A Manuscript Microscope 'Sentence Audit' of:

A Patient-Specific Model of Transcatheter Valve Replacement in a Bicuspid Heart Valve

What is the Manuscript Microscope Sentence Audit?

The Manuscript Microscope Sentence Audit is a research paper introspection system that parses the text of your manuscript into minimal sentence components for faster, more accurate, enhanced proofreading.

Why use a Sentence Audit to proofread your manuscript?

- Accelerated Proofreading: Examine long technical texts in a fraction of the usual time.
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Manuscript Source: https://www.biorxiv.org/content/10.1101/2021.03.05.433633v1

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Audit Date: 22/03/21 **Audit Identifier:** V8K9VZJMC2135IV **Code Version:** 3.6

Features of the Sentence Audit:

The Sentence Audit combines two complementary proofreading approaches:

1. Each sentence of your text is parsed and displayed in isolation for focused inspection.
2. Each individual sentence is further parsed into Minimal Sentence Components for a deeper review of the clarity, composition and consistency of the language you used.

The Minimal Sentence Components shown are the smallest coherent elements of each sentence of your text as derived from it's conjunctions, prepositions and selected punctuation symbols (i.e. commas, semicolons, round and square brackets).

The combined approaches ensure easier, faster, more effective proofreading.

Comments and Caveats:

• The sentence parsing is achieved using a prototype natural language processing pipeline written in Python and may include occasional errors in sentence segmentation.

• Depending on the source of the input text, the Sentence Audit may contain occasional html artefacts that are parsed as sentences (E.g. "Download figure. Open in new tab").

• Always consult the original research paper as the true reference source for the text.

Contact Information:

To get a Manuscript Microscope Sentence Audit of any other research paper, simply forward any copy of the text to John.James@OxfordResearchServices.com.

All queries, feedback or suggestions are also very welcome.

Research Paper Sections:

The sections of the research paper input text parsed in this audit.

Section No.	Headings	Sentences
Section: 1	Abstract	8
Section: 2	Introduction	19
N/A	--- --- --- --- --- --- ---	0
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The Sentence Audit Of The Research Paper

Title # A Patient-Specific Model of Transcatheter Valve Replacement in a Bicuspid Heart Valve

S1 [001] Abstract

S1 [002] Bicuspid Aortic Valves (BAVs) are a common congenital heart disease where two cusps of the aortic heart valve become fused together, this leads to two unequally sized leaflets compared to the normal trileaflet valve.

Bicuspid Aortic Valves ...
... (BAVs) ...
... are a common congenital heart disease ...
... where two cusps ...
... of the aortic heart valve become fused together, ...
... this leads ...
... to two unequally sized leaflets compared ...
... to the normal trileaflet valve.

S1 [003] Transcatheter Aortic Valves are currently used in off-label treatmet of stenosed BAVs, however, due to the abnormal valve anatomy, debate surrounds the sizing of transcatheter valves.

Transcatheter Aortic Valves are currently used ...
... in off-label treatmet ...
... of stenosed BAVs, ...
... however, ...
... due to the abnormal valve anatomy, ...
... debate surrounds the sizing ...
... of transcatheter valves.

S1 [004] In this study, finite element models were developed to simulate the deployment of two different valves sizes (a 25 mm and a 27 mm) of the Lotus valve into the patient-specific aortic root geometry of a clinical stenosed BAV case.

In this study, ...
... finite element models were developed ...
... to simulate the deployment ...
... of two different valves sizes ...
... (a 25 mm ...
... and a 27 mm) ...
... of the Lotus valve ...
... into the patient-specific aortic root geometry ...
... of a clinical stenosed BAV case.

S1 [005] These models were used to investigate and compare the eccentricity, stress and mal-apposition of the two valve sizes.

These models were used ...
... to investigate ...

... and compare the eccentricity, ...

... stress ...

... and mal-apposition ...

... of the two valve sizes.

S1 [006] The results demonstrated that the 25 mm valve was the most suitable in terms of eccentricity and stress reduction.

The results demonstrated ...

... that the 25 mm valve was the most suitable ...

... in terms ...

... of eccentricity ...

... and stress reduction.

S1 [007] It was also shown that the smaller 25 mm valve size did not increase the likelihood of mal-apposition.

