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## Global dynam
## with age str

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Shanxi Un:

A heroin model with nonlinear
reproduction number is determ
employing the Lyapunov functi
stable if $R_0 \leq 1$; while the dru;
if $R_0 > 1$. Our results imply th
prevention play more importar

*Keywords*: Nonlinear incidence

Mathematics Subject Classific

## 1. Introduction

It has been reported that her
mated that about 23% of indi
spread of heroin habituation
nomena of epidemics, includi
[16]. Mathematical modeling
between preventions and tre
have been addressed mathem
(see [14, 27]). Generally, they
bles, heroin users or alcoholics
which denote by $S(t), U_1(t)$
on treatments for drug users
differential equations. For exa
demic model with distributed
$R_0$ which determines the extir
[8] got the global stability of