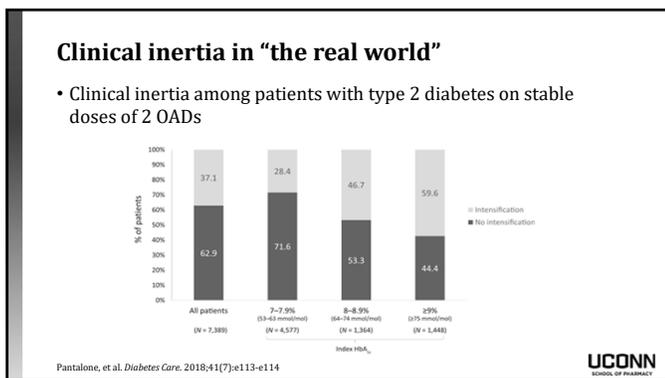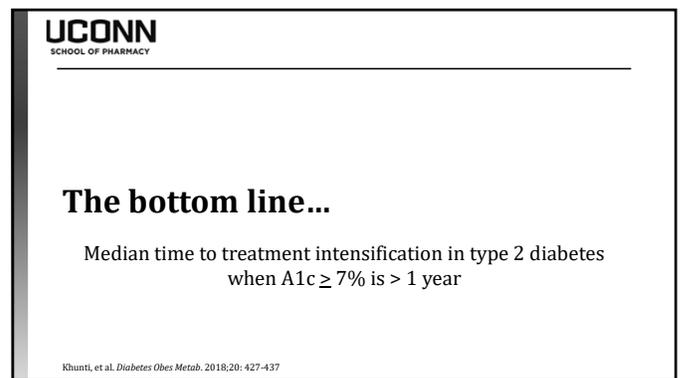
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Current practice recommendations

Initial treatment of type 2 diabetes

- Comprehensive lifestyle changes
- Metformin, unless contraindicated
- To avoid inertia, reassess and modify treatment regularly (3-6 months)

Diabetes Care. 2021 Jan;44(Suppl 1):S111-S124

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Clinical inertia in "the real world"

Time to treatment intensification with second oral antidiabetic drug (OAD)

Median time to treatment intensification (yr): A1c > 7% = 2.9; A1c > 7.5% = 1.9; A1c > 8% = 1.6

■ On 1 oral antidiabetic drug

Khunti et al. *Diabetes Care.* 2013;36(11):3411-3417

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Clinical inertia in "the real world"

Time to treatment intensification with insulin

A1c > 7%: 7.2, 7.2, 7.1; A1c > 7.5%: 7.1, 7.2, 6.9; A1c > 8%: 6.9, 6.1, 6

■ On 1 OAD ■ On 2 OAD ■ On 3 OAD

Khunti et al. *Diabetes Care.* 2013;36(11):3411-3417

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Clinical inertia in "the real world"

- Clinical inertia in newly diagnosed patients with type 2 diabetes who fail metformin monotherapy
  - Median time to treatment intensification = 1.18 years

Baseline A1c	Number of patients	Intervention ≤ 6 months, no clinical inertia	Intervention ≥ 6 months, clinical inertia
A1c > 7%	1,168	725 (62%)	443 (38%)
A1c > 7.5%	679	469 (69%)	210 (31%)
A1c > 8%	429	309 (72%)	120 (28%)

Pantalone, et al. *Diabetes Care.* 2016;39:1527-1534

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Clinical inertia in "the real world"

- Clinical inertia among patients with type 2 diabetes on stable doses of 2 OADs

Intensification / No intensification: All patients (N=7,389) 37.1/62.9; 7–7.9% (N=4,577) 28.4/71.6; 8–8.9% (N=1,364) 46.7/53.3; ≥9% (N=1,448) 59.6/44.4

Pantalone, et al. *Diabetes Care.* 2018;41(7):e113-e114

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The bottom line…

Median time to treatment intensification in type 2 diabetes when A1c ≥ 7% is > 1 year

Khunti, et al. *Diabetes Obes Metab.* 2018;20: 427–437

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The other bottom line...

Inertia goes both ways

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Consequences of inertia

1. Prolonged hyperglycemia
2. Increased risk of diabetes-related complications
3. Increased health care expenditure
4. Reduced life expectancy

Okemah et al. *Adv Ther.* 2018;35:1735-1745

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What drives inertia?

Okemah et al. *Adv Ther.* 2018;35:1735-1745

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What causes of inertia do you see in your workplace?