It was also shown ...

... that the smaller 25 mm valve size did not increase the likelihood ...

... of mal-apposition.

S1 [008] As the 25 mm valve was deemed suitable based on current sizing algorithms, on the basis of these results traditional annulus measurement and device sizing may be suitable in the case of the Lotus valve.

As the 25 mm valve was deemed suitable based ...

... on current sizing algorithms, ...

... on the basis ...

... of these results traditional annulus measurement ...

... and device sizing may be suitable ...

... in the case ...

... of the Lotus valve.

S2 [009] Introduction

S2 [010] Bicuspid Aortic Valves (BAVs) are a common congenital cardiac malformation of the aortic valve, where two cusps of the valve have become fused together due to a rheumatic or inflammatory process [1, 2].

Bicuspid Aortic Valves ...

... (BAVs) ...

... are a common congenital cardiac malformation ...

... of the aortic valve, ...

... where two cusps ...

... of the valve have become fused together ...

... due to a rheumatic ...

... or inflammatory process ...

... [1, 2]...

... .

S2 [011] BAVs are the most common congenital valve abnormality and have been found to occur in 0.5-2% of patients [3–6].

BAVs are the most common congenital valve abnormality ...
... and have been found ...
... to occur ...
... in 0.5-2% ...
... of patients ...
... [3–6].

S2 [012] Studies have suggested that >20% of patients requiring TAVI procedures are BAV patients [7, 8].

Studies have suggested ...
... that >20% ...
... of patients requiring TAVI procedures are BAV patients ...
... [7, 8]...
... .

S2 [013] A BAV is comprised of two, often unequally sized, leaflets instead of the normal tri-leaflet aortic valve.

A BAV is comprised ...
... of two, ...
... often unequally sized, ...
... leaflets instead ...
... of the normal tri-leaflet aortic valve.

S2 [014] Figure 1 shows a schematic of the different anatomic classifications of BAVs.

Figure 1 shows a schematic ...
... of the different anatomic classifications ...
... of BAVs.

S2 [015] It has been estimated that 90% of BAVs are Type I where the left and right leaflets are fused together [9].

It has been estimated ...
... that 90% ...
... of BAVs are Type I ...
... where the left ...
... and right leaflets are fused together ...
... [9].

S2 [016] The clinical trials that established TAVI as the standard treatment in inoperable patients excluded BAV patients [10–14].

The clinical trials ...
... that established TAVI ...
... as the standard treatment ...
... in inoperable patients excluded BAV patients ...
... [10–14].

S2 [017] Further to this, the treatment of BAV was contraindicated for earlier generation valves due to concerns regarding the elliptical anatomy of BAVs leading to valve malfunction and valve positioning [15–17].

Further ...
... to this, ...
... the treatment ...
... of BAV was contraindicated ...
... for earlier generation valves ...
... due to concerns regarding the elliptical anatomy ...
... of BAVs leading ...
... to valve malfunction ...
... and valve positioning ...
... [15–17].

S2 [018] This is due to the abnormal valve geometry of BAVs, which are commonly associated with eccentricity and factors such as asymmetrical valve calcification, difference in leaflet sizes and concomitant aortopathy [18–22].

This is ...
... due to the abnormal valve geometry ...
... of BAVs, ...
... which are commonly associated ...
... with eccentricity ...
... and factors ...
... such as asymmetrical valve calcification, ...
... difference ...
... in leaflet sizes ...
... and concomitant aortopathy ...
... [18–22].

S2 [019] In BAV patients treated with TAV, reports have associated BAVs with malfunction, mal-apposition, incomplete sealing, severe PVL and aortic regurgitation [16, 17, 23–25].

In BAV patients treated ...
... with TAV, ...
... reports have associated BAVs ...
... with malfunction, ...
... mal-apposition, ...
... incomplete sealing, ...
... severe PVL ...
... and aortic regurgitation ...
... [16, 17, ...
... 23–25].

S2 [020] However, due to increased experience and advances in technology, off-label treatment of BAV patients using TAVI is increasing [26].

However, ...
... due to increased experience ...
... and advances ...
... in technology, ...
... off-label treatment ...
... of BAV patients ...

End of Sample Audit

This is a truncated Manuscript Microscope Sample Audit.

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