DISCUSSION

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To Boost or not to Boost

LET'S EXPLORE COMMON BLOOD SUGAR DILEMMAS

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Patient case 1

- KW is a 56 year old obese female diagnosed with type 2 diabetes 3 years ago. She currently takes metformin 1,000 mg PO BID, empagliflozin 25 mg PO daily, and dulaglutide 1.5 mg SC weekly. She is complaint with her follow-up visits and has been working on weight loss efforts. A review of her refill history supports proper medication adherence.
- PMH: T2DM, menopause, obesity, hypothyroidism, tobacco abuse
- Her current A1c is 7.2% (eAG = 160 mg/dL)

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Rationale to BOOST

- Intensive glycemic control significantly decreases rates of microvascular complications in patients with short-duration type 2 diabetes[1]
- Enduring effects of early glycemic control on most microvascular complications[2]
  - "Legacy effect"

1. UKPDS study group. *Lancet*. 1998;352:837–853
2. Holman et al. *N Engl J Med*. 2008;359:1577–1589

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What would you recommend to reduce inertia for KW?

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Patient case 2

- PP is an 87 year old female with type 2 diabetes diagnosed over 30 years ago. She currently takes insulin glargine (Glar-100) 22 units SC daily and insulin aspart 6 units SC TID before meals.
- PMH: T2DM, osteoporosis, CKD Stage 3, vascular dementia, HTN, TIA in 2017, osteoarthritis of the R knee, depression
- Social history: Lives alone, does not drive, requires interpreter services
- Her current A1c is 7.8% (eAG = 177 mg/dL)

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Rationale to NOT BOOST

Approach to Individualization of Glycemic Targets

Diabetes Care. 2021 Jan; 44(Supplement 1): S73-S84

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ADA recommendations on glycemic targets in older adults

Patient characteristics & health status	Rationale	Reasonable A1c goal	Fasting or pre-prandial glucose (mg/dL)	Bedtime glucose (mg/dL)
Healthy (few coexisting conditions, intact cognitive & functional status)	Longer remaining life expectancy	< 7-7.5%	80-130	80-180
Complex / intermediate (multiple coexisting conditions, 2+ instrumental ADL impairments, mild-to-moderate cognitive impairment)	Intermediate remaining life expectancy, high treatment burden, hypoglycemia vulnerability, fall risk	< 8%	90-150	100-180
Very complex / poor health (LTC or end-stage chronic illness or moderate-to-severe cognitive impairment or 2+ ADL dependencies)	Limited remaining life expectancy makes benefits uncertain	Avoid reliance on A1C; decisions should be individualized	100-180	110-200

ADL = activities of daily living   LTC = long term care
Diabetes Care 2021 Jan; 44(Supplement 1): S168-S179

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What would you recommend to reduce inertia for PP?

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Patient case 3

- TN is a 37 year old obese male presenting to his PCP for his annual wellness visit. He takes ergocalciferol 50,000 units once weekly. He generally feels well and has no complaints today.
- PMH: Obstructive sleep apnea, obesity, vitamin D deficiency
- Social history: Works from home, social smoker
- His current A1c is 5.7% (eAG = 117 mg/dL), fasting glucose = 108 mg/dL

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Rationale to BOOST

- Lifestyle modifications can reduce chance of developing diabetes by 58%[1]
  - 10-yr follow-up: Delays onset of T2DM by 34%[2]
  - 15-yr follow-up: Delays onset of T2DM by 27%[2]
- Taking metformin lowers chance of developing diabetes by 31%[1]
  - 10-yr follow-up: Delays onset of T2DM by 18%[2]
  - 15-yr follow-up: Delays onset of T2DM by 18%[2]

1. Diabetes Prevention Program Research Group. *N Engl J Med.* 2002;346:393–403
2. *Diabetes Care.* 2021 Jan; 44(Supplement 1): S34-S39

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What would you recommend to reduce inertia for TN?

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What is the pharmacist's role in reducing clinical inertia?

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The Pharmacist's Role

Okemah et al. *Adv Ther.* 2018;35:1735-1745

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The Pharmacist's Role

Team-based care	Collaborative practice agreements	End diabetes stigma
Identify appropriate patients	Enhance access to medications	Education

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Summary

- The decision to intensify a patient's antidiabetic treatment regimen is complex and multifactorial
- Clinical inertia has three primary causes: the provider, the patient, and health-system factors
- The need to prevent, or to intervene to eliminate, clinical inertia in diabetes management has never been greater
- Pharmacists are well positioned to help mitigate clinical inertia

US Pharm. 2018;43(10):25-34

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THANK YOU FOR YOUR ATTENTION AND PARTICIPATION!

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